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EXECUTIVE SUMMARY

General objectives of HYDROUSA

The HYDROUSA project's emphasis is to fulfil the principles for best sustainable water governance and management through innovative, regenerative, nature-based, and circular solutions (e.g., OECD Principles on Water Governance, 2021). To be able to establish a supportive environment and to improve the yield, HYDROUSA will have to analyze the suitability and appropriateness of current relevant financing and funding opportunities, as well as the compliance and amenability of local legislation and regulations. Then potential financial chances and barriers for the implementation of new HYDROs and HYDROUSA projects can be identified. Despite the EU's goal to enhance the supportive environment and framework conditions for nature-based solutions and closed water loops, fragmentation of roles and responsibilities for water policymaking, operational management, environmental protection, water governance and regulation, and especially the lack of appropriate, just, or accessible funding vehicles seem to slow down HYDROUSA implementations

Objectives of the *Funding Opportunities Report*

This "Funding Opportunities Report" (deliverable D8.3) addresses numerous accessible opportunities to fund and finance HYDROUSA nature-based water solutions – taking the legislative, governance, regulatory, regional, and institutional complexity into consideration. Deliverable D8.3 provides an exhaustive overview in respect to funding and financing opportunities – to support decisions for the best and safe transferability, replicability, and widespread application of HYDROUSA solutions. In this report, financing and funding programs have been organized in tables to allow a quicker and broader use of the report's findings. The aim is to reach a covering of a large part of the initial capital expenditures (CAPEX), which entails a higher attractiveness and replicability of the HYDROUSA solutions (because of a shorter return on investment period).

In respect to financial implications, the HYDROUSA project gives answer to following topics:

- Full description of HYDROUSA exploitation scenarios, used technologies and target markets (D8.1)
- Internal sharing of intellectual properties and technology rights (Deliverable D8.2)
- Branding and marketing of HYDROUSA solutions (Deliverable D8.2)
- Financial assessments and business-planning (Deliverable D8.2)
- Funding opportunities for replication purpose (Deliverable D8.3)

The present report therefore addresses mainly the target groups of:

- water project developers from small to medium size with strong focus on nature-based solution,
- project managers and team members from replication sites
- researchers in the field of nature-based water solutions

Deliverable D8.3 is structured in six main chapters:

- **Chapter 1 Introduction** gives a detailed overview of the HYDROUSA project and its financial implications. It presents services, products, and technologies as well as the economic models of HYDROUSA solutions (costs and revenue streams) for a typical implementation of each HYDRO. It then explains the relations between the UN Sustainable Development Goals (SGDs) and water, between sustainable finance and financing sustainability within EU Policies, and it clarifies how this is relevant for funding water projects. It connects with the new European Green Deal, its Investment Plan and Just Transition Mechanism, the EU Action Plan "Towards Zero Pollution for Air, Water and

Soil”, the EU “Action Plan on Financing Sustainable Growth”, the EU “Taxonomy for Sustainable Activities”, and the Multiannual Financial Framework 2021-2027.

- **Chapter 2 Funding Opportunities – General Description** describes funding opportunities in general, summarizing the most relevant types of investment instruments and financing vehicles like direct funding & co-funding, loans & venture capital, classical investment & microfinance, guarantees & securitization, equity & bonds, blended instruments, and advising services. It then describes the area of influence of the financial instruments either thematically or geographically and provides relevant information for HYDROUSA replications. This chapter closes in a broad overview table of more than 30 collected funding opportunities.
- **Chapter 3 Survey of Financing and Funding Opportunities** summarizes the assessment about the knowledge, awareness, and experience of nine pre-selected funding vehicles, involving two stakeholder groups – the HYDROUSA team members and representatives from the replication sites. Chapter 3.2 exhibits the quantitative results on the questions asked and the qualitative results based on open questions. It ends with recommendations for the two stakeholder groups concerning good practices and pitfalls in respect to funding and financing opportunities.
- **Chapter 4 – Main EU and International Funding and Financing Opportunities** describes 17 different vehicles and/or programmes in detail as main EU and International Funding and Financing Opportunities. These are:
 1. PRIMA (Partnership for Research and Innovation in the Mediterranean Area, Chapter 4.1)
 2. Interreg (Chapter 4.2)
 3. European Regional Development Fund – ERDF (Chapter 4.3)
 4. Cohesion Fund (Chapter 4.4.)
 5. European Agricultural Fund for Rural Development – EAFRD (Chapter 4.5)
 6. European innovation partnership for agriculture – EIP Agri (Chapter 4.5)
 7. European Maritime Fisheries and Aquaculture Fund – EMFAF (Chapter 4.6)
 8. European Fund for Strategic Investments – EFSI (Chapter 4.7)
 9. InvestEU (Invest Europe) (Chapter 4.7)
 10. InnovFin – EU Finance for Innovators (Chapter 4.8)
 11. LEADER programme (Chapter 4.9)
 12. Green Climate Fund- GCF (Chapter 4.10)
 13. Natural Capital Financing Facility – NCFF (Chapter 4.11)
 14. The LIFE Programme (2021-2027) (Chapter 4.12)
 15. Horizon Europe (Chapter 4.13)
 16. European Circular Bioeconomy Fund – ECBF (Chapter 4.14)
 17. Innovation Fund by EU ETS (chapter 4.15)
- **Chapter 5 Alternative Funding & Financing Opportunities** gives away a wide range of alternative funding and financing opportunities and explains how the replication of HYDROUSA solutions could be financed and/or funded through entities and organizations apart from the sovereign instruments of the EU or other authorities. These are municipalities and regions, institutional investors like the World Bank, Regional Development Banks and International Financial Initiatives, sustainable banking institutions as in the Global Alliance for Banking on Values and like the Dutch Water Bank NWB. Further alternative opportunities are crowdfunding, microfinancing, business accelerators and start-up organizations, business angels and business angel networks and water utility organizations.



- **Chapter 6 – Recommendations and Outlook** gives recommendations in a general way as well as in the form of systematic step-by-step guidance towards a successful development and funding of HYDROUSA solutions. The seven steps are described in chapter 6.1 as follows:
 1. Defining purpose and core elements of the water project
 2. Determining the feasibility of the project
 3. Describing the revenue model of the project
 4. Mapping team and partners – for the selected region
 5. Searching for material funding opportunities
 6. Good negotiations and contracts to overcome gaps
 7. Securing revenue through a vital financial model

The funding opportunities report concludes in an outlook highlighting green finance as one of the most vital forces helping business and industry to shape supply and demand towards responsible and impactful solutions (chapter 6.2). Green and sustainable finance will strongly support the 17 Sustainable Development Goals (SDGs). It will re-place today's wickedness of the investment industry with a welcomed and valued supportiveness of the development of a sustainable world, even helping to end poverty, protect the environment and heal our planet.

D8.3 is implemented within the activities of T8.3. This report presents financing mechanisms that support further exploitation of HYDROUSA and faster deployment for the targeted replication sites.

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ABBREVIATIONS

ABSA	Amalgamated Banks of South Africa
ADB	Asian Development Bank
AF	Alternative Finance
AfDB	African Development Bank
AP	Accelerator programs
BAYLAT	Das Bayerische Hochschulzentrum für Lateinamerika
BIC Bratislava	Business & Innovation Centre Bratislava
C	Carbon
CAP	Common Agricultural Policy
CAPEX	Capital Expenditures
CARIFORUM	Forum of the Caribbean Group of African, Caribbean, and Pacific states
CBK	Cooperative Bank of Karditsa
CCS	construction and operation of carbon capture and storage
CCU	carbon capture and utilisation
CDP	former Carbon Disclosure Project
CEF	Closed-end funds
CFMCA	Coalition of Finance Ministers for Climate Action
CFSP	Cohesion Fund
CFSP	Common Foreign and Security Policy of the EU
CGFI	OECD Centre of Green Finance and Investment
CINEA	European Climate, Infrastructure and Environment Executive Agency
CIP	Competitiveness and Innovation Framework Program
CIP	Capital Improvement Program
CLLD	Community led local development
CO₂	Carbon dioxide
COSME	Competitiveness of Enterprises and SMEs
COVID-19	Corona Virus Disease 2019
CPI	Climate Finance Lab
CSA	coordination and support actions
CW	Constructed wetland
CYTED	Programa Iberoamericano de Ciencia y Tecnología Para el Desarrollo
DWD	Drinking Water Directive
EAFRD	the European agricultural fund for rural development
EaSI	EU Programme for Employment and Social Innovation
EASME	the Executive Agency for Small and Medium-sized Enterprises
EBA	European Banking Authority
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	Export Credit Agencies
ECBF	European Circular Bioeconomy Fund
EFG	Equity Facility for Growth
EFSI	European Fund for Strategic Investments
EGF	European Globalisation Adjustment Fund



EIA	Environmental Impact Assessment
EIAH	European Investment Advisory Hub
EIB	European Investment Bank
EIC	European Innovation Council
EIC Accelerator	acceleration programme of the European Innovation Council
EIF	European Investment Fund
EIP-Agri	Agricultural European Innovation Partnership
EISMEA	European Innovation Council and SMEs Executive Agency
EIT	European Institute of Innovation & Technology
EIT CLIMATE KIC	European Institute of Innovation & Technology Climate-Knowledge and -Innovation Community
ELENA	European Local Energy Assistance
EMFAF	European Maritime, Fisheries and Aquaculture Fund
EMV	Ending market value
ENI	European Neighborhood Instrument
ENI CBC MED	European Neighbourhood Instrument's Cross-Border Cooperation "Mediterranean Sea Basin Programme"
ENP	European Neighbourhood Policy
ENPI	European Neighbourhood and Partnership Instrument
ENRD	European Network for Rural Development
EP	Equator Principles
EPA	Environmental Protection Agency
EPA	Economic Partnership Agreement
EPC	engineering, procurement, and construction
EPEC	European PPP (Public-Private Partnership) Expertise Centre
ERC	European Research Council
ERDF	European Regional Development Fund
ESD	education for sustainable development
ESF	European Social Fund
ESG	Environment, Social and Governance (Investing)
ESIF	European Structural and Investment Funds
ETC	European Territorial Cooperation, also called Interreg
ETS	Emissions Trading System
EU	European Union
EU GD	European Green Deal
EU-APFSG	EU Action Plan on Financing Sustainable Growth
EUFRAS	European Forum for Agricultural and Rural Advisory Services
EUREKA	European Research Coordination Agency
FAO	Food and Agriculture Organization
FC4S	International Network for Financial Centers for Sustainability
FEAD	Fund for European Aid to the Most Deprived
FFEM	Fonds français pour l'environnement mondial – French Facility for Global Environment
FSB-TCFD	Financial Stability Board – Task Force on Climate-related Financial Disclosures
GABV	Global Alliance for Banking on Values
GBP / SBP/ SBG	Green Bond Principles / Social Bond Principles / Sustainable Bond Guideline
GBTP	Green Bond Transparency Platform



GCF	Green Climate Fund
GD	Groundwater Directive
GDP	Gross Domestic Product
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GEF	Global Environment Facility
GF	Growth Fund (?? Figure 4.1)
GFRAS	global representative body for advisory services
GHG	greenhouse gas
GIIN	Global Impact Investing Network
GIZ	German Corporation for International Cooperation
GPOBA	Global Partnership on Output-Based AID
H₂O/H₂O	water
HLPF	High-level Political Forum on Sustainable Development
IA	innovation actions
IADB	Inter-American Development Bank
ICMA	Commission ICMA “The Principles” (Green, Social and Sustainable Bond Principles & Guidelines)
ICMA	International Capital Market Association
ICO	Instituto de Crédito Oficial
ICT	Information and communications technology
IDA	International Development Association
IIF	Institute of International Finance
IMF	International Monetary Fund
IMP	Impact Management Project
InnovFin	EU Finance for Innovators
Interreg	European Territorial Cooperation, also called ETC
InvestEU	Invest Europe
IOSCO	International Organization of Securities
IPCC	Intergovernmental Panel on Climate Change
IPOs	Initial Public Offerings
IPSF	International Platform on Sustainable Finance
IRIS+	Software for measuring, managing, and optimizing impact
IRR	internal rates of return
IsDB	Islamic Development Bank
IT	Information Technology
IUCN	International Union for Conservation of Nature
JESSICA	Joint European Support for Sustainable Investment in City Areas
JPI	Joint Programming Initiatives
JRC	Joint Research Centre
JTM	Just Transition Mechanism
kWh/year	kilo-Watt-hours per year
LAGs	local action groups
LAIF	Latin America Investment Facility
LDCs	less developed countries
LEADER	Liaison entre actions de développement de l'économie rurale
LGF	The Loan Guarantee Facility



LIFE	L'Instrument Financier pour l'Environnement / Financial Instrument for the Environment
LMA	Loan Market Association
MAP	Marrakech Pledge
MCP	Montreal Carbon Pledge
MED	Mediterranean
MENA	Middle East & North Africa
MFF	Multiannual Financial Framework
MPSF	Municipal Project Support Facility
NACE	Nomenclature Générale des Activités Économiques dans les Communautés Européennes
NBS	Nature Based Solutions
NCFF	Natural Capital Financing Facility
NCP	National Contact Points (for Horizon Europe)
NCP	Natural Capital Protocol + Supplement (Finance)
NDA	National Designated Authority
NDF	Nordic Development Fund
NGEU	Next Generation EU
NGFS	Central Banks and Supervisors Network for Greening the Financial System
NIB	Nordic Investment Bank
NWB	Nederlandse Waterschapsbank N.V.
O&M	operating and maintenance
OAG	other action grants
OBA	output-based aid
OECD	Organisation for Economic Co-operation and Development
OG	Operating Grants
OPEX	Operating Expense
OSS	Observatoire du Sahara et du Sahel
P2P	Peer to Peer
PF4EE	Private Finance for Energy Efficiency
PO1, PO2, PO3	Policy Objective 1, 2, 3
PPP	Public Private Partnership
PPP	public-private partnership
PRIMA	Partnership for Research and Innovation in the Mediterranean Area
PRIN	Partnership for Rural Inverness & Nairn
PSF	Private Sector Facility
PSIA	page 59: not sure about the right meaning here.
PSP	Private Sector Participation
R&I	research and innovation
RAB	Regulatory Asset Base Model
RDBs	regional development banks
REC	Rewilding Europe Capital
RIA	Research and Innovation Activities
RIS3	National/regional research and innovation strategies for smart specialisation
ROI	return on investment
RRF	Recovery and Resilience Facility
RWA	Regional Water Authorities



RWST	Rustenburg Water Services Trust
SAP	Standard Action Projects
SBN	Sustainable Banking Network
SDGs	Sustainable Development Goals (of the United Nations)
SEG	Saltwater evaporation greenhouse
SF	Sustainable Finance
SFWG	Institute of International Finance (IIF): Sustainable Finance Working Group
SIDS	Small Island Developing States
SIF	Sustainable Insurance Forum
SIP	Strategic Integrated Projects
SME	Small and Medium Sized Enterprises
SMEG	SME guarantee facility
SNAP	Strategic Nature Projects
SRDBs	Sub-Regional Development Banks
SRI	Socially Responsible Investment
SSE	Sustainable Stock Exchanges Initiative
SSWM	Sustainable Sanitation and Water Management Toolbox
TA	Technical Assistance Projects
TEG	Technical Expert Group (for EU Taxonomy)
TEN-T	Trans-European networks in the area of transport infrastructure
TFEU	Treaty on the Functioning of the European Union
UASB	Upflow anaerobic sludge blanket
UfM	Union for the Mediterranean
UN	United Nations
UN COP	UN COP / Paris Agreement
UN PRI	UN Principles for Responsible Investments
UN WWDR	United Nations World Water Development Report
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative
UNEP FI PRB	UNEP FI Principles for Responsible Banking
UNEP FI PSI	UNEP FI Principles for Sustainable Insurance
UNEP-SFSG	G20 Sustainable Finance Study Group
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UWWTD	Urban Wastewater Treatment Directive
WAREG	European Water Regulators
WFD	Water Framework Directive
WHO	World Health Organization
WSWR	Water, Sewerage, Waste and Remediation
WW	Wastewater
WWTP	Wastewater treatment plant
ZIM	Das zentrale Innovationsprogramm Mittelstand (Germany)



Country Codes

CH	Switzerland (country code)
DE	Germany (Deutschland) (country code)
DK	Denmark (country code)
EE	Estonia (country code)
FR	France (country code)
GR	Greece (country code)
HU	Hungary (country code)
IT	Italy (country code)
NL	The Netherlands (country code)
NO	Norway (country code)
RO	Romania (country code)
RS	Serbia (country code)
RU	Russia (country code)
SE	Sweden (country code)
SK	Slovakia (country code)
UA	Ukraine (country code)
UK	United Kingdom (country code)

0. GUIDE – HOW TO USE THIS DOCUMENT

One report for a diversity of user groups

In correspondence to the whole HYDROUSA project, this report addresses a diversity of different user groups. Project developers, technology providers, start-ups and pre-start-ups, municipalities, academic researchers, and regional developers were identified as main target groups of this report. Still there will be other motivations for using this report. Therefore, the guiding tables below were completed with the topics: geographical situation, alternative funding, specific instruments, and CAPEX-need. The lists are meant as helpful guides through the large document. And the lists are certainly not exhaustive. There is a great chance, we left out some user groups. If the guiding tables do not serve your specific purpose, please use the table of content as a guide.

What to expect of this document?

The aim of deliverable D8.3 is to reach a covering of a large part of the initial capital expenditures (CAPEX) of HYDROUSA solutions, which entails a higher attractiveness and replicability (because of a shorter return on investment period) by providing an exhaustive overview in respect to funding and financing opportunities – to support decisions for the best and safe transferability, replicability, and widespread application of HYDROUSA solutions. In this report, financing and funding programs have been organized in tables to allow a quicker and broader use of the report's findings. However, the main funding opportunities are described in more detail.

How to use this document

For many a project developer using this document, especially if you are not very experienced, it might save much time and efforts if you start working with the step-by-step guidance towards a successful development and funding of HYDROUSA solutions in chapter 6. When you reach step 5 of the guidance – searching for material funding opportunities – the rest of this document eventually becomes much more relevant.

Now supposing that you are looking for funding and financing for the implementation of a HYDROUSA solution or another (water related) project, if you do not intend to work your way through the whole document, it is important to clarify at first which user group (target group) describes you most. It also helps to sort out your intention respectively what you are interested in. Guiding Table 0.1 (organized by target group) will then show you which chapter might provide you with helpful suggestions on which chapters might fit your needs.

If Guiding Table 0.1 does not suit your purpose, or if you know what instrument/program you are looking for, then Guiding Table 0.2 (organized by instruments) might lead you to the right chapters.

Whatever chapters Guiding Tables 0.1 and 0.2 point at, Guiding Table 0.3 (organized by CAPEX-need) is worth a glimpse! For instance, if the CAPEX you are trying to fund is less than 20.000€ you will not need to read into chapter 4.14 on the ECBF European Circular Bioeconomy Fund or chapter 5.3.3 on international financial initiatives. Or on the other hand, if your CAPEX-need amounts to over half a million Euros, you certainly do not need to read about microfinance, even if you are a project developer. In other words, Guiding Table 0.3 is going to tell which ones of the chapters that Tables 0.1 or 0.2 are pointing at, can probably be left out reading.

The colour-code in the table refers to the relevance and applicability to HYDROUSA replicating and/or correlating (small scale nature-based sustainable) water solutions. The dark green colour is signifying potentially high HYDROUSA relevance, and the light green colour is signalling a middle high relevance.

Table 0.1 Report essentials for specific target groups

Target group	if you are interested in	chapter	about
			potentially high HYDROUSA relevance
			potentially middle HYDROUSA relevance
project developer	types of instruments	2.1.	a selection of most important types of instruments
	direct funding (e.g., loans)	2.1.1.	direct funding and co-funding through loans, guarantees, etc.
		2.1.2.	loans from additional venture capital taking higher risks
	circular (bio)economy	4.1.	PRIMA – Partnership for Research and Innovation in the Mediterranean Area – provides funding through competitive calls
		4.14.	ECBF – European Circular Bioeconomy Fund – invests in growth-stage companies in the European bioeconomy
	business angels (networks)	5.8.	business angels (networks) private investors becoming involved as guide or mentor
	banks	5.3.	institutional investors: World Bank; Regional Development Bank; international financial initiatives
		5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;
	foundations	5.5.	private investors and/or impact investing organizations
technology developer & technology provider	scaling	5.3.	Institutional investors: World Bank; Regional Development Bank; international financial initiatives
		5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;
		5.5.	private investors and/or impact investing organizations
		5.8.	business angels (networks) private investors becoming involved as guide or mentor
	regional transition	4.2.	Interreg – European Territorial Cooperation, short overview
		4.3.	ERDF – European Regional Development Fund - focusing SMEs and the promotion of a low-carbon economy
		4.5.	EAFRD – European Agricultural Fund for Rural Development; a structural and

			investment fund; mostly loans, guarantees, equity, sometimes grants and other forms of assistance
		4.13	Horizon Europe – EU's key funding programme for research and innovation
	innovation funds	4.1.	PRIMA – Partnership for Research and Innovation in the Mediterranean Area: provides funding through competitive calls
		4.7.2.	InvestEU – guarantee instrument for SMEs and mid-caps
		4.13.	Horizon Europe – EU's key funding programme for research and innovation
		4.15.	Innovation Fund by EU ETS – funding programme for the demonstration of innovative low-carbon technologies: focus on highly innovative technologies and big flagship projects bringing significant emission reductions
	financing and support	5.8.	business angels (networks) private investors becoming involved as guide or mentor
start-up & pre-start-up	financing and support	2.	funding opportunities – general description and a selection of most important types of instruments
		4.1.	PRIMA – Partnership for Research and Innovation in the Mediterranean Area, provides funding through competitive calls
		5.5.	crowdfunding – raising money from many people via online platforms in order to finance projects and businesses; table of crowdfunding platforms
		5.7.	accelerator programs & start-up organisations – large range of different types of support and grants
		5.8.	business angels (networks) private investors becoming involved as guide or mentor
municipalities & regional authorities	RDB	5.3.2.	Regional Development Banks low- and middle-income countries
	EU/Authority	4.2.	Interreg – European Territorial Cooperation, short overview
		4.9.	LEADER – EU's "bottom up" approach: farmers, rural businesses, local organisations, public authorities, and individuals from different sectors come together to form a local action group
		4.12.	LIFE Programme (2021-2027) – European

			Union's funding instrument for the environment and climate action; co-finances projects with European added value
		4.13.	Horizon Europe – EU's key funding programme for research and innovation
scientists & researcher	Horizon Europe	4.13.	Horizon Europe – EU's key funding programme for research and innovation
regional manager & regional developer	project funding and/or financing	4.2.	Interreg – European Territorial Cooperation, short overview
		4.3.	ERDF – European Regional Development Fund; focusing on SMEs and on the promotion of a low-carbon economy
		4.9.	LEADER – EU's "bottom up" approach: farmers, rural businesses, local organisations, public authorities, and individuals from different sectors come together to form a local action group
		4.12.	LIFE Programme (2021-2027) – European Union's funding instrument for the environment and climate action; co-finances projects with European added value
		4.13.	Horizon Europe – EU's key funding programme for research and innovation

Table 0.2 Report essentials organized by instruments

instrument	chapter	about
loan/guarantee from authorities	4	main funding and financing opportunities
	5.1.	institutional investors
foundations (geographically and thematically sorted)	5.6.	private investors and impact investing
crowdfunding platforms	5.5.	crowdfunding, crowdfunding – raising money from many people via online platforms in order to finance projects and businesses; table of crowdfunding platforms
alternative banks	5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;
EU programs	4.1.	PRIMA – Partnership for Research and Innovation in the Mediterranean Area, provides funding through competitive calls
	4.2.	Interreg – European Territorial Cooperation, short overview
	4.3.	ERDF – European Regional Development Fund – focusing also on SMEs and on the promotion of a low-carbon economy
	4.4.	Cohesion Fund: supports among other investments in the environment, sustainable development, and energy a

		greener, low-carbon and circular economy
	4.5.	EAFRD – European Agricultural Fund for Rural Development – a structural and investment fund: mostly loans, guarantees, equity, sometimes grants and other forms of assistance
	4.6.	EMFAF – European Maritime Fisheries and Aquaculture Fund facilitates a. o. the economic and social vitality of coastal communities and innovation in the sustainable blue economy
	4.7.	InvestEU (and European Fund for Strategic Investments – EFSI) – guarantee instrument for SMEs and mid-caps
	4.8.	InnovFin – EU Finance for Innovators
	4.9.	LEADER – EU's "bottom up" approach; farmers, rural businesses, local organisations, public authorities and individuals from different sectors come together to form a local action group
	4.11.	Natural Capital Financing Facility – NCFF loans and investments in projects delivering on biodiversity and climate adaptation
	4.12.	LIFE Programme (2021-2027) – European Union's funding instrument for the environment and climate action, co-finances projects with European added value
	4.13.	Horizon Europe – EU's key funding programme for research and innovation
microcredits	2.1., 2.1.3.	types of instruments, investment, and microfinance
	4.5.	EAFRD – European Agricultural Fund for Rural Development; a structural and investment fund; mostly loans, guarantees, equity, sometimes grants and other forms of assistance
	5.3.	Institutional investors: World Bank; Regional Development Bank; international financial initiatives
	5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;

Table 0.3 Report essentials organized by CAPEX-need

CAPEX-need	recommended instrument	chapter	
Less than € 20.000	municipalities	5.1.	Municipalities and other organizational structure and funding sources for municipalities and water utilities
	microcredits	2.1., 2.1.3.	about microfinance amongst a selection of most important types of instruments
		4.5.	EAFRD – European Agricultural Fund for Rural Development; a structural and investment fund; mostly loans, guarantees, equity, sometimes grants and other forms of assistance
		5.3.	Institutional investors: World Bank;

			Regional Development Bank; international financial initiatives
		5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;
	crowdfunding	5.5.	raising money from many people via online platforms in order to finance projects and businesses; table of crowdfunding platforms
	accelerator programs & start-up organisations	5.7.	accelerator programs & start-up organisations – large range of different types of support and grants
€ 20.000 – € 100.000	municipalities	5.1.	Municipalities and other organizational structure and funding sources for municipalities and water utilities
	sustainable banking	5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank
	private and impact investors	5.6.	private investors & impact investing
	business angels (networks)	5.8.	business angels (networks) private investors becoming involved as guide or mentor
€ 100.000 – € 500.000	institutional investors	5.3.	Institutional investors: World Bank; Regional Development Bank; international financial initiatives
	sustainable banking	5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;
	private and impact investors	5.6.	private investors & impact investing
	business angels (networks)	5.8.	business angels (networks) private investors becoming involved as guide or mentor
over € 500.000	institutional investors	5.1.	Institutional investors: World Bank; Regional Development Bank; international financial initiatives
	sustainable banking	5.4.	sustainable banking institutions: Global Alliance for Banking on Values; NWB Bank – the Dutch Water Bank;
	private and impact investors	5.6.	private investors & impact investing
	ECBF	4.14	ECBF – European Circular Bioeconomy Fund: invests in growth-stage companies in the European bioeconomy

1. INTRODUCTION

A foreword from the Greek-Roman history

The exponential increase in project funding in the late 20th century is tempting the believe that funding projects on limited or non-recourse terms is a relatively new concept. But this is far from true. The financing of projects by the public purse, by institutional investors or by private donors (such as thematic or philanthropic foundations) has been known for many centuries. In addition to the purpose of ensuring the prosperous development of social infrastructure, funding is and has often been provided to spread the risk of an innovative, unsafe, or uncertain project among several partners. But the origin of project financing through risk sharing can be traced back to the ancient Greek and Roman loan system called *foenus nauticum* (Dentons, 2013). According to historians, sea voyages in the Mediterranean during Greek and Roman times were extremely dangerous adventures, mainly due to storms and pirates. As a result of these nautical dangers, some risk-averse merchants took out a maritime loan (*foenus nauticum*). This loan was made to share the risk of a specific trip with this lender. The *foenus nauticum* assumed that the merchant would be granted a loan for the purpose of buying goods on the outward journey. The loan could be repaid from the proceeds from the sale of these goods and probably also other goods that were bought abroad. If the ship with the cargo in question did not arrive safely at its home port, the loan was not repayable under the terms of the *foenus nauticum*. Historians also report that to safeguard their interests, lenders often sent one of their slaves on the trip to make sure the dealer was not trying to defraud the lender – perhaps an early ancestor of today's security trustee.

1.1. The HYDROUSA Project and its financial implications

The HYDROUSA project provides innovative, regenerative, and circular solutions for (1) nature-based water management closing water loops (almost possible in all the Mediterranean areas); (2) nutrient management, boosting the agricultural and energy profile; and (3) local economies based on partnerships approach between the public-, private sectors and the community. The services provided lead to a win-win-win situation for the economy, environment, and community within the water-energy-food-employment nexus.

HYDROUSA water loops include water from non-conventional sources including wastewater, rainwater, seawater, groundwater, and vapor water, all resulting in recovered and marketable products. HYDROUSA is demonstrating at large scale the feasibility and sustainability of innovative, low-cost water treatment technologies to recover freshwater, nutrients and energy from wastewater, salt and freshwater from seawater, and freshwater from atmospheric water vapor.

Water conservation solutions including aquifer storage and sustainable agricultural practices involving fertigation are applied in HYDROUSA. The solutions are mainly installed and are demonstrated on three touristic islands in Greece (Mykonos, Lesbos, and Tinos). Detailed technical and financial deployment plans have been established for replication in additional locations worldwide – the so called “replication sites”.

Through the on-site water loops of HYDROUSA, complex supply chains for resource recovery are not required, as producers are directly involved as consumers of derived products. HYDROUSA combines traditional skilled workmanship with modern ICT (Information and communications technology) integration in smart automation systems. HYDROUSA tries to revolutionize water value chains in Mediterranean areas and beyond, from water abstraction to sewage treatment and reuse. The proposed HYDROUSA solutions show massive potential to change the way humans interact with water, food, and energy as shown in Figure 1.1.

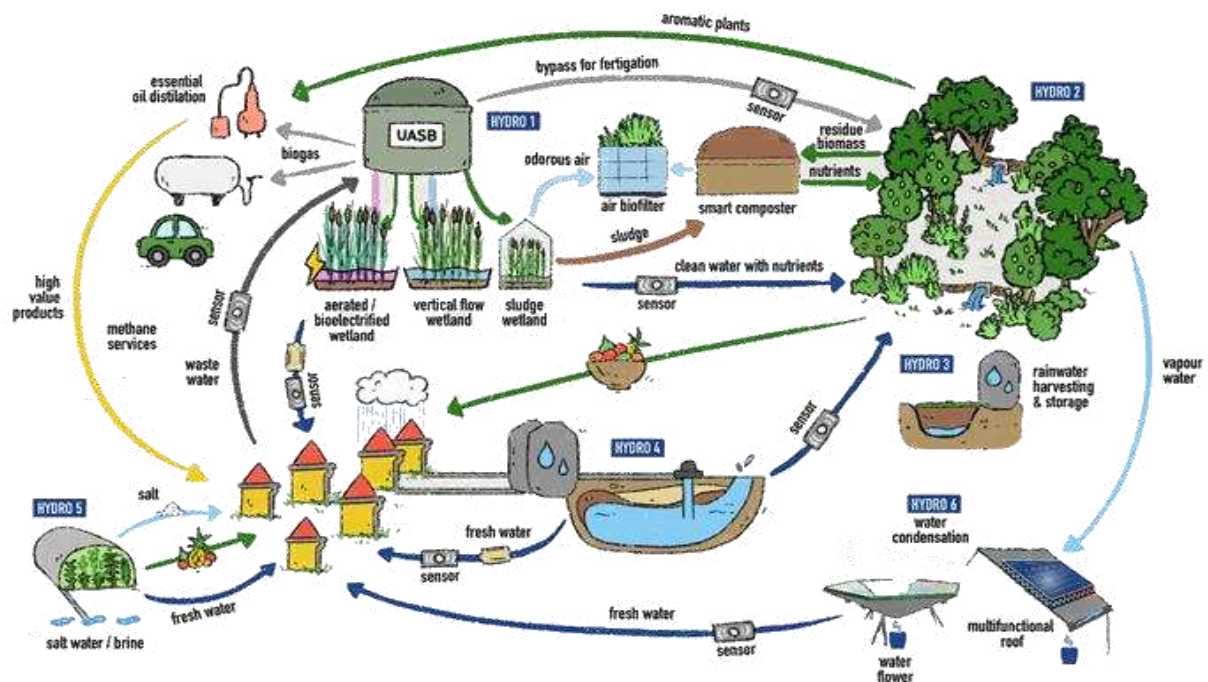


Figure 1.1: The HYDROUSA project in one picture

Figure 1.2 presents a simplified version of a HYDROUSA instigated value chain from non-conventional water production via agricultural production to water and crops supply for local markets and ecotourism.

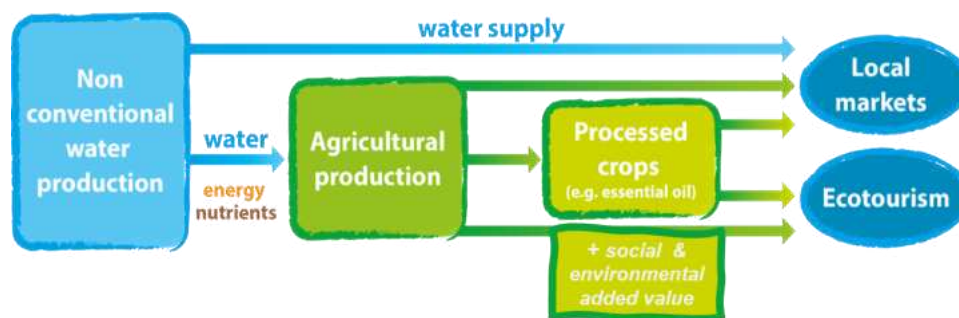


Figure 1.2: Cascading services creating economic sustainability from local water loops

HYDROUSA goes beyond the current water and wastewater management practices by adopting innovative, nature-based, and nature-inspired water management solutions for different types of non-conventional water characterized by low energy footprint via closing the water loops and boosting their agricultural and energy profiles (Figure 1.3). By closing water loops, the whole water value chain is transformed from a disruptive approach to an integrated one; turning the challenges faced by the water sector into opportunities.



Figure 1.3: HYDROUSA: water categories and related systems and products

Within the HYDROUSA project there are six different exploitation scenarios, so called HYDROS:

- **HYDRO1:** Resources recovery from wastewater treatment. It is based on the combination of several technologies/services: anaerobic treatment and sludge composting, wetlands water purifications, water reuse and biogas production.
- **HYDRO1&2:** Resources recovery from wastewater treatment together with an irrigation of agroforestry system using the nutrient-rich reclaimed water. It is based on the integrated solution: Anaerobic treatment and sludge composting, wetlands water purifications, water reuse and biogas production, irrigation, and design of agroforestry system.
- **HYDRO3:** Rainwater harvesting system and irrigation of high value crops with low irrigation requirements. It is based on construction of a sub-surface rainwater collection, and it uses a precision irrigation system.
- **HYDRO4:** Decentralised rainwater harvesting and aquifer storage and recovery system. It is based on building a residential rainwater collection structure comprising of three separate but interrelated subsystems for domestic use and for irrigation of local crops. It also uses slow sand filtration system and a precision irrigation system.
- **HYDRO5:** Seawater and brine desalination used to irrigate fruits in a greenhouse. It is based on a Mangrove system connected to a greenhouse which produces clean water via evaporation and condensation, edible salt, and crops.
- **HYDRO6:** Closing water loops within eco-tourist facilities. It is based on a combination of technologies/services: constructed wetlands, compost cultivator, water vapor condensation, precision irrigation systems, selection, and production of crops.

The unique competitive advantages of HYDROUSA solutions are based in these 3 principles:

- Innovative circular and integrated service provision approach
- Exploitation approach of cascading services for higher added value
- Partnerships approach between the public sector, the private sector, and the community

A review of some competitors has been carried out for individual technologies or know-how involved in each exploitation scenario to highlight potential advantages of HYDROUSA technologies, which is also presented in detail in D8.1. The following Table 1.1 (taken from D8.2) is presenting the different technologies and know-how necessary for each exploitation scenario.

Table 1.1 Technologies and services used in HYDROUSA exploitation scenarios

Technologies and services involved	HYDROUSA Exploitation Scenarios					
	HYDRO1	HYDRO1&2	HYDRO3	HYDRO4	HYDRO5	HYDRO6
UASB (Upflow anaerobic sludge blanket)	*	*				
Constructed wetland	*	*				*
Bio-electrified wetlands	*	*				
Aerated wetlands	*	*				
Integrated bio-composting unit	*	*				
Odour biofiltration (planted filter)	*	*				
Designing of agroforestry and /or selection of crops		*				*
Stone channel irrigation		*				
Precision irrigation system		*	*	*		*
Subsurface rainwater harvesting and collection system			*			
Rainwater harvesting and aquifer storage system				*		
Bioswale system for surface runoff & subsurface water management						
Slow sand filtration system				*		
Mangrove Still					*	
SEG (Saltwater evaporation greenhouse)					*	
Humidity condensation					*	
Water vapor condensation				*		*
Eco-tourism facilities with complete recycling						*

The non-exhaustive competitive assessment for the individual HYDROUSA technologies highlights that in most of the cases there are existing similar products on the market or tested in pre-market environments, but HYDROUSA brings advantages presented in Table 1.2 below. More detailed information is provided in D8.1 and D8.2.

Table 1.2 Competitive advantages of HYDROUSA technologies (conclusions)

HYDROUSA solutions	Technologies	Competitive advantages
HYDRO1	UASB + CW	Design enabling to manage seasonal load variations (from 10 to 100 m ³ /d) Lower footprint than a CW alone Low energy consumption Energy production
HYDRO1	UASB + composting unit	Wastewater treatment close to zero waste Energy production
HYDRO1	Bio-composting unit	Water removal without using mechanical means Production of high added value compost Odour filtration with planted filter
HYDRO3	Subsurface rainwater collection system	Filtration integrated in the collector avoiding cleaning maintenance Landscape integration
HYDRO4	Rainwater harvesting and storage in domestic environment	Know-how on aquifer storage Bioswale system for surface runoff & subsurface water management
HYDRO5	Mangrove Still	Scalable system Recovery of brine into edible salt Industrial solution Rainwater collection
HYDRO5	Saltwater evaporation greenhouse	Water production from greenhouse air humidity Reduction of risk of plant diseases
HYDRO6	Vapor condensation	Landscape integration Inspired by nature
HYDRO2, 3, 4, 6	Precision irrigation system	Low-cost weather and soil moisture sensor with cloud connectivity Fertigation combined with freshwater management

The economic models of HYDROUSA solutions, costs and revenue streams have been modelled for a typical implementation of each HYDRO in D8.2. The objectives of these economic simulations are:

- To assess the pay-back period for the organization exploiting the HYDROUSA solution. This assessment could then be used as marketing argument for attracting new consumers or to improve solution efficiency, if necessary.
- To provide a tool for rapid economic assessment of HYDROUSA solutions implementation in replication sites.

- To motivate public funding for capital investments, tax exemptions or other financial incentives by assessing and quantifying, when possible, the socio-environmental benefits.

Detailed tables of CAPEX, OPEX and revenue streams by technology for each HYDRO are presented in D8.2. Summary results with revenue streams, payback period estimation and some indicators are presented there for each HYDRO. The cost items considered to calculate the CAPEX and OPEX by technology are presented in the following two Tables 1.3. and 1.4 (taken from D8.2). All the cost items have been estimated with the partners involved in the HYDRO implementation, based on real costs (purchases or actions already done) or local market prices. When some development occurred for adapting a technology to HYDROUSA project, the related costs have not been considered.

Table 1.3 CAPEX items included in the economic models

CAPEX items	Description
Technological system cost	Including design (for the local conditions), material, components, land preparation, installation, and profit margin for HYDROUSA technology providers
Permits fees	when necessary for all construction works or activities impacting on public domain
Land purchase	in the case of HYDROUSA projects all lands were provided free of charge, but it might be necessary to consider this cost in a business perspective for replication on other sites
Product/service certification	of installations prior to operation, when relevant for sanitation systems or for organic production
Training	Always included in installation costs, kept for future application in replication when necessary

Table 1.4 OPEX items included in the economic models

OPEX items	Description
Energy requirement	expressed in kWh/year
Water requirement	In case addition water is necessary for irrigation purposes, in m ³ per year
Fertilisers	If recovered fertilisers are not sufficient, in kg/year
Consumables and maintenance costs	Spare items, plant replacing, external services for repairs, and monitoring
Workload for operation and maintenance	human resources expressed as several working days by year with an average daily cost including charges, based on Greek salaries
Insurance	Not considered for HYDROUSA pilots, might be relevant in areas with risks of natural hazards
Product packaging	For agriculture products (e.g., bottles for essential oil production)

The most relevant **revenue streams** are specific to the products or services provided by each HYDRO, either as savings for the operation of the HYDRO (avoided costs) or direct incomes related to sales. Table 1.5 below presents the different economic streams considered for each HYDRO.

Table 1.5 Revenue streams categories of the economic models

HYDRO solution	Economical streams	Revenue	Cost saving
1	Treated wastewater for irrigation Biogas Fertilizers Wastewater treatment tax	X X X X	
2	Fruits Berries Dry leaves, herbs, flowers Schools' visits Tourist Park entry Cultural touristic visits (guided)	X X X X X X	
3	Crops not transformed in essential Oil (Oregano) Essential oil (Oregano) Irrigation water sold	X X X	
4	Domestic non potable water Drinking water Essential oil (lavender) Domestic non potable water sold	 X X	X X
5	Fruits / crops produced Salt	X X	
6	Outdoor annual crops not transformed (vegetables) Greenhouse annual crops not transformed (vegetables) Aromatic herbs Schools' visits Organisation of training workshops e.g. permaculture	X X X X X	X X X

The **transferability** of HYDROUSA solutions will be demonstrated in other Mediterranean and water stressed places in 25 early adopter cases, so call "replication sites", in MED coastal areas and islands in Italy, Spain, Cyprus, France, Egypt, Croatia, Israel, Turkey, Palestine, Malta, Morocco, and Tunisia and at least 6 water-stressed rural or peri-urban areas from Bulgaria, China, UAE, Australia, Mexico, Chile, Malaysia, and Argentina. The locations of most sites are shown on the global map (Figure 1.4 below).



Figure 1.4: Global map of HYDROUSA transferability cases (replications sites)

1.2. The World we live in – UN SGDs & Water

Water is – like air and soil – essential to all life on earth. Fresh and clean Water is crucial for human health and societal well-being. It is the element for vitality without any other alternatives. Water touches almost every aspect of development, and it links with nearly every Sustainable Development Goal (SDG). It drives economic growth, supports healthy ecosystems, and is essential and fundamental for life itself. Some 2.2 billion people around the world do not have safely managed drinking water services; 4.2 billion people do not have safely managed sanitation services, and 3 billion lack basic handwashing facilities (World Bank, 2021). More key facts are given in Table 1.6 and in Annex 1.

Table 1.6: Key facts regarding water (UNICEF, 2021)

Key facts regarding water
• Worldwide, 2.2 billion people still lack access to safe drinking water.
• More than half of the global population does not have access to safe sanitation.
• Three billion people do not have access to handwashing facilities with soap.
• Still, 673 million people practice open defecation.
• Over 700 children under age 5 die every day of diarrheal diseases due to lack of appropriate WASH services.
• In areas of conflict, children are nearly 20 times more likely to die from diarrheal disease than from the conflict itself.

As we are already in the year 2021, almost all countries in the world have delivered their “National Implementation Plan” and/or their “National Report to the High-level Political Forum on Sustainable Development”. The high-level political forum on sustainable development (HLPF) is the core United Nations platform for follow-up and review of the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals. But many countries are still struggling to plan, resource and implement action either under SDG 6 or under other water related SDGs. If the water goal is to meet its targets by 2030, innovative solutions are urgently needed.

1.3. Sustainable finance – financing sustainability

The current international debate on sustainability focuses on environmental, particularly climate change related aspects. However, the term “Sustainable Finance” is conceptually broader, including the narrower term of green finance, but also social and governance-related aspects. Sustainable Finance (SF) refers to the integration of sustainability aspects in the decision-making processes of financial market actors, financial market policy and related institutional and market arrangements that contribute to the achievement of strong, sustainable, balanced, and inclusive growth (GIZ, 2020).

Several definitions include the following aspects in Sustainable Finance:

- (1) fiscal policy, including CO₂ pricing, taxation, and subsidies
- (2) carbon emissions trading and/or
- (3) financial compensation schemes for loss and damage due to results from climate change.

In this document, the focus is on the perspective of public, institutional and private financial sector actors regarding their decision-making towards financing (e.g., loans, taxation regimes, payment for environmental services, grants and donations), investment and insurance practices and the requirement to disclose such practices. Figure 1.5 is showing the different financing models regarding the 4-dimensional concept of Sustainable Development (Economic, Environmental, Social and Governance).

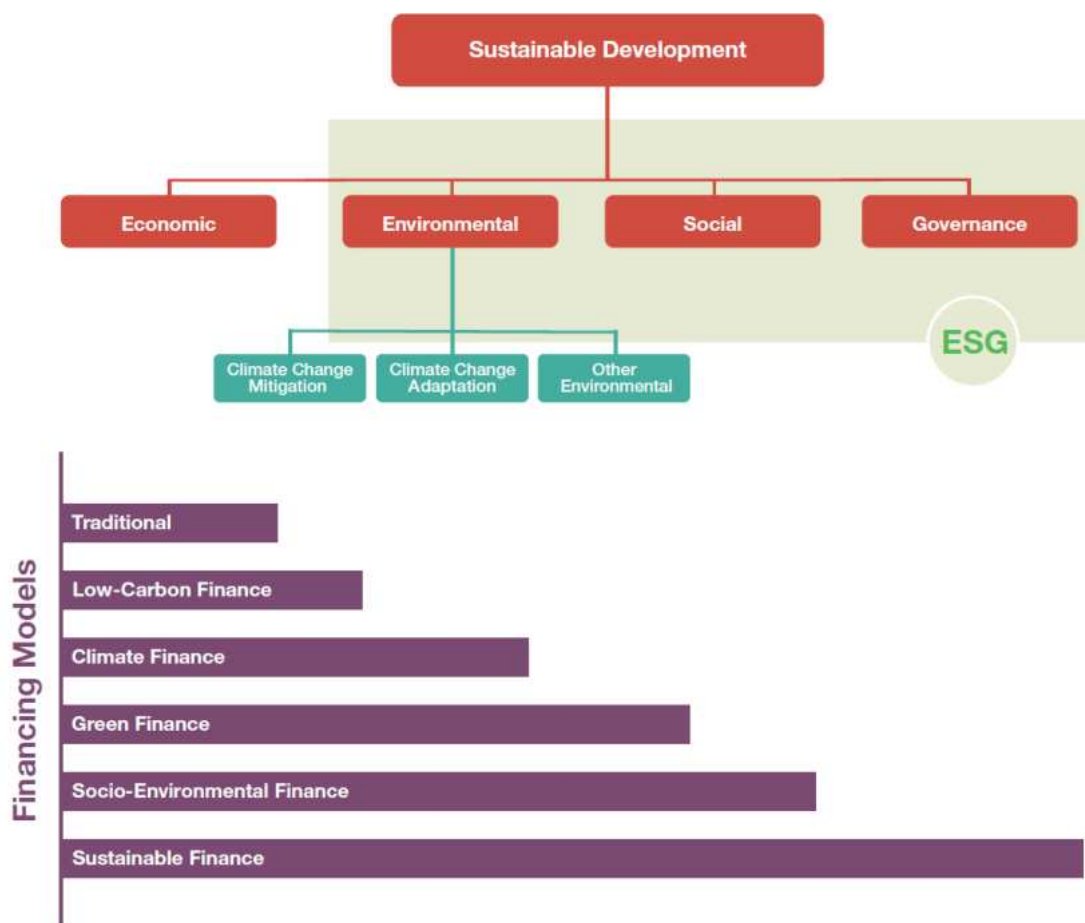


Figure 1.5: Financing Models for Sustainable Development (GIZ, 2020)

Investment products offered in the financial sector differ widely as to their degree of integrated Environmental-, Social-, and Governance-related (ESG) aspects such as SDG compliance. Some sustainability standards can be required by law e.g., the protection against child and forced labour.

Despite great investor appetite and the fact that there is generally no trade-off with financial performance, the – usually voluntary – further integration of ESG is still in an early stage. Impact-only driven investments with no or limited capacity and expectations to provide financial returns will remain an instrument for selected impact investors, receiving limited asset allocation. Depending on the intent, ESG processes can be undertaken as a risk mitigation or value creation tool (OECD, 2020).

As with the term Sustainable Finance, there is also no universal definition of the composition of Environmental-, Social-, and Governance-related (ESG) aspects. The following graphic (Figure 1.6) suggests some of the areas within each dimension that are included in the concept.

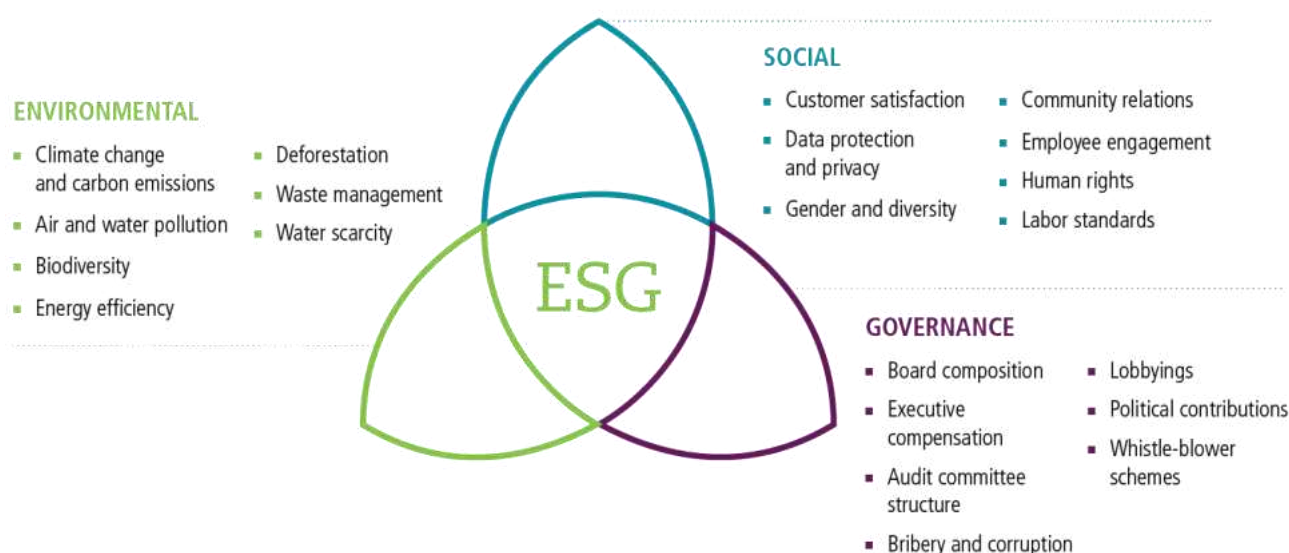


Figure 1.6: ESG Principles (Petter, 2019)

1.4. EU Policies and its relevance for water project funding

1.4.1. European Green Deal

The European Green Deal is a series of political initiatives by the European Commission with the overarching goal of making Europe climate neutral by 2050. The plan is to review every existing law for its climate benefits and to introduce new laws on the circular economy. Building renovation, biodiversity, agriculture, and innovation. The EU's Green Deal has objectives that span many different sectors, including construction, biodiversity, energy, transport, and food. Among other tasks it includes:

- A circular economy action plan,
- A review and possible revision of all relevant climate-related policy instruments, including the EU Emissions Trading System (EU ETS),
- A farm-to-fork strategy along with a shift in focus from compliance to performance (which rewards farmers for managing and storing carbon in the soil, improving nutrient management, reducing emissions, etc.);
- A revision of the Energy Taxation Directive, which examines subsidies for fossil fuels and tax exemptions (aviation, shipping) in detail,

- A sustainable and smart mobility strategy and an EU forest strategy. The latter will have the main objective of effective afforestation and the conservation and restoration of forests in Europe.

“EU Green Deal also leans on Horizon Europe, to play a pivotal role in leveraging national public and private investments. Through partnerships with industry and member States, it will support research and innovations on transport technologies, including batteries, clean hydrogen, low-carbon steel making, circular bio-based sectors, and the built environment.” (Wikipedia (1), 2021)

1.4.2. European Green Deal Investment Plan

The EU plans to finance the policies set out in the Green Deal through an investment plan – InvestEU, which forecasts at least €1 trillion in investment. Furthermore, for the EU to reach its goals set out in the deal, it is estimated that approximately € 260 billion a year is going to be required by 2030 in investments (EC. Financing the green transition, 2020). More information is given in Annex 2.

1.4.3. The Just Transition Mechanism

The Just Transition Mechanism is intended as tool to guarantee that the transition to a climate-neutral economy will take place in a fair way, without leaving anyone behind. This vehicle will provide at a minimum €100 billion between 2021 and 2027 for the most affected regions in order to alleviate socio-economic impacts caused by the transition. This is intended in addition to the European Green Deal Investment Plan that provides funds to all regions.

It will provide three main sources of financing:

- €7.5 billion of fresh EU funds as Just Transition Fund in the form of grants: member states together with the Commission will identify eligible territories. Each Euro from the fund will need to be matched by equal funds from the European Regional Development Fund and the European Social Fund Plus, in addition to national resources. Thus, the JTM funds will result in an effective investment of around €30 to €50 billion. Target activities are e.g., development of skills and competencies for future jobs, support for SMEs, startups and incubators, as well as investments in clean energy transition.
- €45 billion InvestEU: mobilize private investment for e.g., sustainable energy and transport
- €25 to €30 billion European Investment Bank backed public sector loan facility, i.e., for direct heating networks and building renovation.

(European Commission (2), 2020). More information is given in Annex 3.

1.4.4. EU Action Plan “Towards Zero Pollution for Air, Water and Soil”

This EU Action Plan is intended to reduce pollution to levels that don't harm human health and natural ecosystems by 2050. All relevant EU policies are integrated to face and prevent pollution. Special focus is put on using digital solutions in this process. The plan will also review all relevant EU legislation in order to identify remaining gaps and the need for improved implementation in order to meet existing legal obligations.

Focus areas are improvement of air, water and soil quality, reduction of EU ecosystems where biodiversity is threatened, reduction of disturbances through transport noise and reduction of waste generation.

(European Commission (3), 2021). More information is given in Annex 4.

1.4.5. EU Action Plan on Financing Sustainable Growth

The EC appointed a High-Level Expert Group on sustainable finance to elaborate a comprehensive set of recommendations for the financial sector to support the transition to the low-carbon economy. Inspired by

their final report in 2018, the Commission proposed an EU strategy on sustainable finance setting out a roadmap for further work and upcoming actions covering all relevant actors in the financial system. These include (see also Figure 1.7):



Figure 1.7 EU Action Plan on Financing Sustainable Growth – Overview
(<https://ramboll.com/ingenuity/making-sense-of-the-eu-sustainable-finance-regulations>)

Reorienting capital flows towards a more sustainable economy

Task 1. EU Taxonomy: Establishing a clear and detailed EU taxonomy, a classification system for sustainable activities.

Task 2. EU Green Bond Standard: Creating an EU Green Bond Standard and labels for green financial products.

Task 3. Sustainable Europe Investment Plan and Invest EU: Fostering investment in sustainable projects through funding, technical support, assistance, and by bringing together investors and project promoters.

Task 4. Incorporating sustainability in financial advice: Rules on how investment advisers and insurance distributors should take sustainability factors into account when providing advice to their clients.

Task 5. Developing sustainability benchmarks: Low-carbon and positive carbon impact benchmarks, which will provide investors with better information on the carbon footprint of their investments.

Mainstreaming sustainability into risk management

Task 6. Better integrating sustainability in ratings and market research: Strengthen disclosure on how ESG factors are being considered.

Task 7. Clarifying asset managers' and institutional investors' duties regarding sustainability: Regulation on sustainability-related disclosures in the financial services sector.

Task 8. Introducing a 'green supporting factor' in the EU prudential rules for banks and insurance companies: Risk Reduction Measures for banks to mandate the European Banking Authority (EBA)

Fostering transparency and long-termism

Task 9. Strengthening sustainability disclosure and accounting rulemaking: guidelines on reporting climate-related information, which consist of a supplement to the existing guidelines on non-financial reporting.

Task 10. Fostering sustainable corporate governance and attenuating short-termism in capital markets: Strengthen disclosure of ESG factors to facilitate institutional investor engagement.

(European Commission (4), 2021)

1.4.6. EU Taxonomy for Sustainable Activities

EU Taxonomy will establish a common classification system for environmentally sustainable economic activities in the form of a list. This will enable the scaling of sustainable investments and help in implementing the European Green Deal. Companies, investors, and policy makers will be able to use the correct definitions for environmentally sustainable economic activities. Thus, investors will be protected against greenwashing, companies will better be able to plan transitions and market fragmentation will be prevented. This should aid in shifting investments to the projects that need them the most. An IT tool will allow users to easily navigate through the taxonomy. (European Commission (5), 2021). More information is given in Annex 5.

Water, sewerage, waste, and remediation is included in the EU Taxonomy in an own chapter (chapter 5). But according to the content in chapter 5 of the EU Taxonomy Regulation the issues are rather related to “standardized” economic activities (e.g., conventional water supply and wastewater treatment) and considering the water-energy nexus. Therefor these activities are (mainly) not the key issues for HYDROUSA, which are much more related on nature-based circular economy, sustainable water resources use, and adaptation.

EU Taxonomy regulation (chapter 5) describes “water, sewerage, waste, and remediation” as follows:

“Why is water, sewerage, waste, and remediation included in the Taxonomy?”

The sub-sector Water, Sewerage, Waste and Remediation (WSWR) covering NACE-Codes E36 to E39 contributes to a rather small share of the EU’s total greenhouse gas emissions – water with 0.2% and sewerage, waste, remediation with 4.4% in 2016. However, advanced solid waste management has a great potential to trigger greenhouse gas emission reductions in other sectors of the economy through waste prevention, separate waste collection, waste reuse, and recycling.

What is covered in the Taxonomy in detail?

In the waste sector, a systems approach describing the climate mitigation effects of an integrated package of closely interrelated and combined environmentally sustainable activities would have its merits. As, however, the scope of the Taxonomy subgroup was to define stand-alone activities, the chosen climate mitigation principles, metrics, and thresholds were formulated in a way to allow for the assessment of singular activities without consideration of their linkages in a complex waste management system (respectively, waste hierarchy).

The TEG and the experts involved assessed the NACE codes for WSWR and identified nine economic activities that offer a substantial contribution for climate mitigation:

- *E36.0.0 Water collection, treatment, and supply: 1. Water collection, treatment, and supply*
- *E37.0.0 Sewerage: 2. Centralized wastewater treatment; 3. Anaerobic digestion of sewage sludge*
- *E38.1.1 Collection of non-hazardous waste: 4. Separate collection and transport of non-hazardous waste in source segregated fractions*
- *E38.1.2 Collection of hazardous waste: -*

- E38.2.1 Treatment and disposal of non-hazardous waste: 5. Anaerobic digestion of bio-waste; Composting of bio-waste
- E38.2.2 Treatment and disposal of hazardous waste: -
- E38.3.1 Dismantling of wrecks: -
- E38.3.2 Recovery of sorted materials: 7. Material recovery from non-hazardous waste
- E39.0.0 Remediation activities: 8. Landfill gas capture and utilization; 9. Carbon Capture and Storage

NACE Codes 'E38.1.2 collection of hazardous waste', 'E38.2.2 treatment and disposal of hazardous waste' and 'E38.3.1 dismantling of wrecks' (e.g., automobiles, ships, etc.) were found to be of less relevance from a climate mitigation perspective and thus reprioritized for later consideration by the Platform on Sustainable Finance."

Further information:

https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf

EU TEG has released an Excel-File "sustainable-finance-teg-taxonomy-tools" to deliver an overview of economic activities that can make a substantial contribution to climate change mitigation and to classify a certain technology solution:

https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/sustainable-finance-teg-taxonomy-tools_en.xlsx

1.4.7. The 2021-2027 Multiannual Financial Framework

The EU Green Deal will shape the spending and support seen across Europe. This includes the EU's proposed budget plan for the coming years – the Multiannual Financial Framework (MFF) for 2021-2027. The main programmes within the budget are:

- Digital Europe Programme
- EU4Health
- Horizon Europe
- InvestEU
- Recovery and Resilience Facility

The Covid-19 pandemic also prompted the Commission to bring forward the Next Generation EU initiative – an innovative budgetary tool that releases EUR 750 billion. Much of that will come from accessing the financial markets to provide recovery support for Member States from 2021 to 2024. The entire budget of the new MFF now stands at €1.1 trillion. In addition to that, the Commission also proposed a new recovery instrument, called Next Generation EU – worth €750 billion that will run from 2021-2024. This instrument will also feed into some of the digital strands (for example of Invest EU programme). All this makes the next EU budget very large and complex.

2. FUNDING OPPORTUNITIES – GENERAL DESCRIPTION

Both investment opportunities – funding and financing – are heavily relevant for scaling and replicating HYDROUSA solutions. What is the difference between funding and financing?

Funding

Organizations, governments, or supranational institutions provide funding based on agreements. Usually it is free of charge, even if certain contractual requirements exist. Thus, this can be termed one-way financing. Donations by governments, supranational institutions and philanthropists very often fulfill the funding needs of organizations. Philanthropist's funding most often goes to charitable organizations and provides money for initiatives built for the common good.

Financing

Financing represents funds temporarily provided and expected to be paid back. Thus, it is called two-way financing. Organizations are liable to repay the capital plus a certain percentage in interest. Financing is commonly provided by banks and similar financial institutions, or investors including venture capitalists, shareholders, and business angels. Another source of funding can be the community at large.

Share Capital: Publicly issued shares are used to raise capital from the public for a particular project or business. These shares will finance the undertaking and are expected to earn profit on the investment sum.

Venture Capital: Startup businesses often rely on venture capital. While there is often a higher investment risk involved, when successful these businesses provide above average future profits. Payback can take the form of royalties, profits, preferred stocks or increased share prices. Wealthy investors, venture capital partners, small business investment agencies plus bank subsidiaries and investment bank groups are examples for venture capital partners.

Loans: Banks and other lending institutions provide financing to organizations and individuals for ongoing business operations or other purposes. These loans are expected to earn interest.

(Waqar, Hira. "Difference between Funding and Financing." Difference Between Similar Terms and Objects, 10 April 2015, <http://www.differencebetween.net/business/difference-between-funding-and-financing/>)

2.1 Types of Instruments

The following types of funding and/or financing instruments can be distinguished without claim of completeness (Table 2.1).

Table 2.1: Overview of financing vehicles (general description)

No.	Type of Instrument	Short Description
1	Direct Funding & Co-Funding	Direct funding is provided directly to the applicant organisation. Co-Funding is an arrangement through which two or more parties share in the funding of a grant.
2	Loans, Mortgages & Venture Capital	Loans are commonly used to finance capital projects. A loan is a relationship between a lender and borrower. The lender is also called a creditor and the borrower is called a debtor. Mortgages are types of loans that are secured with real estate (land or a house) or personal property of the borrower. Venture capital is private equity provided by (wealthy) investors to small businesses and start-ups with long-term growth potential, considering higher risks.
3	Investment & Microfinance	Investment is the allocation of money with the expectation of a positive benefit/return in the future. Microfinance is a category of financial services targeting individuals and small businesses who lack access to conventional banking and related services. Microfinance includes microcredit (small loans) to poor clients.
4	Guarantees & Securitization	Credit guarantees and securitization are common forms of government intervention to unlock finance for small and medium enterprises (SMEs). It provides third-party credit risk mitigation to lenders through the absorption of a portion of the lender's losses on the loans made to SMEs in case of default, typically in return for a fee.
5	Equity & Bonds	Equity (stocks) is a share of ownership in the company. There is no maturity date and no coupon though some companies do pay a dividend as a "bonus". It usually is no part of the agreement. A bond is a debt obligation where the company borrows cash and agrees to pay a coupon (yearly interest rate, usually on a quarterly period) and pay back the full amount at maturity (the agreed upon end date).
6	Blended instruments	Blended instruments involve the use of different financial instruments that can be used alone or together to address unfavourable risk-return profiles of investment. It is designed to support progress towards the European Green Deal set forth by the EU and/or the Sustainable Development Goals (SDGs) set forth by the UN.
7	Advising	Advising or advisory services are crucial for the development and implementation of successful projects. Some donors provide management advise and other types of adjustment.

2.1.1. Direct Funding & Co-Funding

The European Commission is mainly interested in co-funding projects; many other organizations also do provide funds as sole donor. Typically, their decision will depend on the risks they take by providing a fund. The higher the risk, the higher the need for sharing it with other financiers.

EU Programmes and other funding programs use a large range of different types of funding. According to the relevance for HYDROUSA we differentiate following topics:

i. Regional Development

The OECD describes regional development as follows: *Disparities exist worldwide between regions. Regional development policy or place-based policies aim to reduce such regional disparities by supporting economic activities in all regions. In today's context, these policies are more important than ever. Place-blind policies (subsidies) have failed to reduce regional disparities significantly – nor have they been able to help individual lagging regions catch up. The result is under-used economic potential and weakened social cohesion. (OECD, 2021)*

The European Union attaches great importance to regional development (see Figure 2.1). Therefore, the European Regional Development Fund (ERDF) was established in 1979. Its purpose is to transfer money from richer regions (not countries) to underdeveloped regions to invest in infrastructure and services. This will allow those regions to start attracting private sector investments and create jobs on their own. Various programs with individual priorities are run by the ERDF. (For more information read chapter 4.3.)

Also, the Cohesion Fund, set up in 1994, provides funding for environmental and trans-European network projects in the Member States whose gross national income per capita is less than 90% of the EU average. It was established for the purpose of strengthening the economic, social, and territorial cohesion of the European Union in the interests of promoting sustainable development. (For more information see chapter 4.4. of this report.)

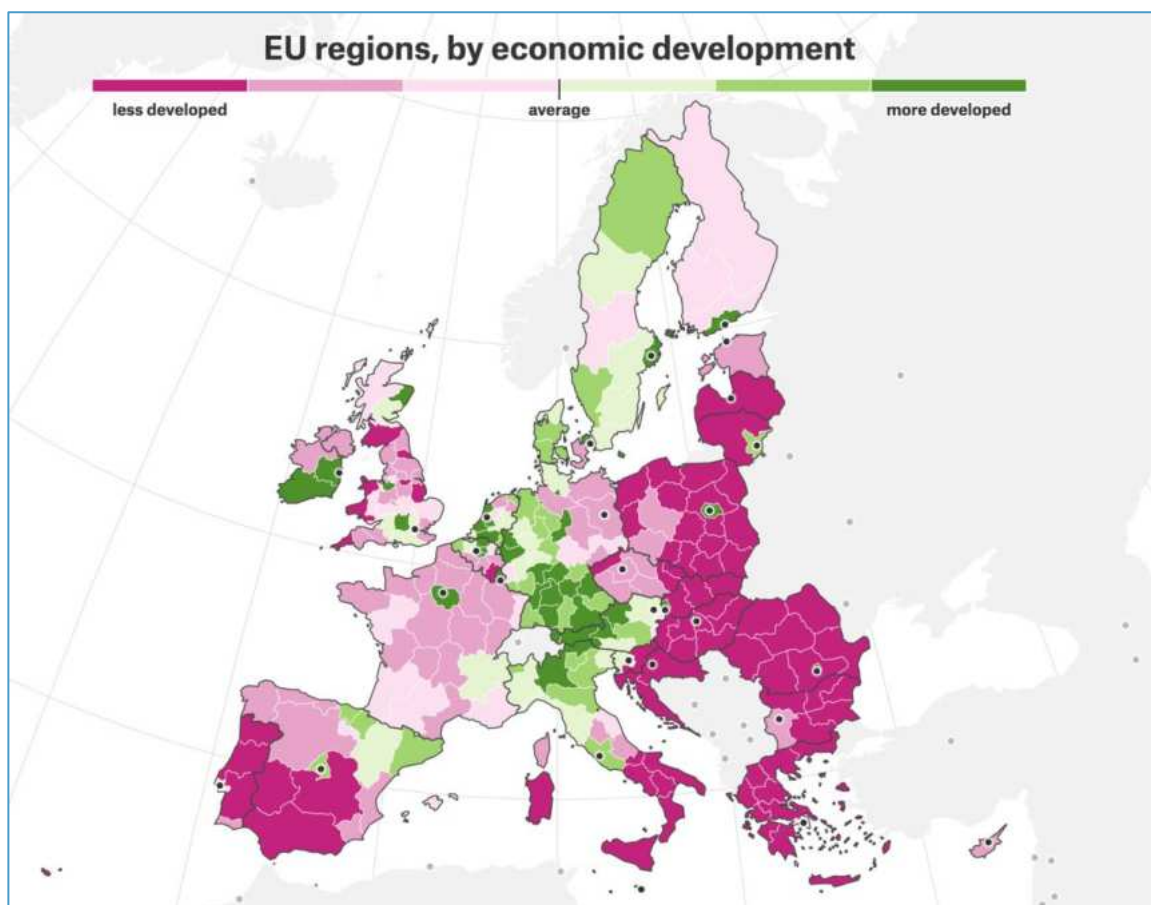


Figure 2.1: Analysis of EU regions by economic development
(Lambrechts, 2019: <https://pudding.cool/2019/04/eu-regions/>)

ii. Urban Development

Cities are considered source, but also solution when it comes to current environmental, social and economic challenges. More than two-thirds of the population in the EU live in urban areas. They generate almost 85% of the GDP and use around 80% of energy in the union. Urban areas drive the European economy and are centers for creativity and innovation. On the other hand, unemployment, poverty, segregation and other persistent problems are amplified in these areas, as well. Therefore urban development is an essential part of EU's Regional Policy.

Between 2014 and 2020 more than 50% of the European Regional Development Fund (ERDF, see chapter 4.3.) resources were invested in urban areas. The ERDF provided around €10 billion directly to integrated strategies for sustainable urban development.

The Cohesion Policy beyond 2020 is intended to continue investing in all regions. This new framework is more flexible and simpler. It is more in line with the effective needs on the ground. Five policy objectives are in focus: smarter, greener, connected and social Europa, plus locally developed investment strategies across the EU to bring Europe closer to citizens. (European Commission (6), 2021)

iii. Employment and Social Inclusion

Employment and social inclusion are main focuses of today's national and international policies because of their major impact on economy and common good. Therefore, the European Commission provides funding for projects relating to these topics through the following programmes:

European Social Fund (ESF)

These funds are intended to aid people in improving work skills and job prospects. Public and private organizations can apply by contacting the local authorities managing the ESF, who selects the projects based on the funding priorities provided by the EC. (European Commission (7), 2021)

More about the ESF: <https://ec.europa.eu/social/main.jsp?catId=325&langId=en>
ESF in your country: <http://ec.europa.eu/esf/main.jsp?catId=45&langId=en>

European Globalisation Adjustment Fund (EGF)

Employees who have lost their jobs due to changes in global trade patterns may receive help from the EGF in finding a new position. Affected companies and individuals may contact their national authority, if they want to apply for funding. (European Commission (7), 2021)

More about the EGF: <http://ec.europa.eu/social/main.jsp?catId=326&langId=en>

Funding Period 2021-2027 / ESF+

The Commissions' multi-annual financial framework (MFF, adopted 2 May 2018) includes a better integrated European Social Fund (ESF+) for the 2021-2027 period. The European Parliament and EU Council are currently in the process of discussing this proposal. (European Commission (7), 2021)

EU Programme for Employment and Social Innovation (EaSI)

This EC-managed financing instrument supports social policy, employment and labour mobility across the union. Calls for tender and/or calls for proposals provide the basis for eligible organizations to apply. (European Commission (7), 2021)

More about EaSI: <http://ec.europa.eu/social/main.jsp?catId=1081&langId=en>

Fund for European Aid to the Most Deprived (FEAD)

EU country initiatives to aid the most deprived are supported by the FEAD. Partner organizations that deliver the assistance may be chosen by national authorities. Guidelines are provided by national programmes approved for 2014-2020 by the EC. (European Commission (7), 2021)

More about FEAD: <http://ec.europa.eu/social/main.jsp?catId=1089&langId=en>

Funding Period 2021-2027 / ESF+

In the next MFF (2021- 2027), FEAD will also be merged with the ESF under the ESF+ Regulation. This merger should allow to better combine the provision of food or material assistance with social inclusion measures. To keep the investment levels stable, the Commission proposed that Member States allocate at least 2 % of their ESF+ resources toward addressing material deprivation. At EU level, the proposed target is 4 %.

The negotiations with the European Parliament and the Council are well advanced (in May 2021). Once the negotiations are concluded, the ESF+ programming for the next programming period will enter in its final phase.

Social dialogue

The EC fosters social dialogue and industrial relations at national and European level. Social dialogue includes discussion, consultation, negotiation and joint action by organizations representing employers on one hand and workers on the other (the two sides of industry). (European Commission (8), 2021)

iv. Agriculture and Rural Development

Rural development worldwide had always mainly been moulded by agriculture. Where there used to be smallholder structures, nowadays the industrialised agriculture generally asks for bigger and wider. Consequently, country life has become more complex. But today's demand for sustainable development does reopen the gates for smaller, ecologically more reasonable schemes. Currently the European Union still supports both tendencies.

The European Union's Common Agriculture Policy (CAP) relies on rural development as its second pillar. It reinforces social, environmental and economic sustainability in rural areas and thus reinforces the first pillar of income support and market measures. [See also chapter 4.5.]

CAP's three long-term goals are intended to improve the sustainable development of rural areas:

- Strengthening agriculture's and forestry's competitiveness,
- Safeguarding the sustainable management of natural resources and climate action,
- Developing rural economies and communities in a balanced way across territories, creating and maintaining employment in the process.

(European Commission (9), 2021)

The CAP's contribution to the EU's rural development objectives is supported by the **European agricultural fund for rural development (EAFRD)** (detailed description in chapter 4.5.).

v. Research & Innovation

Due to current global challenges (climate change, loss of biodiversity, increasing poverty and unemployment, etc.) there is an urgent need for innovations and novel approaches. In the new funding and financing period, which began in 2021, the European Union has therefore decided to put a lot more effort into research and innovation and provides much more budget for it.

Horizon Europe, which is the EU's research and innovation program for 2021-2027 with a budget of €95.5 billion, has its focus on tackling climate change, helping to achieve the UN's Sustainable Development Goals and boosting the EU's competitiveness and growth.

Further information on the new Horizon Europe program in chapter 4.

2.1.2. Loans & Venture Capital

i. Project Loans

Capital projects are often financed by loans. Interested parties provide securities in the form of physical assets or revenue-producing contractual agreements to the Banks or similar lending institutions which provide the loans. In case of the borrower's default or non-compliance with loan terms, this lien on assets serves as safeguard. Project cashflow will repay the loan, not general assets or creditworthiness.

(Gordon, J., 2021)

Through project loans the **European Investment Bank (EIB)** finances projects with high investment costs, research and innovation programs, direct loans of between EUR 7.5 and EUR 25 M to mid-cap companies (< 3000 employees) and multi-component loans (financing projects for energy efficiency and renewable resources, infrastructure, transport, and urban renovation through national or public sector institution).

The **European Agricultural Fund for Rural Development (EAFRD)** helps to provide loans, where none are offered commercially (e.g., from banks), or may be on better terms commercially (e.g. with lower interest rates, longer repayment periods, or with less collateral required). For instance, loans could be made available to help farmers and their families diversify their sources of income by developing activities such as agrotourism or food-related businesses such as restaurants selling local food, investment support for young farmers, or investments in agricultural machinery aimed at increasing the overall performance of farms and their sustainability. This is particularly interesting for the HYDROUSA solutions. See also Chapter 4.

The **Competitiveness of Enterprises and SMEs (COSME)** programme (2014-2020) supported the competitiveness, growth, and sustainability of EU enterprises, in particular SMEs, and promoted entrepreneurship. To reach these goals, the programme eased SME's access to finance by providing loan guarantees and risk-capital. It facilitated access to new markets inside and outside the EU and reduced the administrative burden on SMEs. In 2021 the programme has been delegated to the European Innovation Council and SMEs Executive Agency.

ii. Bridge loans

Typically running for periods of two weeks to three years, this short-term loan bridges the time until a larger or longer-term financing facility is in place. The latter, more permanent loan is usually used to pay back the bridge loan and provide capital for the following stages of the project or venture.

To compensate for the additional risk, bridge loans usually are expected to yield higher return rates in the form of interests. In addition, other costs and fees have to be amortized over the shorter loan period. In some cases the lender expects additional "sweeteners", such as equity participation, as pre-condition for providing the bridge-loan. These disadvantages are compensated by faster arrangement and fewer hurdles regarding documentation compared to longer-term loans. (Wikipedia (2), 2021)

iii. Venture Capital

Novel technology or business model projects in high-tech sectors are attractive to venture capitalists. These investors provide private equity for SMEs with a potential for significant long-term growth. Above-average return opportunities compensate for the higher risk. The venture capitalists often expect to be involved in decisions regarding the projects and usually take a more hands-on approach than more traditional financiers. (Gordon, J., 2021)

In exchange for the venture capital, the investors receive a share of the company's equity. The high level of risk accepted by the investor leads to a highly expensive agreement for the founders. Capital is typically provided for up to 10 years. When the company is sold or goes public, the investors will usually expect their return to be a multiple of their initial investment.

Venture capital funding has become increasingly popular and in many cases essential for companies that haven't operated for an extended period of time (i.e. under two years). These companies often don't have access to bank loans, capital markets and other debt instruments. (Hayes, A. et al., 2021)

Typical examples of venture capital partners are banks, groups of investment banks, SME investment agencies, wealthy investors and venture capital partnerships. Royalties, share of the profits, increases in share prices or preferred stock are the usual forms of reward for the risk assumed with the investment. (Waqar, H., 2015).

iv. Venture Debt

Venture debt is usually best suited to companies who have already received equity-backed funding, but do not have a long list of assets to use as collateral. Unlike venture capital, venture debt is still just a loan. If everything goes smoothly, you use this loan to spur growth over a relatively short period (12-48 months) and make regular payments along the way. Founders like that the loan does not dilute their stake in the company. But what makes it different from a traditional loan is that venture debt lenders take stock warrants to mitigate the risk while allowing them to charge lower rates. Therefore, venture debt is usually reserved for companies that already show a clear product-market fit and have a smart growth strategy in place (Bachmann J., 2020).

v. Other Types of Lending

Assets are resources that are owned by corporations, countries or individuals. They are utilized to provide economic value by increasing the firm's value or being utilized in the company's operations. Thus assets – whether they are patents or manufacturing equipment – can create cash flow, reduce expenses or generate sales. They are recorded on balance sheets, can be bought or created during business operation. (Barone et. al., 2021)

- **“Asset-based financing (debt):** Companies with distinct and valuable assets on their books can use these as collateral when applying for a loan. This process is comparable to securing a mortgage: if the borrower fails to pay back the loan, the bank can take possession of the asset instead. Companies with physical production facilities or those in the sharing economy often use this funding instrument.
- **Revenue-based financing (debt):** This financing option is directly tied to marketing or advertising spending. If a company can show that every Euro invested in marketing will yield two Euros in revenue, they will be in a position to borrow money against this future return:
 - The lender provides full funding as a loan at the beginning.
 - Repayments are made monthly as a set percentage of monthly revenue until the loan plus interest has been repaid.
 - If the loan is not repaid within a certain timeframe through revenue, the remaining amount will become due.
 - The higher the revenue generated from the marketing efforts, the quicker the loan is repaid and interest is reduced. This encourages good performance on one hand, but may result in higher payments than planned if business is slow.
- **Receivables financing or “factoring” (debt):** Factoring is similar to asset-based financing. The outstanding receivables already invoiced by the company are the “asset”. When a supplier of services or goods is in need of short-term cash, they can sell their accounts receivables to a third party. This of course will be done at a discount to enable the third party to make a profit. On the other hand the seller will receive liquid funds immediately. (Bachmann J., 2020).

2.1.3. Investment & Microfinance

i. Investment

An investment is an expenditure of money with the goal of creating a positive benefit or return at some point in the future. The investment results in ownership of an asset that is intended to generate income or appreciate in value. (Wikipedia (3), 2021). The higher the risk, the higher the hoped-for returns, but also in general the strive to share the investment and thereby the risks with other investors (co-investment).

ii. Equity and Fund Investments

Equity is typically short for shareholder's equity. In the context of privately held enterprises it is commonly referred to as owner's equity. Historically it represented the amount of money that would result from liquidation of all the company's assets and paying off all the company's debts. During the purchase of a company, it is its value less those liabilities owed to third parties, which are not passed on to the new owners. Equity often is derived from the company's book value. In business transactions it can be used as payment-in-kind. (Jason F. et al., 2021)

With equity and fund investments the EIB supports investments in infrastructure and environment (infrastructure equity and dept funds, environmental funds), Carbon Funds, Sustainable Urban Development (loans, guarantees and equity investments through the JESSICA Initiative, Energy Efficiency and Renewables (innovative fund-of-funds GEEREF), Venture Capital and private equity.

iii. Microfinance

Very small loans are often referred to as microcredits, the practice as microfinance. Additional terms used are microlending and microloans. These loans were developed to help individuals to become self-employed and grow their small businesses. Equipment purchased by farmers to improve their operations or quality of harvest, as well as local, community-led development projects may utilize this form of financing. Especially in less developed countries, individuals with low income tend to borrow in this way. (Hayes A. et al, 2020)

2.1.4. Guarantees & Securitization

A party assuming the burden to pay the debt when the borrower defaults on loan obligations is a guarantor, whether it is a political institution or an individual. (Bloomenthal A. et al., 2021)

The funding period of the EU program for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) covered the period from 2014-2020. The program has now been delegated to the European Innovation Council and SMEs Executive Agency (EISMEA). However, it will serve well as an example in this report. Its purpose was to improve access to finance for SMEs. It had a budget of over €1.4 billion to fund financial instruments that facilitated access to loans and equity finance for SMEs where market gaps had been identified. COSME financial instruments were complemented by resources from the European Fund for Strategic Investments (EFSI). Thanks to this budget, it was possible to mobilize up to €35 billion in financing from financial intermediaries via leverage effects. The financial instruments were managed by the European Investment Fund (EIF) in cooperation with financial intermediaries in EU countries.



(European Commission (10), 2021)

The Loan Guarantee Facility (LGF)

The COSME budget in part funds guarantees and counter-guarantees. This helps banks, leasing companies and other financial intermediaries to provide SMEs with loans and lease agreements. The budget also supports securitization of SME debt-finance portfolios.

Through leverage effects this process releases €30 in SME financing for every Euro provided as loan guarantee. Without these guarantees many SMEs, due to lack of collateral and perceived higher risk, would not have been able to secure the necessary funds.

COSME guarantees are thought to have benefited some 500,000 SMEs with a total loan amount of over €30 billion.

The Competitiveness and Innovation Framework Program (CIP) that ran from 2007 to 2013 was one basis for the development of the COSME financial instruments (Figure 2.2 and Figure 2.3). The SME Guarantee facility has benefited some 340,000 SMEs since 2007. Under COSME 90% of beneficiaries will likely have 10 or fewer employees. The average loan amount under the guarantee program is expected to be about €65,000, the category which currently has the most difficulty securing financing. (European Commission (10), 2021).

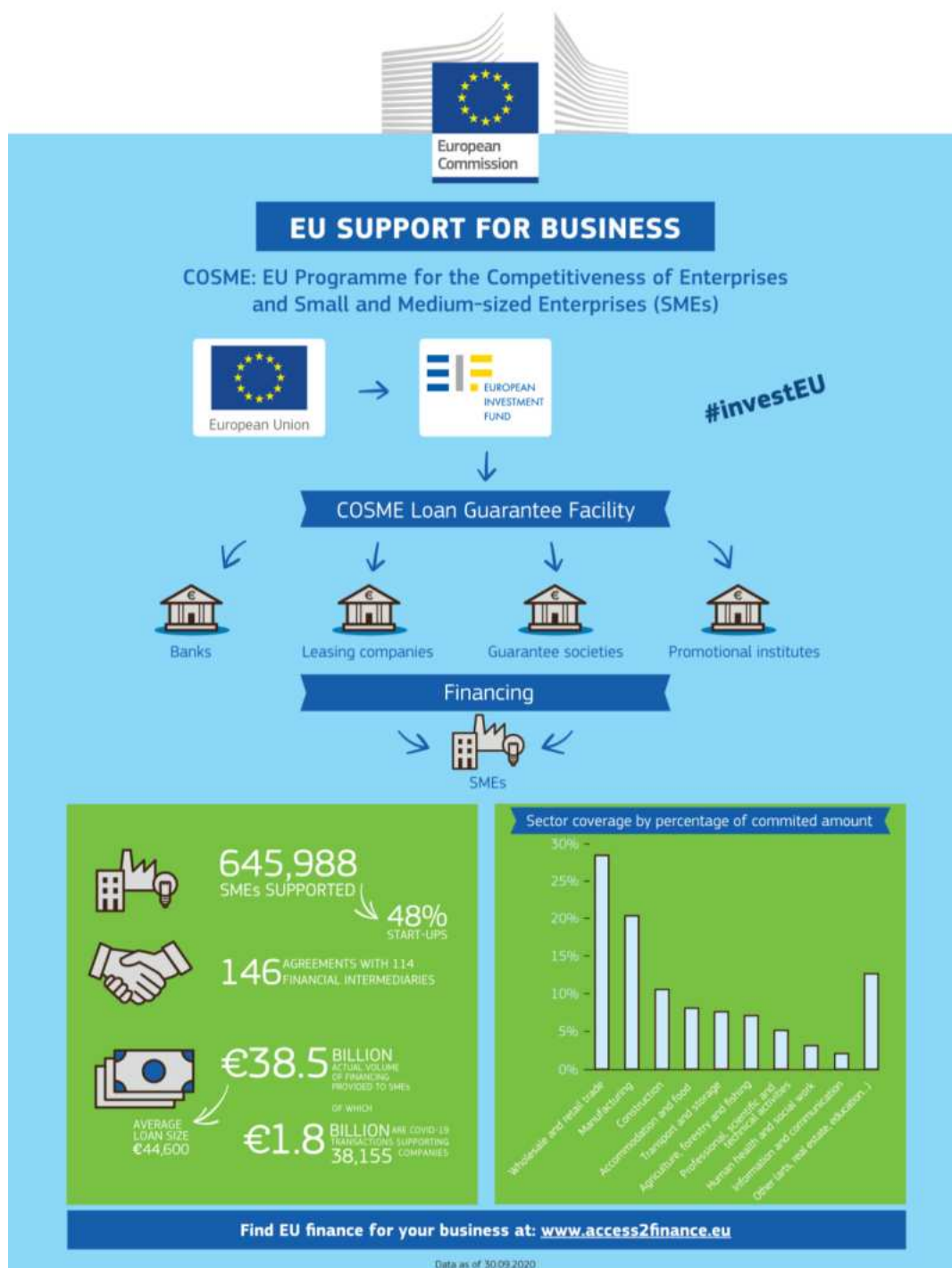


Figure 2.2: COSME Loan Guarantee Facility

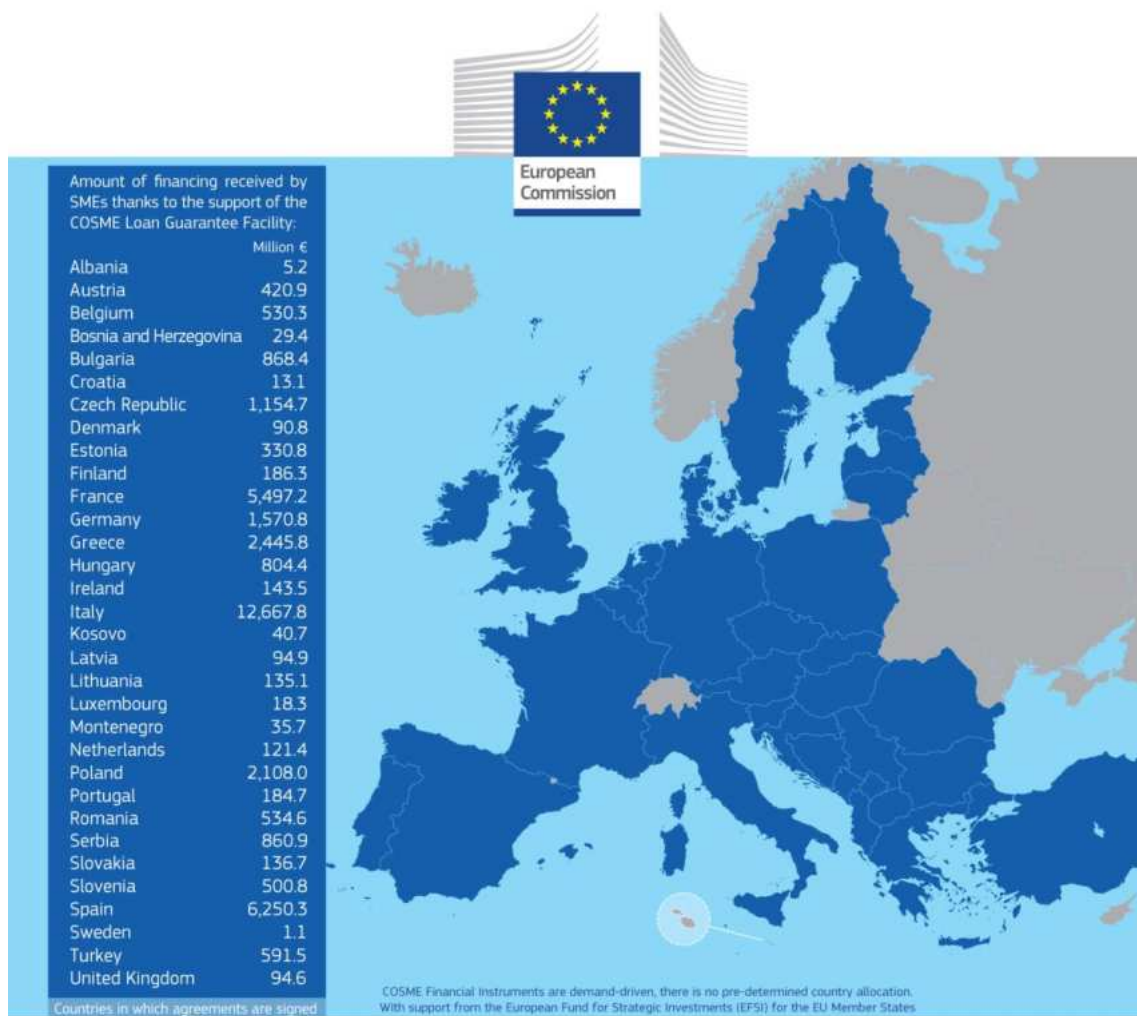


Figure 2.3: Amount of financing by country

i. Guarantees for Financial Intermediaries

The European Union usually gives its guarantees to financial intermediaries such as guarantee organizations, banks, leasing companies and not directly to borrowers of loans.

ii. Guarantees for (private and/or public) Infrastructure Projects

In some cases, guarantees can be given directly to entrepreneurs or companies, especially when the project to be financed is about building new infrastructure. The premise here consists in a high public interest and amelioration of the region's attractiveness for habitants and/or tourists.

European Fund for Strategic Investments (EFSI)

EFSI was initiated at the end of the worst financial crisis since the Great Depression in 2009. The EC supported by the European Investment Bank (EIB) intended EFSI to accelerate the economic recovery by breaking the death spiral of declining investment and sluggish growth. EFSI was rather a

guarantee instrument than a traditional fund, which put the EIB Group in a position to push more projects through acceptance of bigger investment risks. (EIB, 2018)
See chapter 4.7.1.

iii. Guarantees for SME Portfolios

Another exception comes to use when an SME needs to purchase expensive technical equipment or machines. In this case the equipment will be acknowledged/accounted as securitization.

2.1.5. Equity & Bonds

i. Equity Instrument

Equity financing can be obtained for a project primarily from institutional investors and accredited investors that have a direct interest in a project to be realized and who can dedicate substantial sums of money for extended time periods. Private equity is capital that is not noted on a public exchange. The capital can be utilized to fund new technology, make acquisitions, expand working capital, and to bolster and solidify a balance sheet.

ii. Bond Instrument

A loan that creates fixed income for the investor is typically referred to as a bond. Another way to think of it is a borrower's I.O.U. (I owe you) to a lender, with detailed agreement on loan amount and repayment schedule. Companies, states, sovereign governments and municipalities have relied on bonds to attain funds for projects and operations. Owners of such bonds are referred to as creditors of the issuer or debt holders. Bonds typically list the date when the principal is due for payment to the bond holder as well as the terms for interest payments – whether they are fixed or variable. (More details on typical issuers of bonds can be found in annex 6). (Jason Fernando et al. (1), 2021)

iii. Project Bonds

Project bonds can be used to secure financing for infrastructure projects. To this end the project would be listed as tradable security which provides risk-adjusted returns. In the past such deals were typically processed through banks. Basel III regulations have made more stringent monitoring and disclosures necessary. Therefore the costs and capital requirements have increased, resulting in lower internal rates of return (IRR) for the projects' developers. Companies may potentially reduce the cost of funding the project by utilizing the institutional bond market. (an example can be found in annex 7)

Challenges of using project bonds as a source of funding

Generally risk-averse, bond investors may not be willing to accept the inherently higher risks of project bonds, i.e. in the construction industry. Debt markets used to be seen more stable than capital markets prior to the financial crisis. This has changed based on the global liquidity reduction. While institutional bond investors on a local level are willing to accept performance risks, they normally are not eager to assume construction risks. (Deloitte, 2021).

Also read chapter 2.1.5.iii to learn more about what bonds in general are and how they work.

2.1.6. Blended Instruments

'Blended finance will contribute to faster economic growth, but to achieve this it is vital to get donors into alignment.' Martin Wolf, Chief Economics Commentator, Financial Times.

Blended finance (Figure 2.4) mixes several types of financing instruments. This has become a major vehicle to raise the capital for working towards the Sustainable Development Goals in developing countries. (OECD (2), 2018).



Figure 2.4: Making blended finance work for the SDGs (OECD Report, 2018)

i. Public Private Partnership

A long-term contract to implement a public infrastructure project and provide services between private partners and public authorities is called a public-private partnership (PPP). Significant risks and duties to manage project and service provision is taken on by the private partner. In turn the public authority agrees to pay performance-based fees for the service provision (i.e. the availability of a road) or let the private partner generate revenue from the service directly (e.g. levy tolls from users of the road). PPP projects are often financed privately and can benefit the public authorities as well as the project users. (See annex 8 for typical features of a PPP). (EIB European Investment Bank about EPEC, 2021, <https://www.eib.org/epec/>)

Further blended instruments are described in more detail in chapter 4.

2.1.7. Advising

i. EU Advising

The EIB (European Investment Bank (1), 2021) states that institutions of the EU provide a wide array of services advising public and private project stakeholders on how to get investment project in the EU off the ground. EIB provides project development support and makes financing more accessible for businesses. (See annex 9 for advisory services provided by the EIB).

In Table 2.5 the advisory services of the EU-Interreg Program for Central Europe are summarized.

ADVISORY SERVICES



The advisory services are crucial part of the EIB's lending and blending product strategies providing the development and the implementation of the investment programs.

- *InnovFin advisory* - [slide 13]
- *Support to public-private partnership (EPEC)* - under the PPP the public authority provides payments to the private partner for the provision of the service or grants a right to generate revenues from the provision of the service.
- *Sustainable energy: maximizing investment (ELENA)* - provides grants under the Horizon 2020 program, for technical assistance in the implementation of energy efficiency, transport, and renewable energy projects and programs
- *European Structural and Investment Funds (ESIF) FIs* - [slide 7]
- *FELICITY: Sustainable solutions for cities* - provides advisory services to increase investments in sustainable infrastructure projects that reduce greenhouse gas (GHG) emissions in Brazil, China and Mexico.
- *Municipal Project Support Facility (MPSF)* - provides technical assistance to municipalities in Eastern Partner countries (Belarus, Ukraine, Moldova, Georgia, Armenia and Azerbaijan) to support investments in projects in GHG emission reduction and energy efficiency



TAKING COOPERATION FORWARD

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Figure 2.5: EU Advisory Services – Interreg Central Europe

(Link: <https://www.interreg-central.eu/Content.Node/documents/documents.html>)

ii. National or Regional Advising

There exist many different advising services on a national and regional level regarding project funding and/or financing. Several advisory services try to bridge the gap between nation/regional funding opportunities and European funding mechanisms (Table 2.2).

Table 2.2: European advisory services and networks (selection)

Advisory Service	Description (recited from the respective websites)	Weblink
EuroAccess Macro-Region	<i>EuroAccess is a free online search tool to support the use of existing funding opportunities to improve economic, social, and territorial cohesion in the European Union and its Macro-Regions. Macro-Regional Strategies were initiated by the various EU Member States as a unique integrated framework to strengthen cooperation in geographic areas that face common challenges and to benefit from common opportunities facing the region.</i>	https://www.euro-access.eu/
EUFRA – European Forum for Agricultural and Rural Advisory Services	<i>EUFRA is a European network and representative association of public and private rural and agricultural extension services which is aligned to the global representative body for advisory services (GFRAS) with associations set up in many other continents.</i>	https://www.eufra.eu/
EUREKA – national funding bodies	<i>EUREKA “Innovation beyond borders” – is the world’s biggest public network for international cooperation in R&D and innovation, present in over 45 countries.</i>	https://www.eurekanetwork.org/
European Investment Advisory Hub	<i>The European Investment Advisory Hub (EIAH) is a joint initiative by the European Commission and the European Investment Bank under the Investment Plan for Europe.</i>	https://danube-region.eu/projects-and-funding/european-investment-advisory-hub/
InvestEU Portal	<i>InvestEU Portal is the EU Matchmaking Portal to boost the visibility of a project to a large network of international investors.</i>	https://ec.europa.eu/investeuportal/
NCP – National Contact Points for Horizon	<i>The network of National Contact Points (NCPs) is the main structure to provide guidance, practical information, and assistance on all aspects of participation in Horizon Europe. NCPs are also established in many non-EU and non-associated countries (“third countries”).</i>	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/ncp

Beside the official European, national, and regional advising services hundreds of private and mixed (private & public) advising services exist to assist projects in reaching funding and financing status. Some service provider should be mentioned in general (see Table 2.3):

Table 2.3: Advisory service providers (in general)

Advisory service providers (in general)
National and regional chambers of commerce
National and regional foreign trade offices or bureaus
Financing agencies of the national countries and regions
Business and innovation agencies of countries and regions
National and regional agencies for rural, cultural, educational, and/or infrastructural development
Thematic cluster networks of businesses and associated public partners
Private financing and funding services

2.2. Area of influence of the financial instruments, relevant for HYDROUSA

The area of influence of the financial instruments can be roughly differentiated in thematic, geographical, organizational and in other instruments. Thematic foci of instruments relevant for HYDROUSA are summarized in table 2.4.

Table 2.4: European advisory services and networks (selection relevant for HYDROUSA)

Thematic Area	Funding/financing programmes and/or vehicle
Agriculture	EAFRD, EIP-Agri
Alliances	PRIMA, EIP-Agri
Climate Change	LIFE Programme, CIP Eco-Innovation
Circular Economy	ECBF, Horizon Europe
COVID-19-Pandemic	RRF (Recovery and Resilience Facility), NGEU (NextGenerationEU) *
Energy	LIFE Programme, Horizon Europe, MangeEnergy, BUILD UP
Environment	LIFE Programme, CIP Eco-Innovation
Food Production	InvestEU
ICT	InnovFin, Horizon Europe
Job Creation	LEADER, GCF
Nature-Based Innovations Regenerative Solutions	NCFF, LIFE, Horizon Europe
Science & Research	Horizon Europe
SMEs	COSME, EIC Accelerator, Enterprise Europe Network, EASME
Tourism	Horizon Europe, ERDF, EAFRD,
Water	EMFAF (European Maritime, Fisheries and Aquaculture Fund)

* The Recovery and Resilience Facility (RRF) is the centerpiece of Europe's recovery plan NGEU (NextGenerationEU). It aims to mitigate the economic and social impact of the COVID-19 crisis and make European economies and societies more sustainable, resilient, and better prepared for the challenges and opportunities of the green and digital transitions. It is relevant for all industrial ecosystems, including water, agriculture, tourism, and others. EU countries are responsible for developing national recovery and resilience plans, containing investments and reforms to address the key challenges identified in the European Semester framework, as well as to support the green and digital transition.

Some programmes and/or networks that are geographically oriented and could be relevant for funding purposes in the context of HYDROUSA replications are given in Table 2.5.

Table 2.5: Geographically oriented funding programmes (selection)

Geographical Region	Funding/financing programmes and/or vehicle (recited from the respective websites)	Weblink
Caribbean	Regional Economic Partnership Agreement (EPA) with the Forum of the Caribbean Group of African, Caribbean, and Pacific states (CARIFORUM). The Caribbean is composed of 15 countries, including territories with direct links to European countries: 4 French outermost regions, and 6 Dutch, 1 French, and 5 British Overseas Territories.	https://ec.europa.eu/trade/policy/countries-and-regions/regions/caribbean/
European Macro-Regional Strategies	A ' Macroregional strategy ' is an integrated framework endorsed by the European Council, which may be supported by the European Structural and Investment Funds among others, to address common challenges faced by a defined geographical area relating to Member States and third countries located in the same geographical area which thereby benefit from strengthened cooperation contributing to achievement of economic, social, and territorial cohesion. Four EU macro-regional strategies, covering several policies, have been adopted so far: <ul style="list-style-type: none"> • The EU Strategy for the Baltic Sea Region (2009) • The EU Strategy for the Danube Region (2010) • The EU Strategy for the Adriatic and Ionian Region (2014) • The EU Strategy for the Alpine Region (2015) 	https://ec.europa.eu/regional_policy/de/policy/cooperation/macro-regional-strategies/
European border regions	European Neighbourhood Policy (ENP): The European Union's European Neighbourhood Policy (ENP) was launched in 2004 to support and foster stability, security, and prosperity in the EU's neighbourhood. The Review of the ENP in 2015 brought a change to the cooperation framework and proposed ways to build more effective partnerships in the Neighbourhood. EAFRD, LIFE	https://eeas.europa.eu/diplomatic-network/european-neighbourhood-policy-enp_en
Mediterranean Coast	The Union for the Mediterranean (UfM) is an intergovernmental Euro-Mediterranean organization which brings together all countries of the European Union and 15 countries of the Southern and Eastern Mediterranean. UfM is a policy umbrella not providing funds. But there is a Facility for Euro-Mediterranean Investment Partnership (FEMIP) managed by EIB. And other	https://ufmsecretariat.org/who-we-are/

	relevant programmes for this region are PRIMA (Partnership for Research and Innovation in the Mediterranean Area) and the EMFAF (European Maritime, Fisheries and Aquaculture Fund) .	
Northern Africa (Mashreq/Maghreb)	The Mashreq/Maghreb Working Party deals with EU Common Foreign and Security Policy (CFSP) and community competence about Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Western Sahara conflict, the Palestinian Authority, Syria, and Tunisia. It also deals with EU cooperation with countries in North Africa and the Middle East, also known as the Union for the Mediterranean (UfM).	https://www.consilium.europa.eu/en/council-eu/preparatory-bodies/mashreq-maghreb-working-party/
Middle East and North Africa	Middle East & North Africa (MENA): The policy of the European Union towards the North African and Middle Eastern countries seeks to encourage political and economic reform in each individual country in due respect for its specific features and regional cooperation among the countries of the region themselves and with the EU.	https://eeas.europa.eu/regions/middle-east-north-africa-mena_en
Latin America	The Latin America Investment Facility (LAIF) is one of the European Union's regional blending facilities. The aim of LAIF is to mobilize funding for large infrastructure and development projects, by combining EU grants, and other financial instruments, with financial resources from European and regional financial institutions, governments, and the private sector.	https://ec.europa.eu/international-partnerships/programmes/latin-america-investment-facility-laif_en



2.3 Overview of collected funding opportunities

More than 100 different financing and funding vehicles / instruments have been investigated to produce this funding opportunities report. The list in table 2.6 summarizes 32 different vehicles which were found to be most relevant to replicate HYDROUSA activities and solutions.

Table 2.6: Full list of funding opportunities / vehicles

No.	Chapter	Financing Vehicle	Sectors / topics	Region	Expiration	Weblink
1	4.1	PRIMA (Partnership for Research and Innovation in the Mediterranean Area)	water, farming, agrofood value chain	Mediterranean	2028	https://prima-med.org/
2	4.2	Interreg	innovation, carbon dioxide reduction, protection of natural and cultural resources	EU	None	https://www.interregeurope.eu/
3	4.3	ERDF (European Regional Development Fund)	investment for jobs and growth; European territorial cooperation	Europe	2027	https://ec.europa.eu/regional_policy/en/funding/erdf/
4	4.4	Cohesion Fund	greener, low-carbon and circular economy; connected Europe	Europe	2027	https://ec.europa.eu/regional_policy/en/2021_2027/
5	4.5	EAFRD (European Agricultural Fund for Rural Development)	agriculture; sustainable management of natural resources and climate action; development of rural economies and communities	Europe	2027	https://www.fi-compass.eu/esif/eafrd
6	4.5.1	EIP-Agri (European innovation partnership for agriculture)	bridge the gap between researchers creating innovative solutions and final users of the innovations	Europe	no expiration date found	https://ec.europa.eu/eip/agriculture/en/node



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7	4.6	EMFAF (European Maritime, Fisheries and Aquaculture Fund)	sustainable fishing, support to coastal communities, new jobs and improve quality of life along European coasts, sustainable aquaculture development, etc.	European coastlines	2027	https://ec.europa.eu/oceans-and-fisheries/funding/emfaf_en
8	4.7.1	EFSI (European Fund for Strategic Investments)	sustainable infrastructure; research, innovation, and digitalization; SMEs; social investment and skills	EU	2020	https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/investment-plan-europe/european-fund-strategic-investments-efsi_en
9	4.7.2	InvestEU (Invest Europe)	sustainable infrastructure; research, innovation, and digitalization; SMEs; social investment and skills	EU	2027	https://europa.eu/investeu/about-investeu_en
10	4.8	InnovFin	miscellaneous, innovations of all kinds	EU, associated Countries	2020	https://www.eib.org/en/products/blending/innovfin/index.htm
11	4.9	LEADER	bottom-up approach on rural development	Europe	2022	https://enrd.ec.europa.eu/leader-clld_en
12	4.10	GCF (Green Climate Fund)	climate change mitigation, climate change adaptation, cross-cutting	Worldwide	no data found	https://www.greenclimate.fund
13	4.11	NCFF (Natural Capital Financing Facility)	biodiversity, nature-based adaptation to climate	EU, associated Countries	2021	https://www.eib.org/attachments/pj/ncff-invest-nature-report-en.pdf
14	4.12	LIFE (Programme for the Environment and Climate Action)	nature and biodiversity; circular economy and quality of life; climate change; clean energy transition	EU	2027	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/life2027
15	4.13	Horizon 2020/ Horizon Europe	key funding programme for research and innovation; no real thematic limits, but among others the following HYDROUSA-topics are addressed to in particular: food, bioeconomy, natural resources, agriculture and	EU	2027	https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en



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			environment			
16	4.14	ECBF (European Circular Bioeconomy Fund)	Agro, farming, nutrition	EU, associated Countries	none	https://www.ecbf.vc/
17	4.15	ETS Innovation Fund	low-carbon innovative technologies, including energy storage technologies	EU	dependin g on budget	https://ec.europa.eu/clima/policies/innovation-fund_en
18		Water Financing Facility	all about water facilities	Global	none	https://waterfinancefacility.com/
19	5.7	EIC Accelerator (European Innovation Council's Accelerator)	Funding and investments through the EIC Fund for individual start-ups and small companies to develop and scale up game changing innovations	EU, Associated Countries	2027	https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator_en
20		EMV Capital	energy, transport, circular economy, smart city, industrial high tech, healthcare and medtech	Europe	none	https://emvcapital.com/sectors/
21	2.1.4	COSME (Competitiveness of Enterprises and SMEs)	small and medium sized enterprises	Europe	2021	https://ec.europa.eu/growth/smes/cosme/
22		Climate Bonds Initiative	climate change solutions	Global	none	https://www.climatebonds.net/about
23	2.1.4	EIF (European Investment Fund)	small and medium sized enterprises	Europe	none	https://www.eif.org/what_we_do
24	3.2	GEF (Global Environment Facility)	environmental toppics for developing countries and countries with economies in transition	Global	none	https://www.thegef.org/about/funding



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25		Rewilding Europe Capital (REC)	biodiversity, climate change adaptation, conservation, NBS, ecotourism, all that helps rewilding Europe	Europe	none	https://rewildingeurope.com/rewilding-europe-capital/
26		IDA (International Development Association)	climate; fragility, conflict, and violence; gender; governance and institutions; jobs and economic transformation	Global	none	https://ida.worldbank.org/
27	5.3	EBRD (European Bank for Reconstruction and Development)	many topics for countries in Southern and Eastern Mediterranean, in Central and Eastern Europe, and in Central Asia	Global	none	https://www.ebrd.com/what-we-do.html
28	2.1.1	ESF (European Social Fund)	employment, labour mobility, social inclusion, combating poverty, etc	Europe	none	https://ec.europa.eu/regional_policy/en/funding/social-fund/
29		EcoMicro	green finance solutions for small businesses and low-income households	Caribbean and Latin American countries	none	http://www.ecomicro.org/
30		NIB (Nordic Investment Bank)	region's productivity and environment	European Nordic and Baltic countries	none	https://www.nib.int/
31		12tree - Institutional Investments	agriculture, forestry, and agroforestry, with very specific needs, looking for data delivery	Global (based in Germany)	none	https://www.12tree.de/incubator
32	3.2	Livelihoods Funds	large-scale projects empowering smallholder farmers and rural communities, restore ecosystems and contribute to climate action, create value across agricultural supply chains	Global (especially in Africa, Asia, and Latin America)	none	https://www.nib.int/

3 SURVEY OF FINANCING AND FUNDING OPPORTUNITIES

3.1 Survey Methodology

The whole survey study on financing and funding opportunities was carried out between September 2020 and April 2021. This assessment measure had two main goals:

1. Firstly, we wanted to complement our central knowledge of financing vehicles with the local insight from our group of stakeholders. This was intended to provide us with a comprehensive list of different financing sources available within our ecosystem.
2. Secondly, we wanted to get feedback on our stakeholder's experiences with the vehicles they had used within the frame of their project work. This gave us important feedback on the viability of these sources of financing within our project context and achieved the third major goal: to provide our project partners with an overview of many available options and concrete recommendations on which are suitable to their specific needs.

Two surveys were targeted to two different stakeholder groups:

- Our current HYDROUSA project team and
- Stakeholders from our Replication Sites.

Each group was provided an identical set of questions. The differentiation between the two groups was important from our perspective, as the project team may have been influenced by participation in HYDROUSA. So, the replication site stakeholders may at the point of questioning have had a more open perspective and thus have provided additional insight and opportunities. Each participant was asked about nine major financing vehicles provided by us as a starting point. Firstly, did the stakeholders know about these nine vehicles (see Table 3.1) and secondly had they used them in one of their projects:

Table 3.1: List of nine funding vehicles asked in the survey

	Funding vehicle asked explicitly in the survey
1	Cohesion Fund
2	European Agricultural Fund for Rural Development – EAFRD
3	European Fund for Strategic Investments – EFSI
4	European Regional Development Fund – ERDF
5	Green Climate Fund – GCF
6	InnovFin – EU Finance for Innovators
7	Natural Capital Financing Facility
8	NCFF Support Facility
9	PRIMA – Partnership for Research and Innovation in the Mediterranean Area

A second section of the survey provided open questions to get additional input from the stakeholders (there was no limit on the number of answers possible, but additionally the request to provide comments on their specific experiences):

- Which additional vehicles had participants received funding from?
- Which additional vehicles were participants aware of even if they had not actively used them?
- What good practices (e.g., impact investment, blended funding) and pitfalls (barriers, obstacles) concerning the mentioned financing vehicles did participants want to raise and make us aware of?

3.2 Survey Results

The main survey was conducted between January and March of 2021. We received answers from 17 HYDROUSA project team members and 14 stakeholders from replication sites. The following provides a summary of the insights gained from the answers.

3.2.1 Results from quantitative/closed questions

The first 9 questions were aided – we provided the participants with nine funding vehicles and for each asked the identical question with two check boxes as answer opportunities (see Figure 3.1). The results shown here are ranked by highest number of overall answers for each of the answer options. The highest possible number of mentions would have been 31 (17 HYDROUSA, 14 Replication Sites)

Question: “Which of the following funding vehicles do you know, and have you used?”

“Is known to me”

“We have used in one of our projects”

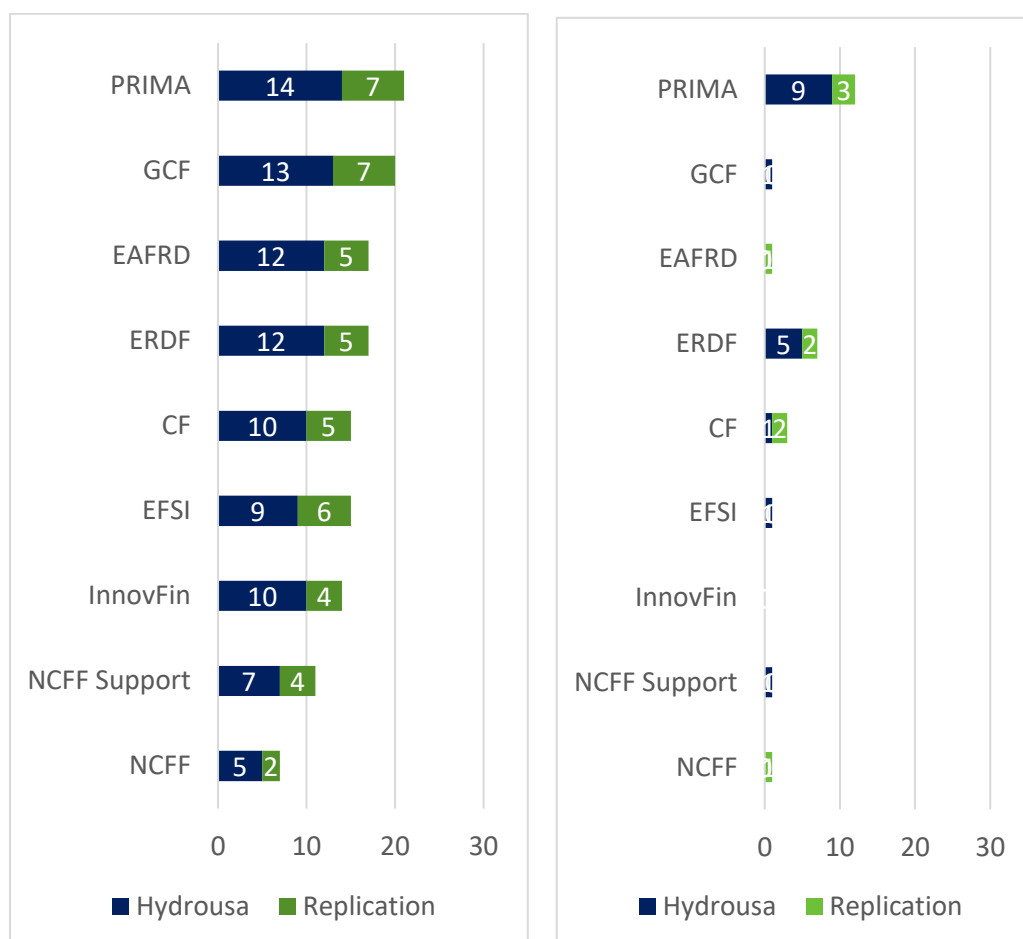


Figure 3.1: Stakeholder knowledge about possible funding vehicles

Results of the survey: PRIMA, GCF, EAFRD and ERDF are quite well known (more than 50% of mentions). However, team members have very limited practical experience with most of the funding vehicles. PRIMA (12) and ERDF (7) are the only options that were mentioned a significant number of times.

3.2.2 Results from qualitative/open questions

Question/statement: “Which additional funding vehicles do you know, or have you used?”

To the question/statement “We have received funding from these additional vehicles for one or more of our projects” the vehicles Horizon 2020, Life, and INTERREG were mentioned the most by both stakeholder groups. Many of the other programs are regional and local vehicles. The following were mentioned multiple times (see Figure 3.2):

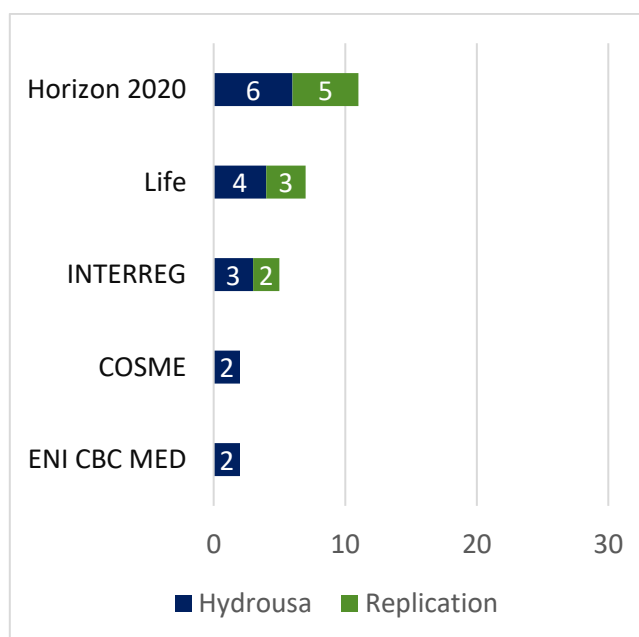


Figure 3.2: Received funding from vehicles mentioned by stakeholders

Answers provided by HYDROUSA team members in the order of how often they were mentioned are listed in Table 3.2.

Table 3.2: Received funding by funding vehicle by HYDROUSA team members

Received funding from the funding vehicle mentioned by HYDROUSA team members
6 x Horizon 2020 ("best research vehicle"; "procedures and portal more user friendly")
4 x LIFE(+)
3 x INTERREG
2 x ENI CBC MED
2 x COSME
ADB – Asian Development Bank
EIT CLIMATE KIC
ESIF – European Structural and Investment Funds
Erasmus+
EuropeAID
French Decentralized Cooperation funds for water and waste
FAO – Food and Agriculture Organization
GEF – Global Environmental Facilities, World Bank
GIZ – German Corporation for International Cooperation
Horizon Europe Life
NUCLIS & RIS3CAT (Catalan government funds for relatively small projects; good, but significant paperwork)
Prasino Tameio – Green Fund Ministry of Environment Region of Attica Private Corp. e.g., Patagonia
PRIMA
RIS3 (Regional Fund by European Regional Development Fund)
Spanish Ministry of Innovation funds, i.e., Torres Quevedo grants (great for fast tech development)
SME Instrument Phase 1
USAID – United States Agency for International Development
Water JPI

Answers provided by Replication Site team members in the order of how often they were mentioned are listed in Table 3.3.

Table 3.3: Received funding by funding vehicle by Replication Site team members

Received funding from the funding vehicle mentioned by Replication Site team members
5 x Horizon 2020 ("great")
3 x LIFE
4 x INTERREG (Europe, Mediterranean, and sub-regional, e.g., Italia-Malta)
2 x Erasmus+
Austrian Development Agency
Bird Foundation ("great")
BMBF Germany
CONACYT (federal agency Mexico)
ENPI (Cross Border Cooperation with neighbourhood countries)
European Parliament: pilot project and grant, implemented by Joint Research Centre and DG Environment
FODECIJAL (local estate agency Mexico)
National Fund from Italian Ministry of the Environment and Ministry of the Economy
Israeli innovation authority
Israeli water authority
Portugal 2020

Question/statement: “While I have not received funding from these sources, I am aware of their existence”:

A total of 35 funding vehicles were listed – most of them regional and local funds. Aside from PRIMA, none funding vehicle were mentioned more than once.

Answers provided by HYDROUSA team members in the order of how often they were mentioned are shown in Table 3.4.

Table 3.4: Awareness of funding vehicles by HYDROUSA team members

Awareness of funding vehicle by HYDROUSA team members (in alphabetic order)
AI
AfDB (African Development Bank)
Banco Santander
Bavarian Water programme
EIC Accelerator Pilot
ERDF
ESF
FFEM – French Facility for Global Environment (https://www.ffem.fr/en)
GEF – Global Environment Facility (https://www.thegef.org)
Green Deal
Horizon Europe
ICO – Instituto de Crédito Oficial
Instituto Català de Finances
Livelihoods Funds (https://livelihoods.eu)
PRIN (national/regional Fund)
ZIM – Das zentrale Innovationsprogramm Mittelstand (BMW)

Answers regarding the awareness of funding vehicles provided by Replication Site team members in the order of how often they were mentioned are shown in Table 3.5.

Table 3.5: Awareness of funding vehicles by Replication Site team members

Awareness of funding vehicle by Replication Site team members (in alphabetic order)
2 x PRIMA
BAYLAT (German fund for Latin America)
Bulgarian Water Supply and Sewage Holding
CYTED (Spain and Latin America Research Fund)
Chamber of Industry and Trade
Chamber of Technology
Development Agency
EBRD
ENI – European Neighborhood Instrument
EU Gulf
Fund for cooperation Italy-Israel
Global Water Foundation
General Directorate of EU and Foreign Regulations
GIZ - German Corporation for International Cooperation
Horizon 2020
ilbank Inc. (projects with budget of more than € 3 Million)
LIFE
OSS (Observatoire du Sahara et du Sahel)

Question/statement: “... good practices (e.g., impact investment, blended funding) ... concerning funding and the above-mentioned vehicles”:

Answers for “good practices” provided by HYDROUSA team members are listed in Table 3.6 below.

Table 3.6: Good practices and recommendations by HYDROUSA team members

Good practices and recommendations by HYDROUSA team members	
⊕	Focus on your past experiences (sectors, technologies, calls, etc.)
⊕	Strengthen links with partners in actual projects
⊕	Cooperate with other clusters, platforms, associations, organizations where the network is important and a way to achieve new opportunities
⊕	Be open and kind with all the proposals. Someday the same enterprise, organization, etc. can propose something more interesting
⊕	Participate in European events and info-days

Answers provided by Replication Site team members regarding good practices and recommendations are shown in Table 3.7 below.

Table 3.7: Good practices and recommendations by Replication Site team members

Good practices and recommendations by Replication Site team members	
⊕	Establishing collaboration with European universities and faculty was very beneficial. This has led to several other joint proposals and publications. (After unsuccessfully applying to EU-Gulf and Horizon 2020)
⊕	Review case studies on water management, following the nexus approach, in arid and semi-arid areas
⊕	Overview the most critical factors that determine food security in arid areas by using specific examples
⊕	Recognize the importance of using the water-energy-food nexus approach towards sustainability
⊕	Present plans for efficient water allocation among the different sectors of the economy in an area
⊕	Adapt to innovative approaches that are currently established for sustainable resources management
⊕	Combine knowledge related to energy, water science and food production to examine if circular economy is achievable
⊕	Understanding constraints and needs for cooperation at basin level, a quantitative comprehensive spatial overview of water volumes and water quality, evaluate methods of simulating the impact of upstream water policies on water use throughout the basin
⊕	To conduct field surveys for the identification and characterization of the areas having a substantial water storage and recovery potential for the implementation of seasonal and long term water storage by means of artificial aquifer recharge.
⊕	Dissemination of water fun program in education tools or setup
⊕	Project Complementarity and Capitalization actions are becoming increasingly engrained in project structures. Both are important to ensure the effective use of project results
⊕	Specific funding sources with established relationship with Latin America (e.g. CYTED and BAYLAT) seem to have advantages over new funding mechanisms cooperating between Europe (or USA) and Latin America, since they have the funding methods (payment, invoicing, reporting formats ready and proved)
⊕	Public-Private Partnership can be also an option
⊕	More industrial engagement towards bringing ideas from lab to market - strong drive for any project or inventor. We would like to see the changes those new technologies might have on humanity, environment, and our planet in general.
⊕	Receive capacity building, start in pilot projects

Question/statement: “...pitfalls (barriers, obstacles) concerning funding and the above-mentioned vehicles”:

Answers regarding pitfalls (barriers, obstacles) provided by HYDROUSA team members are listed in Table 3.8.

Table 3.8: Pitfalls (barriers, obstacles) mentioned by HYDROUSA team members

Pitfalls (barriers, obstacles) mentioned by HYDROUSA team members	
⊗	Most international funds (GEF, FFEM, GCF, Word Bank) difficult to obtain with a very long process.
⊗	JPI: different management procedures at national and international level (incl. availability of funding and complex procedures). This can slow down collaboration among international consortium
⊗	Top-down funds: lack of awareness of local beneficiaries (e.g., technicians, civil servants) on top funder decision, leading to need of complaint management by the project developers
⊗	LIFE and INTERREG Europe do not provide 100% of project costs.

Answers regarding pitfalls (barriers, obstacles) provided by Replication Site team members are listed in Table 3.9 (below).

Table 3.9: Pitfalls (barriers, obstacles) mentioned by Replication Site team members

Pitfalls (barriers, obstacles) mentioned by Replication Site team members	
⊗	The Holding is not yet fully operational; was established by a decision of the Ministerial Council of January 22, 2020
⊗	Slow-moving water tech sector problematic for investors
⊗	Language barrier, because in public administration in Spain broad knowledge of English is an issue

4 MAIN EU AND INTERNATIONAL FUNDING AND FINANCING OPPORTUNITIES

Seventeen main funding and financing programs and instruments were identified as the most relevant opportunities for HYDROUSA solutions. Therefore, they are described in the following chapter 4. For more details it is highly recommendable to read the respective Annex and follow the indicated links. In order to avoid misinterpretations and misunderstandings, and to quote the information as concise as possible, the Annex mainly consists of verbatim recitations of the original source. Table 4.1 gives a short overview including most significant information.

Furthermore, we have not included any subjective experiences or recommendations in this chapter. Such information can be found predominantly in chapters 3, 5, and 6.

Table 4.1: Overview of funding/financing opportunities for replication of HYDROUSA solutions

No.	Chapter	Funding / Financing vehicle	Sectors and topics relevant for HYDROUSA	Region	Expiration (year)
1	4.1	PRIMA (Partnership for Research and Innovation in the Mediterranean Area)	water, farming, agrofood value chain	Mediterranean	2028
2	4.2	Interreg	innovation, carbon dioxide reduction, protection of natural and cultural resources	EU	none
3	4.3	ERDF (European Regional Development Fund)	investment for jobs and growth; European territorial cooperation	Europe	2027
4	4.4	Cohesion Fund	greener, low-carbon and circular economy; connected Europe	Europe	2027
5	4.5	EAFRD (European Agricultural Fund for Rural Development)	agriculture; natural resources and climate action; development of rural economies and communities	Europe	2027
6	4.5.1	EIP-Agri (European innovation partnership for agriculture)	bridge the gap between researchers creating innovative solutions and final users of the innovations	Europe	no expiration date found
7	4.6	EMFAF (European Maritime Fisheries and Aquaculture Fund)	sustainable fishing, support to coastal communities, new jobs and improve quality of life along European coasts, etc.	European coastlines	2027
8	4.7.1	EFSI (European Fund for Strategic Investments)	sustainable infrastructure; research, innovation, and digitalization; SMEs; social investment and skills	EU	2020
9	4.7.2	InvestEU (Invest Europe)	sustainable infrastructure; research, innovation, and digitalization; SMEs; social investment and skills	EU	2027
10	4.8	InnovFin	miscellaneous, innovations of all kinds	EU, associated countries	2020
11	4.9	LEADER	bottom-up approach on rural development	Europe	2022
12	4.10	GCF (Green Climate Fund)	climate change mitigation, climate change adaptation, cross-cutting	Worldwide	no data found
13	4.11	NCCF (Natural Capital Financing Facility)	biodiversity, nature-based adaptation to climate	EU, associated countries	2021

14	4.12	LIFE (Programme for the Environment and Climate Action)	nature and biodiversity; circular economy and quality of life; climate change; clean energy transition	EU	2027
15	4.13	Horizon Europe (former: Horizon 2020)	key funding programme for research and innovation; topics: food, bioeconomy, natural resources, agriculture, and environment	EU	2027
16	4.14	ECBF (European Circular Bioeconomy Fund)	Agro, farming, nutrition	EU, associated Countries	none
17	4.15	ETS Innovation Fund	low-carbon innovative technologies, including energy storage technologies	EU	depending on budget

4.1. PRIMA – Partnership for Research and Innovation in the Mediterranean Area

PRIMA is a very ambitious joint program within the framework of Euro-Mediterranean cooperation, to which so far 19 countries have committed themselves. It started in 2018 and will run until 2028. It offers various types of funding that can be applied for through competitive calls. The grant reimburses up to 100% of the eligible costs.

In each of the 19 countries there are national representatives that act as so-called National Contact Points (NCP). They will provide the applicants with the necessary support.

More information:

Further information can be found in the Annex 10 or under the following links.

NPCs: <https://prima-med.org/calls-for-proposals/ncps/>

Application: <https://prima-med.org/calls-for-proposals/general-information/>

General: <http://prima-med.org/> and <https://prima-med.org/about-us/prima-in-brief/>

4.2. Interreg

As part of the EU's structural and investment policy, Interreg, also known as the European Territorial Cooperation, works in line with the objectives of the Europe 2020 strategy. Interreg is the EU's main programme to support cross-border infrastructure, labor market integration and cultural exchange (Interreg A) as well as transnational cooperation in larger areas (Interreg B).

From 2014 to 2020, the EU made 1.39 billion euros available for Interreg projects.

Interreg can be considered a primary programme to a range of subordinate instruments and funding programmes. Five main Funds work together to support economic development across all EU countries:

- [European Regional Development Fund \(ERDF\)](#)
- [European Social Fund \(ESF\)](#) (supposedly no relevance for HYDROUSA)
- [Cohesion Fund \(CF\)](#)
- [European Agricultural Fund for Rural Development \(EAFRD\)](#)
- [European Maritime and Fisheries Fund \(EMFF\)](#)

All these funds are being revised at the same time as this document is being created. Only after the European Commission's final agreements on the European Territorial Cooperation for the time period of 2021-2027 the information will be updated on the corresponding websites and other media.

More information:

Further information on interreg can be found under the following links.

https://ec.europa.eu/regional_policy/index.cfm/de/policy/cooperation/

https://ec.europa.eu/regional_policy/en/policy/cooperation/

<https://www.interreg-central.eu/Content.Node/home.html>

<https://www.interreg.de/INTERREG2014/DE/Interreg/WasistINTERREG/wasistinterreg-node.html>

https://www.interreg.de/INTERREG2014/EN/Home/home_node.html

https://ec.europa.eu/regional_policy/en/funding/

4.3. European Regional Development Fund – ERDF

The European Regional Development Fund (ERDF) is one of the main financial instruments of the EU's cohesion policy. Its purpose is to contribute to reducing disparities between the levels of development of European regions. Thematically it concentrates on research and innovation, on information and communication technologies (ICT), on SMEs and on the promotion of a low-carbon economy. Depending on the degree of a region's development the ERDF can finance up to between 85% (in the less developed regions) and 50% (in the more developed regions) of the cost of a project.

Proposal for the post-2020 EU cohesion policy

According to the Commission proposals, in the programming period 2021-2027, around EUR 200.6 billion will be allocated to the ERDF (including EUR 8.4 billion for ETC and EUR 1.5 billion of special allocations for the outermost regions).

These regulations are subject to the ordinary legislative procedure, where the European Parliament is on an equal footing with the Council. This means that before the end of 2020, these two institutions will have to find a consensus on the rules for the ERDF in the future.

How to apply:

The application for ERDF funds is managed regionally. In order to apply one has to reach out to the authority managing the relevant regional programme.

More information can be found here: https://ec.europa.eu/regional_policy/en/funding/accessing-funds

Where to get support:

There are many sources of help and advice on getting EU regional funding. For HYDROUSA sites the most useful sources to address could be the Europe Direct information relays, with hundreds of information points all over Europe and the Enterprise Europe Network, which provides expert advice to small businesses on how to access EU public funds and grants for research and development, innovation, investment, employment, and training.

Main recited sources (May 2021):

https://ec.europa.eu/regional_policy/en/funding/accessing-funds/

<https://www.europarl.europa.eu/factsheets/en/sheet/95/european-regional-development-fund-erdf->

4.4. Cohesion Fund

The Cohesion Fund was established in order to strengthen the economic, social, and territorial cohesion of the European Union while at the same time promoting sustainable development. It is reserved to the EU



Member States whose gross national income per capita is less than 90% of the EU average. Amongst other topics it provides support to investments in the environment, including areas related to sustainable development and energy which additionally present environmental benefits. The Cohesion Fund will support two specific objectives one of which is a greener, low-carbon and circular economy. That probably makes this program essential for funding and financing HYDROUSA projects in the EU.

How to apply:

The application for Cohesion Fund is managed regionally. In order to apply one has to reach out to the authority managing the relevant regional programme.

More information can be found here: https://ec.europa.eu/regional_policy/en/funding/accessing-funds

More information:

Further information can be found in the Annex 12 or under the following links.

https://ec.europa.eu/regional_policy/en/funding/accessing-funds/

<https://www.europarl.europa.eu/factsheets/en/sheet/96/cohesion-fund>

4.5. European Agricultural Fund for Rural Development – EAFRD

The European Agricultural Fund for Rural Development (EAFRD) is a Structural and Investment Fund linked to the second pillar of the EU's Common Agricultural Policy (CAP). It is intended to strengthen the EU's rural areas in general, and specifically its agriculture as well as its agro-food and forestry sectors. Agriculture, forestry, and the environment along with sustainable development of the rural economy are mainly supported by grants and increasingly also by financial instruments. These financial instruments are expected to be repaid and aim to attract co-investments from other sources, including private investment. They can take the form of loans, guarantees, equity, or they can be combined with grants and other types of support. The EAFRD's objectives are realised through national and regional rural development programmes (RDPs), which are co-financed by the EAFRD and the national budgets of EU countries.

More information:

Further information can be found in the Annex 13 or under the following links.

<https://www.fi-compass.eu/esif/eafrd>

[https://www.fi-](https://www.fi-compass.eu/sites/default/files/publications/EAFRD)

[compass.eu/sites/default/files/publications/EAFRD](https://www.fi-compass.eu/sites/default/files/publications/EAFRD) The european agricultural fund for rural developme
nt EN 0.pdf

[https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/financing-
cap/cap-funds](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/financing-cap/cap-funds)

[https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-
development_en](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en)

4.5.1. EIP-Agri: European innovation partnership for agricultural productivity and sustainability

The European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-Agri) supports the implementation of the EU's rural development goals by trying to bridge the gap between innovative solutions created by researchers and the uptake of new technologies by people who live and work in rural areas. Its primary instrument is to create partnerships between the ultimate users of the new technologies and those who develop them.

More information:

Further information can be found under the following links.

https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en

4.6. European Maritime Fisheries and Aquaculture Fund (EMFAF)

EMFAF helps fishers to adopt sustainable fishing practices and coastal communities to diversify their economies, improving quality of life along European coasts. It is one of the five European Structural and Investment Funds (ESIF) which complement each other to deliver more jobs, welfare, and growth in the EU.

For HYDROUSA the relevant EMFAFs facilitation topics are:

- the development of a sustainable and competitive aquaculture contributing to food security
- the improvement of skills and working conditions in the fishing and aquaculture sectors
- **the economic and social vitality of coastal communities**

How to apply:

In order to check, whether a project is eligible for EMFF support, one has to reach out to the national authority in charge of managing the operational programme in the respective country. After that, there are application procedures to follow. The second link below provides amongst other information a list of national authorities to be contacted.

More information:

Further information can be found under the following links.

https://ec.europa.eu/oceans-and-fisheries/funding/emfaf_en

https://ec.europa.eu/oceans-and-fisheries/funding/european-maritime-and-fisheries-fund-emff_de

4.7. European Fund for Strategic Investments (EFSI) and InvestEU

InvestEU will take over EFSI and other programmes in the course of 2021. One can expect that the ways of application and fields for funding will be similar to the predecessor's EFSI. Information so far (May 2021) is still imprecise.

4.7.1. EFSI (until 2020)

The EFSI program (European Fund for Strategic Investments) was set up in 2014 with the intention to speed up Europe's recovery from the financial crisis by supporting relatively high-risk but economically viable projects through guarantees so that they were more easily accepted by the EIB. As a guarantee instrument the EFSI enabled the EIB Group to accelerate numerous projects and to take significantly more risks when investing. If SMEs and mid-caps met the EFSI criteria, they could secure funding for their projects via national promotional banks and local financial intermediaries.

The EFSI Investment Committee ended its work for EFSI in 2021. During 2021, building on the success of EFSI, InvestEU will become the European Union's new long-term funding program.

The last approval of projects by the EFSI Investment Committee took place in December 2020. During 2021, building on the success of the EFSI, InvestEU will be implemented as the European Union's new long-term funding program.



The joint initiative of the European Investment Bank and the European Commission helps to attract private investment for research, development, and innovation, for energy, for environment and resource efficiency, SMEs, etc. Amongst others, companies of all sizes can apply.

Support is provided by the European Investment Advisory Hub (EIAH) for projects and investments at all stages of the project cycle. The advisory services include technical support for project preparation and implementation, enhancing use of EU funds in financial instruments and access to finance for innovation projects.

More information:

Further information can be found in the Annex 14 or under the following links.

<http://eiah.eib.org>

<https://www.eib.org/en/efsi/index.htm>

<https://www.eib.org/de/products/mandates-partnerships/efsi/index.htm>

Main source of information:

https://www.eib.org/attachments/thematic/investment_plan_for_europe_en.pdf

4.7.2. InvestEU (starting 2021)

Since April 2021 InvestEU has taken the place of EFSI. The Programme seems not to be entirely installed yet at the moment of the finalization of this report (May 2021, small updates in July 2021). Thus, the description of InvestEU in this report remains incomplete. The links should lead to the latest information.

For the new funding period, a great variety of instruments have been merged into a single one named InvestEU, because the high number of financial instruments caused risks of fragmentation, policy or financial overlaps, multiplication of agreement, and multiplication of different fees. InvestEU will now combine the European Fund for Strategic Investments (EFSI) with 13 other EU financial instruments. The plan envisages that over EUR 372 billion in additional investments will be triggered over the period 2021-27. *“The InvestEU Programme aims to give an additional boost to sustainable investment, innovation, and job creation in Europe.”* (European Union, 2021)

The Programme will consist of an InvestEU Fund, the InvestEU Advisory Hub, and the InvestEU Portal.

The InvestEU Programme supports the following 4 main policy areas (“windows”): Sustainable infrastructure, research, innovation and digitisation, SMEs and Social investment and skills.

Agriculture related investments could be supported under all four of InvestEU windows.

More information:

Further information can be found in the Annex 15 or under the following links.

https://europa.eu/investeu/about-investeu_en

https://europa.eu/investeu/about-investeu/what-investeu-programme_en

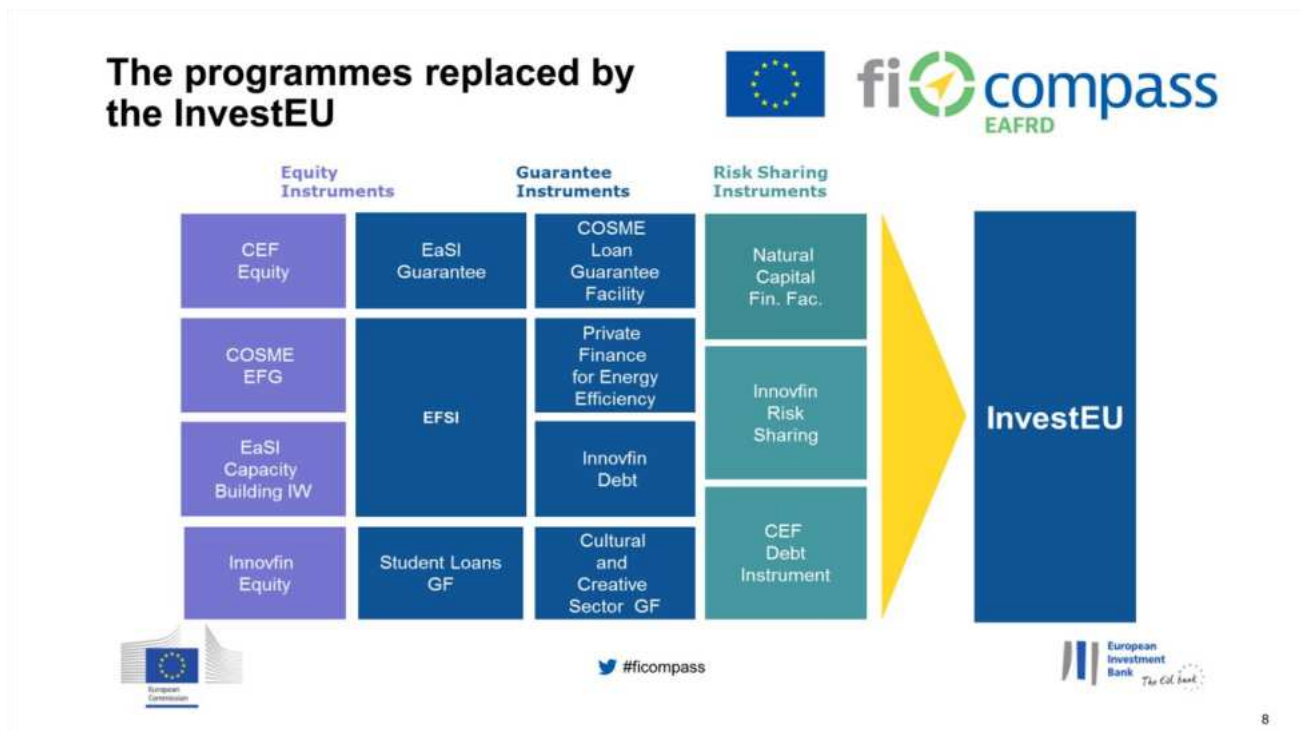


Figure 4.1: EU Programmes replaced by the InvestEU (2021-2027)

4.8. InnovFin – EU Finance for Innovators

Just like EFSI, InnovFin has been reorganized and renamed in 2021. It now runs under the programme Horizon Europe Pillar III - Innovative Europe, which contains the European Innovation Council as well as the European Institute of Innovation and Technology.

InnovFin (EU Finance for Innovators) consisted of financial instruments and advisory services from the European Commission and the European Investment Bank Group, with the aim of providing innovative companies of all sizes with easy access to finance in the EU and beyond. InnovFin was part of Horizon 2020, the EU research and innovation program for the period 2014-2020. It offered a range of bespoke products to fund corporate research and innovation, as well as support for research infrastructure funders.

InnovFin supported activities that were inherently riskier and harder to evaluate than traditional investments and which therefore had difficulty in accessing finance. All instruments were demand-driven, with no prior allocation between sectors, countries, or regions. Companies and other organizations based in EU Member States and countries associated with Horizon 2020 could become final beneficiaries. Typically, the EIB paid between 35% and 50% of the project or investment costs, which was often crucial in attracting other public or private sector investors.

The EIB assesses the eligibility of the company and / or project, the technological and economic viability, and the environmental impact, as well as the financial situation and prospects of the promoter. Subject to the completeness of the information available and the nature of the financing, it will take approximately six months between initial contact with the EIB and the signing of a financing contract

More information:

Further information can be found in the Annex 16 or under the following links.

<https://www.eib.org/en/products/blending/innovfin/index.htm>

https://www.eib.org/attachments/thematic/innovfin_eu_finance_for_innovators_en.pdf

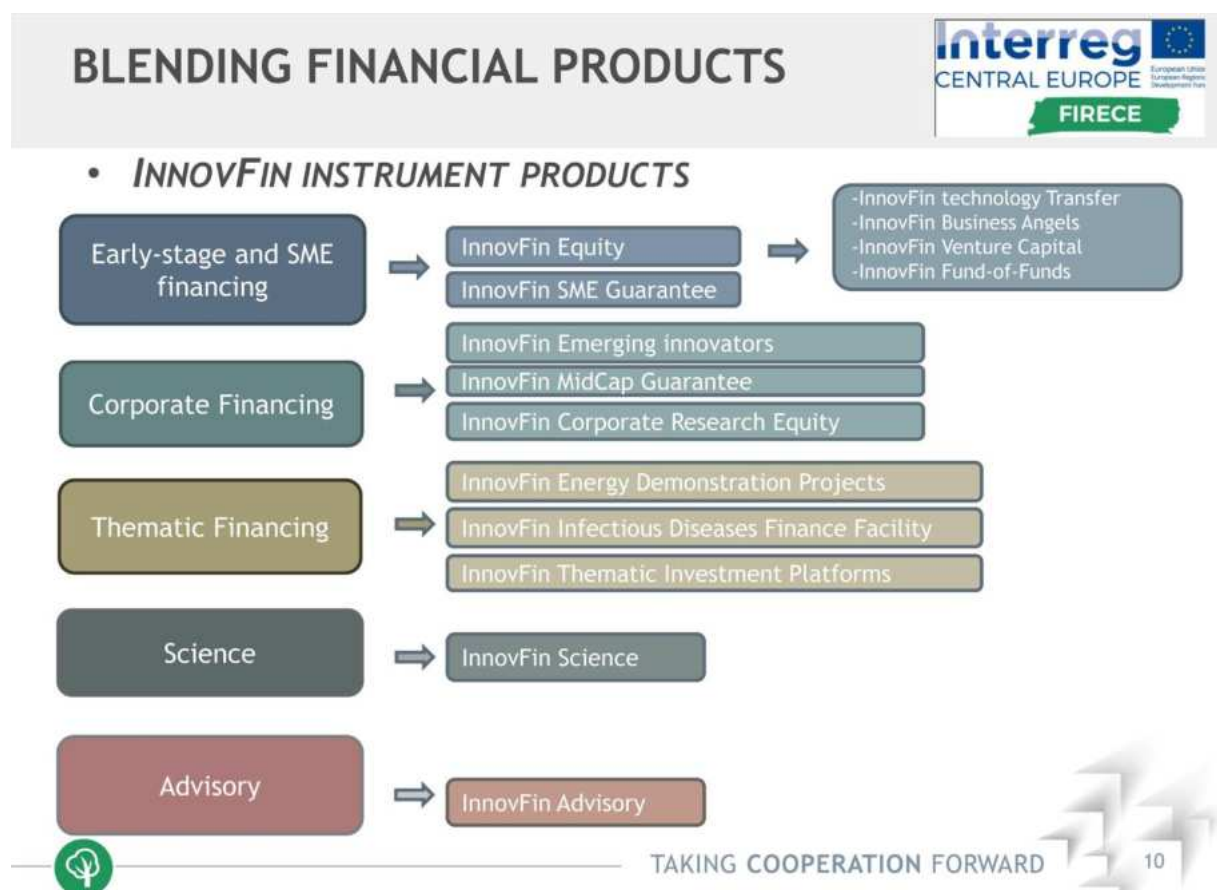


Figure 4.2: InnovFin – overview of blended financial products

4.9. LEADER

LEADER follows a "bottom-up" approach, where local actors design their own regional development strategies and manage their own budget. They are organized as so-called Local Action Groups (LAGs), in which individuals and rural companies from various sectors, farmers as well as local organizations and authorities put their heads together and get active for their own region.

The LEADER approach strengthens bonds in local communities, promotes cross-sectoral innovation and facilitates the exchange of knowledge between LAGs at national and EU-wide level.

Hydrousa projects are likely to fit well into the regional development strategies of Local Action Groups. By the way, new LAGs can also be initiated anytime, anywhere. The local authorities will help and, in most cases, will be happy to contribute. Detailed information on the LEADER approach is provided by the ENRD, including a database of LAGs.

More information:

Further information can be found in the Annex 17 or under the following links.



https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en

https://enrd.ec.europa.eu/sites/default/files/leader-clld_faqs.pdf.

https://enrd.ec.europa.eu/leader-clld_en

4.10. Green Climate Fund (GCF)

The Green Climate Fund (GCF) invests in low-emission and climate-resilient development. GCF was set up as a global platform by 194 governments to reduce greenhouse gas (GHG) emissions in developing countries (in particular also Small Island Developing States (SIDS) and African countries). In addition, vulnerable societies will be supported in adapting to the inevitable effects of climate change. For maximum impact, the GCF intends to catalyze funds, multiplying the impact of its initial funding by opening up markets to new investment. GCF invests through the so-called Accredited Entities in adaptation and mitigation activities and manages a project portfolio that is implemented by these partner organizations.

The investment criteria and its related indicators can be explored on the homepage. Applications are assessed by the Accredited Entities.

<https://www.greenclimate.fund/projects/criteria>

More information:

Further information can be found in the the Annex 18 or under the following links.

<https://www.greenclimate.fund/>

<https://www.greenclimate.fund/projects/criteria>

4.11. Natural Capital Financing Facility (NCFF)

The Natural Capital Financing Facility (NCFF) was established by the European Investment Bank (EIB) in collaboration with the European Commission as a response to biodiversity loss and climate change, as increasing investments in natural capital are urgently needed if persistent trends are to be stopped. This financial instrument supports projects promoting biodiversity and climate adaptation through tailored loans and investments. The EU grants the guarantees to the projects funded by the NCFF, that for their part have to generate income or demonstrate cost savings.

The NCFF has been extended and it accepts project proposals until the end of 2021! Since HYDROUSA project uses nature-based solutions to adapt to climate change, this seems to be an appropriate financing instrument.

In order to set up an NCFF project a first step is to express interest to the EIB, who will then check its eligibility. After a positive check, a funding application has to be developed. The LIFE **National Contact Points (NCPs)** can assist in the development of a strong NCFF project. In case of selection, the EIB will then approve and provide funding.

More information:

Further information can be found in the Annex 19.

Detailed information on the NCFF, including how to apply, can also be found here:

https://ec.europa.eu/environment/archives/life/funding/financial_instruments/ncff.htm

Contact details of the NCPs can be found at:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/ncp>

<https://www.eib.org/attachments/pj/ncff-invest-nature-report-en.pdf>

4.12. The LIFE Programme (2021-2027)

As the European Union's funding instrument for the environment and climate action, the LIFE Programme's (French: L'Instrument Financier pour l'Environnement) general aim is the implementation of EU environmental and climate policy. Therefore, LIFE is intended to co-finance projects with European added value. [Information on the current LIFE programme has been difficult to assemble. During the creation of this report, the old period was expiring, while the new one had not yet been completely established. Websites or other sources of information were either in the process of being archived or not adequately updated.]

LIFE is the EU's multiannual parent work programme to a range of instruments and funding programs, all of course within the topic of environment and climate action. The new LIFE programme (2021-2027) will cover the following areas:

- Nature and biodiversity
- Circular economy and quality of life
- Climate change mitigation and adaptation
- Clean energy transition

Since recently, the implementation of many EU instruments, including the LIFE programme, is managed by the European Climate, Infrastructure and Environment Executive Agency (CINEA). External selection, monitoring and communication teams provide assistance to the Commission CINEA.

More information:

Further information can be found in the Annex 20 or under the following links (May 2021).

FAQs: <https://ec.europa.eu/easme/en/section/life/frequently-asked-questions-faqs>

Support for applicants: https://cinea.ec.europa.eu/life/life-support-applicants_en

EU National Contact Points : <https://ec.europa.eu/easme/en/section/life/life-eu-countries>

Call for proposals:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/life2027>

4.13. Horizon Europe

During the creation of this report the programme Horizon 2020 was expiring, while the follow up programme Horizon Europe had not been completely established. Therefore, sources for information were relatively scarce. The information found was mainly taken from the official European Commission's presentation.

As the most important EU funding programme for research and innovation, Horizon Europe, the follow-up programme to Horizon 2020, has a budget of almost 100 billion euros. It aims as much as possible to combat climate change and to contribute to the achievement of the UN sustainability goals. At the same time, the competitiveness and economic growth of the EU are to be promoted. The programme is also designed to facilitate collaboration while enhancing the impact of research and innovation in developing, supporting, and implementing EU policies while addressing global challenges. It will provide support in the creation and better dispersing of excellent knowledge and technologies.

Funding opportunities to be awarded under Horizon Europe are assigned to specific work programmes.

New elements in Horizon Europe are (see also Figure 4.4):

- **European Innovation Council:** Support for innovations with potential breakthrough and disruptive nature with scale-up potential that may be too risky for private investors. This is 70% of the budget earmarked for SMEs.
- **Missions:** Sets of measures to achieve bold, inspirational, and measurable goals within a set timeframe. There are 5 main missions as part of Horizon Europe.
- **Open science policy:** Mandatory open access to publications and open science principles are applied throughout the programme.
- **New approach to partnerships:** Objective-driven and more ambitious partnerships with industry in support of EU policy objectives

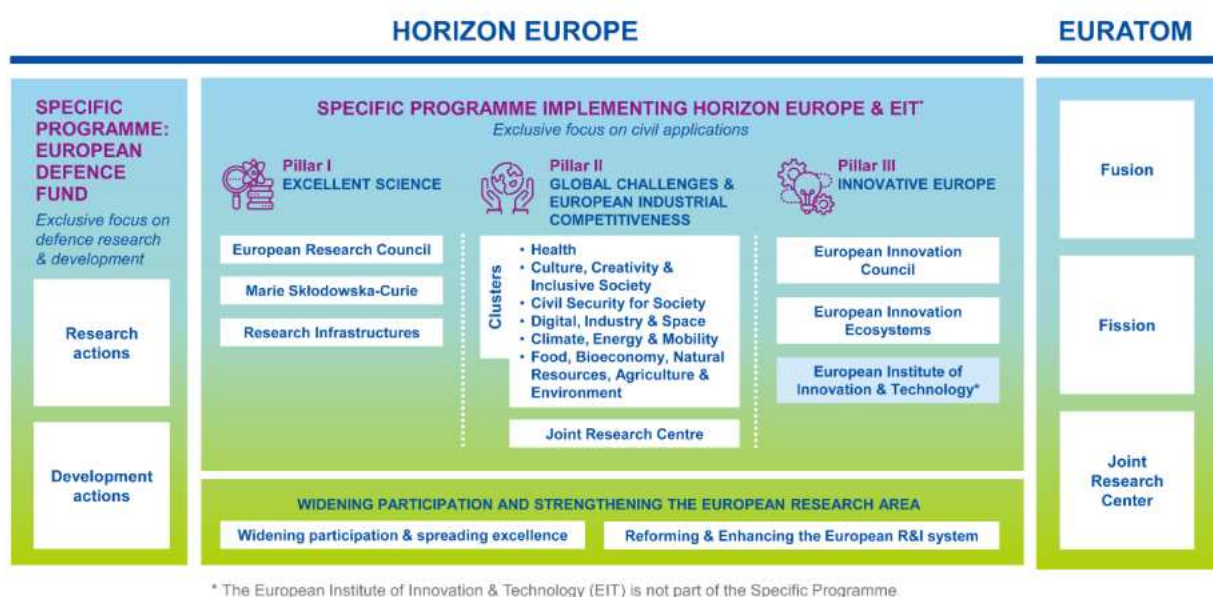


Figure 4.3: HORIZON EUROPE: Overview of the programme

Most potentially interesting for some HYDROUSA demonstration and replication sites are Pillars II and III:

- **Pillar II - Global Challenges and European Industrial Competitiveness** contains the clusters *Climate, Energy and Mobility* and *Food, Bioeconomy, Natural Resources, Agriculture and Environment*.
- **Pillar III - Innovative Europe** contains the *European Innovation Council* as well as the *European Institute of Innovation and Technology*

More information:

Further information can be found in the Annex 21 or under the following links (May 2021).

https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents;programCode=HORIZON>

https://ec.europa.eu/info/sites/default/files/research_and_innovation/funding/presentations/ec_rtd_he-investing-to-shape-our-future.pdf

Apply for funding:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-search>



4.14. ECBF – European Circular Bioeconomy Fund

The European Circular Bioeconomy Fund (ECBF I SCSp) is the first venture fund exclusively dedicated to investing in growth-stage companies in the European bioeconomy, including the circular bioeconomy. Therefore, it has **highly interesting partner potential for HYDROUSA!**

The ECBF's main objective is to encourage capital investments that help companies with high innovation potential, favorable returns, and sustainable impact at the stage of scaling up. By contributing to the transition to a circular economy, introducing binding sustainability criteria into the investment decision process and by complying with the latest European legislative developments in relation to Environmental, Social and Governance (ESG) disclosure, the ECBF aims to contribute to the achievement of the European Green Deal goal of making Europe climate neutral by 2050.

The ECBF's pipeline includes investments ranging from bio-based chemicals and textile recycling to industrial biotechnology, agri-tech and bio-based compostable packaging solutions, etc. (see Figure 4.4).

Most Hydrousa projects that plan to scale up their business are likely to meet the ECBF's investment criteria. (Further information on the criteria can be found in the appendix). The investment volume per project ranges from € 2.5 million to € 10 million.

More information:

An overview of the most important ECBF facts is given in Figure 4.4.

Further information can be found in the Annex 22 or under the following links (May 2021).

www.ecbf.vc

https://static1.squarespace.com/static/5f59fb96f6adb61fc160c8d4/t/60506f83e89c4b4c7902cdcd/1615884164729/20210316+Website+SFDR_FV.pdf

https://static1.squarespace.com/static/5f59fb96f6adb61fc160c8d4/t/606c069726be53510a7b58df/1617692311724/20210405_Fact+Sheet.pdf



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 776643



ECBF Facts

Targeted Fund Size:	EUR 250m
Potential Investors:	European Investment Bank (EIB), cornerstone investor
	Investment from European countries/national promotional banks
	Industry Investors (corporates)
	Financial investors (e.g. family offices, institutional investors, pension funds)
Minimum Investment:	EUR 5m
Duration:	5 years investment period 5 years disinvestment period Option to extend for 2x 1 year
Domicile of the Fund:	Luxembourg
Legal Structure:	Specialized Limited Partnership (SCSp)
Planned Portfolio Composition:	EUR 40m into 8 companies at first growth stage (e.g. scaling up from pilot to demonstration stage)
	EUR 100m into 8 companies at second growth stage (e.g. transition from demonstration to industrialization)
	EUR 60m into 6 projects focusing on global expansion
Instruments:	Equity, mezzanine, venture debt
Regional Focus:	European Union including the HORIZON 2020 associated countries
Added Value:	High-profile networks within the bioeconomy sector: investors, corporates, industry experts and local agencies in key investment geographies
Syndication:	ECBF will act as lead- or co-investor. In structuring financing rounds with other investors and other sources such as grants, regional and local incentive schemes will be key.

AIFM:	Hauck & Aufhäuser Fund Services S.A.
Investment Advisor:	ECBF Management GmbH, Germany 70+ years investment and corporate experience within the team
Management Fee:	2.15% on committed capital during the investment period, on invested capital thereafter. All fund expenses capped at 20% of committed over the term of the Fund. An average annualized management fee of around 1.6% p.a. is expected.
Preferred Return:	8% p.a., compounding
Alignment of Interest:	Team contributes significantly to ECBF I SCSp
Envisaged DPI:	Ca. 160%
Envisaged IRR:	23% (gross)
First Closing (08/2020):	EUR 80 m
Second Closing (12/2020):	EUR 175 m
Final Closing (08/2021):	EUR 250 m (Cap @ EUR 300 m)

Investors



Press Release (December 2020)

[The European Circular Bioeconomy has raised €175 million to foster sustainable innovations](#)

Figure 4.4: European Circular Bioeconomy Fund (ECBF) – Overview

4.15. Innovation Fund by EU ETS

The Innovation Fund is one of the world's largest funding programs for demonstrating innovative low-carbon technologies. The aim is to bring industrial solutions for the decarbonisation of Europe to the market and to support Europe's transition to climate neutrality. The innovation fund focuses on highly innovative technologies and large flagship projects within Europe that can lead to significant emission reductions. Therefore, the Innovation Fund will share the risk with promoters to help with the demonstration of first-of-a-kind highly innovative projects.

There will be regular calls for proposals during the running time of the Innovation Fund. It supports up to 60% of the project costs. The projects are selected on the basis of the effectiveness of the avoidance of greenhouse gas emissions, the degree of innovation, the project maturity, the scalability and the cost efficiency. Funding from the innovation fund can be combined with other public support.

The general funding procedure is shown in Figure 4.5. The Commission has appointed the Innovation and Networks Executive Agency as the implementation body of the Innovation Fund.



Figure 4.5: Innovation Fund by EU ETS – funding procedure

More information:

Further information can be found in the Annex 23 or under the following links.

https://ec.europa.eu/clima/policies/innovation-fund_en

For application:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/innovfund>

5. ALTERNATIVE FUNDING & FINANCING OPPORTUNITIES

In this chapter the report describes alternative financing opportunities and schemes which were investigated, especially where no or only minimal top-up co-funding from EU/EC or other superior bodies is possible or necessary. These alternative funding opportunities include financing through municipalities, community involvement (crowd-financing etc.), institutional investors like the World Bank, regional development banks, ethical banks, sustainable pension funds etc., private investors (venture capital donors etc.), and water utility organizations.

The reference to “alternative” funding and financing refers to specific financial channels, processes, and instruments that often have emerged outside of or parallel to the traditional mainstream finance system. In that respect the “traditional system” consists of regulated funding vehicles of national and/or supra-national authorities, regulated banks, investment banks, investment companies, and pension funds as part of the capital markets. Further alternative funding and financing activities are provided through “online marketplaces” such as reward-based crowdfunding, equity crowdfunding, revenue-based financing, online lenders, peer-to-peer consumer and business lending, and invoice trading third party payment platforms. Lately alternative finance instruments include crypto-currencies such as Bitcoin, SME mini-bond, social impact bond, community shares, private placement, and other crypto-banking mechanisms.

To finance water infrastructure and water projects in respect to HYDROUSA – covering also the circular and nature-based approach, there exists a wide range of alternative options from a variety of investment sources. Each financing model should be tailored to the specific needs of the project, stakeholders, companies, and assets involved. Key to considering the most appropriate model is ensuring that the financing structure evaluates and allocates financial and technical risks in highly effective manner. Usually this entail that the different types of risks are allocated to the parties most able to manage and mitigate, or otherwise deal with that special risk.

Key type of risks to be considered regarding water treatment plants and infrastructure include:

- construction and commissioning,
- supply and offtake (demand),
- operations and maintenance,
- environment and society (sustainability),
- reputation and legitimisation,
- management (personnel),
- law and property,
- finance and economy.

Different types of projects can be structured by size of the project, age (of water infrastructure), regional location, applied technology, capital profile (investment demand, funding, on- or off-balance sheet treatment, etc.), integration, operational control, greenfield versus brownfield, political sensitivities, and other government drivers.

The following Table 5.1 gives a sketch overview of how different project types (models/arrangements) are optionally financed by three main investment sources:

1. government and authorities (states, counties, municipalities, etc.),
2. traditional financial market organizations (banks, pension funds, insurances, etc.), and
3. investors (private, venture, crowd, etc.)

Table 5.1: Overview of financing sources for water projects
(Australian Water Association, 2017)

TYPE OF PROJECT (MODEL/ARRANGEMENT)	INVESTMENT SOURCE		
	GOVERNMENT	BANKS	INVESTORS
Traditional Model	X	X	X
Regulatory Asset Base Model (RAB)	X	X	X
Public Private Partnerships Model (PPP)	X	X	X
Green Bonds			X
Value Capture	X	X	X
Concessional Loans	X		
Grants	X		
Long Term Lease		X	X
Direct Structured Lease		X	
Indirect Structured Financing		X	

5.1 Municipalities

Water services and therefore water agencies are generally stand-alone operations from municipalities, with separate budgets. (There are exceptions, where the water utility is part of the municipality. This is more common with smaller utilities in small municipalities.) Mostly the budgets are still separate, though there may be cash transfers to the general fund for shared services (planned and budgeted). Utility budgets are funded from a variety of sources, depending on the municipality. Funds are separate, but sometimes there are shared administrative expenses.

In large municipalities (water and wastewater) utilities tend to be separate entities with separate budgets from the city's general fund, sometimes drinking and wastewater are also separate. In smaller municipalities these utilities may be under the same municipal budget, but frequently use the "Enterprise Fund concept". This concept is used to separate funds from general funds, with dedicated use (e.g., water/wastewater). A large portion is funded by rates and user fees, and some portion is financed with debt. Most of the Enterprise Fund is used for operating and maintenance (O&M). Municipalities often tend to separate budgets between operating and maintenance (O&M) and capital needs. The largest portion of spending is for O&M, and its budget is heavily reliant on rates for revenue.

A significant portion of funding for capital projects comes from debt, with dedicated uses, often restricted by covenants. Additionally, user fees, taxes, and pay-as-you-go (cash) funds the capital budget. Frequently, larger utilities have a Capital Improvement Program (CIP). The structure of larger municipalities and the use of debt reduces the likelihood of cash transfers to municipalities. While infrequent, the potential for cash-transfers is greater with smaller municipalities.

In Figure 5.1 the general organizational structure and funding sources for Municipalities and Water Utilities are shown and described.

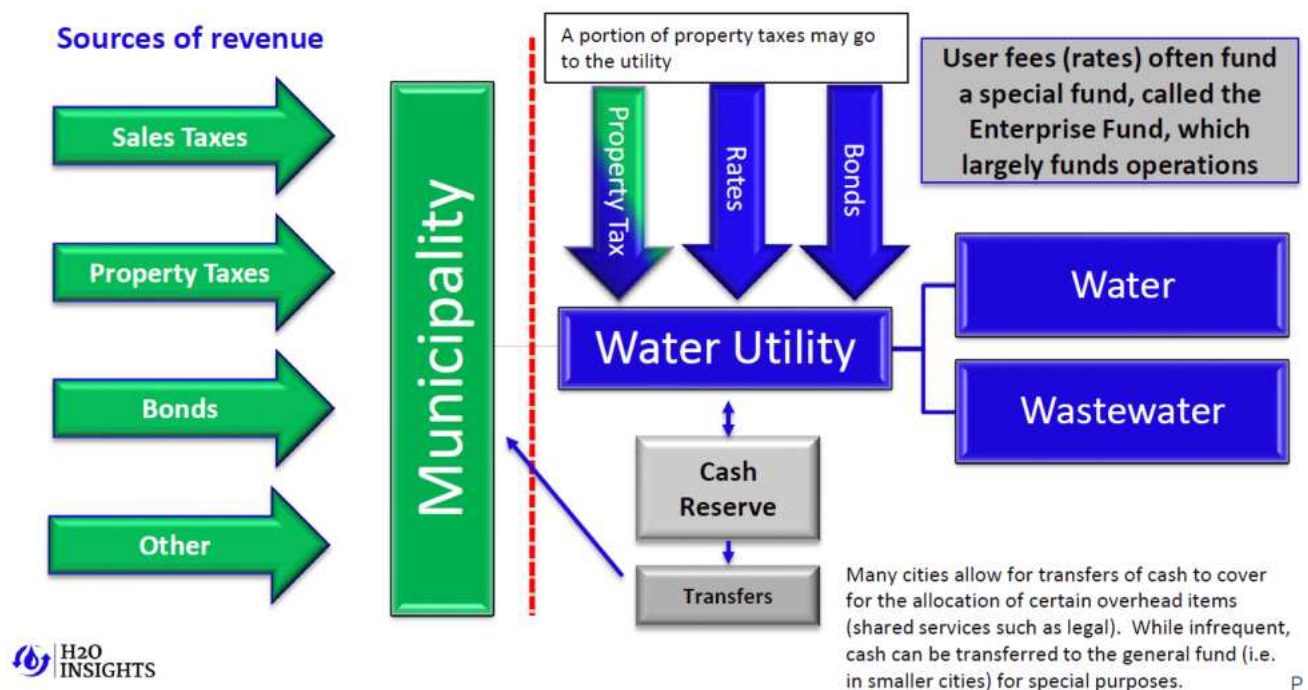


Figure 5.1: Organizational Structure and Funding Sources for Municipalities and Water Utilities
(Ref. H2O Insights, 2020)

Municipalities and innovative water projects

Many cities are exploring ways to upgrade (water) infrastructure and utilizes with nature-based, smarter, and more sustainable technologies. But paying for these projects presents a significant challenge - introducing this technologies and services on a wide-scale basis. Constrained by tight budgets, municipalities need to identify business models that can help to attract private financing to make the introduction viable and financeable.

Several factors make it difficult to finance nature-based, sustainable, and decentralized water projects for municipalities. One common obstacle involves technology risk: the project may be the first to deploy a particular technology, reducing investor confidence in the integration and usability of the technology in the absence of demonstrable proof of concept. It may also be hard to secure financing for an innovative water project where it is sometimes difficult to monetize the (financial) benefits of the project.

For example, a project might offer a clear positive socioeconomic impact, but there may be no way to assign a financial calculation and money figure to that benefit, including the potential to generate revenues. Other impediments to financing include projects that do not have a clear path to steady revenue, where the return on investment (ROI) is uncertain, and/or the unconventional nature of innovative water projects based on decentralized solutions, which often lack the traditional, single sector focus that conventional financing favors. Lastly, the types of financiers that will generally understand nature-based, circular solutions often have an infrastructure background. However, their preference is for long-term projects. The short-term nature of technology-related projects can be outside their remit or bring additional risk and challenges that need to be considered.

A key step in any project financing effort is developing a comprehensive strategic plan to capitalize on the project's strong points. This can help to improve the initiative's "investment readiness" and its access to finance. The plan should include a robust business model; a creative approach to funding and financing

sources (finding new sources of revenue for projects and new business models for recovery and value capture); and innovative financing structures for investors.

While there are numerous options available to source finance for water project investments, a challenge in taking advantage of many of these options is matching the project to the most appropriate financing tool. This requires that you fully understand the project, its potential cashflows, the range of financing options available (locally and internationally), and available procurement methods to government to deliver.

5.2 Water Utility Organizations

Water infrastructure is ultimately paid for by one of three parties:

1. water users, through their own outlays or through water bills paid to official water service providers
2. taxpayers, through various local or national fiscal flows
3. or aid donors, including private voluntary contributions.

The following overview shows “where the funds for water come from” (OECD, 2015)

- **Water users, such as households, farmers, and businesses.** Household, particularly in rural areas and in poorer urban districts, invest their cash, labour and materials in wells, pipes, basic sanitation, and other facilities. Farmers invest large sums in tube wells, pumps and surface irrigation systems, either on their own or as members of associations and user groups. In some regions, farmers with surplus water from their own sources invest in distribution systems to dispose of their surplus to others. Industrial and commercial firms often develop their own water supplies and effluent treatment facilities. Some large firms even supply the general population. Users also cross-subsidise each other through paying different tariffs.
- **Informal suppliers.** In cities where growth has outstripped the public network, local entrepreneurs, often acting outside the law, fill the vacuum by selling water in bulk from tankers—or in containers and bottles.
- **Public water authorities and utilities,** which fund recurrent spending and some new investment from revenues provided by user charges (gross operating cash flow), loans and sometimes public subsidies.
- **Private companies,** either local or foreign, providing funds from sources like public utilities, plus equity injection.
- **Non-governmental organisations and local communities,** raising funds from voluntary private contributions or grants from international agencies.
- **Local banks and other financial institutions,** offering short-term or medium-term loans at market rates.
- **International banks and export credit agencies,** providing larger volumes of finance than local sources, against corporate guarantees or project cash flow.
- **International aid from multilateral and bilateral sources,** available as loans on concessional terms or grants
- **Multilateral financial institutions:** Loans on near-market terms
- **Environmental and water funds**

- **National central and local governments**, providing subsidies, guarantees of loans, and proceeds of bond issues.

Water utilities must have their responsibilities clearly defined, split between the owner of the infrastructure (most often the municipality) and the utility (operations and maintenance) itself. An authority must act as the regulator, with a clearly defined mandate and responsibility, and supervise the operator, public as well as private. The paramount responsibility of the public authority is to assign the goals, to explicitly state the tariff policies, to define required investment and to decide funding sources. Under these conditions there is room not only for public utilities but also for private operators to perform their trade, to use their skills and to point the way for better efficiency and better customer satisfaction.

Most water undertakings do not cover their full costs—operations, maintenance, and capital items—and hence rely on public subsidies. This precarious existence makes them the victims of periodic budgetary crises. There is little political will to raise tariffs, even to cover O&M expenses, despite the possibility of designing tariff structures that cushion the water bills of the poorest and the use of the social security budget to subsidise deserving cases. Many utilities are trapped in a vicious spiral of weak finances, underspending on essential maintenance, declining service quality and resistance to pay more for a poor service. This process is particularly evident in public irrigation agencies, where cost recovery nearly everywhere very low, partly related to the depressing effect on prices from farm subsidies in the OECD countries (OECD, 2020).

Sustainable cost recovery must therefore allow for wide variations in payment capacity. It is useful to distinguish urban, peri-urban, and rural consumers. Many urban utilities offer the promise of complete cost recovery for water supply systems but most peri-urban often require their investment costs to be subsidised. When they are served by a large utility, cross-subsidies are feasible and will not threaten the utility's financial sustainability. Many rural water supply and sanitation systems are unlikely to recover more than a portion of investment costs, in addition to paying for operations and maintenance costs, which is a minimum for ensuring sustainability of operations.

There are various ways of using subsidies, but the general principles are that they should be **affordable** (general budgets are adequate to support them), **targeted** to the groups intended to benefit, and **transparent** (visible to the public and identifiable in public accounts).

5.3 Institutional Investors

International financial institutions such as the International Monetary Fund (IMF), the World Bank, multilateral development banks, export credit agencies, and other international development agencies try to become more responsive to the needs of developing countries in the field of natural resources and water. The emergence and rapidly growing recognition of sustainable finance is closely connected to the international awareness of the sustainability agenda with a special focus on climate-related aspects. It requires not only national, but international cooperation and the development of common objectives, goals, and standards – within international financial institutions.

5.3.1 World Bank

The world bank is the largest source of multilateral financing for developing countries regarding water. They offer loans, grants, but also technical assistance. One goal is to get communities engaged and sustain water resources, deliver services, and build overall local resilience. Together with partners, the World Bank is working towards achieving “A Water-Secure World for all” (The World Bank, 2021).

Case Study 1: Scaling Up Blended Financing for Water and Sanitation in Maji ni Maisha (Kenya)

One of the first attempts at using blended finance to mobilize commercial financing in the country is the Maji ni Maisha program (Figure 5.2). The World Bank launched the pilot loan program in 2007 with K-Rep Bank, a Kenyan commercial bank specializing in microfinance lending. The objective was to incentivize rural and peri-urban communities to access loan financing to rehabilitate and expand small-piped water systems. The program identified projects requiring up to US\$200,000 for investment to cover O&M costs, which had the potential to repay their loans.

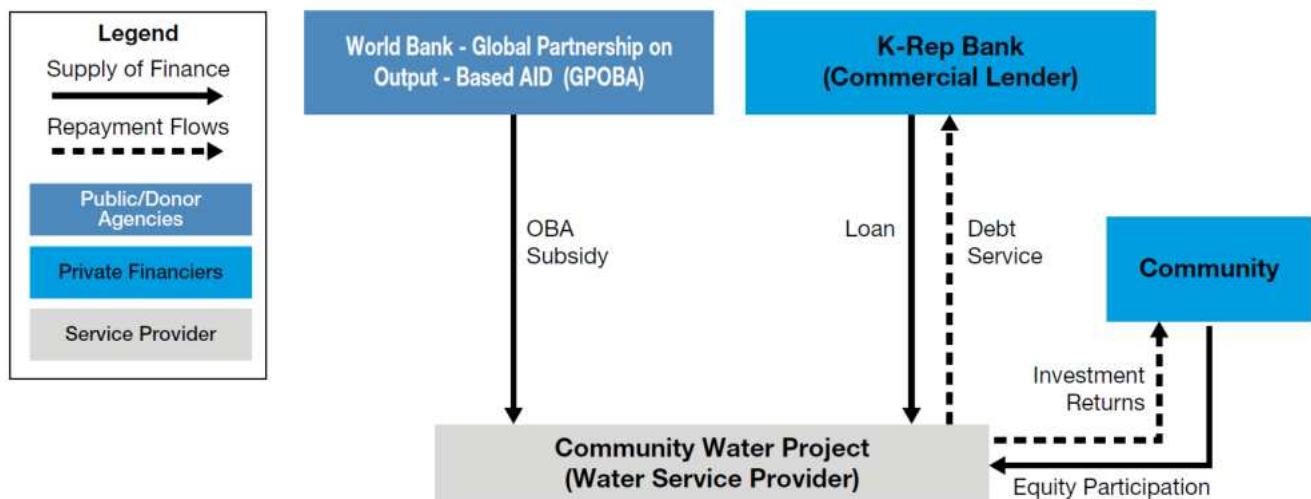


Figure 5.2: Scaling Up Blended Financing for Water and Sanitation in Kenya
(Supported by World Bank, Maji ni Maisha Financial Structure, World Bank, 2016)

Case Study 2: Municipal Project Finance in the Municipality of Rustenburg (South Africa)

In 2003, the Rustenburg Water Services Trust (RWST) was established as a financially independent municipal entity under the Municipal Services Act, and the infrastructure project was effectively ringfenced under the Trust to protect assets. The Municipality is the majority stakeholder and sole beneficiary of the Trust. The RWST obtained a limited recourse loan from ABSA to finance the water and wastewater infrastructure upgrades and expansion. The loan was for R280 million (equivalent to US\$37 million at historical exchange rates), with a 20-year term. The key to securing commercial finance from ABSA bank was the long-term off-take agreement between the RWST and the two local mines (Figure 5.3).

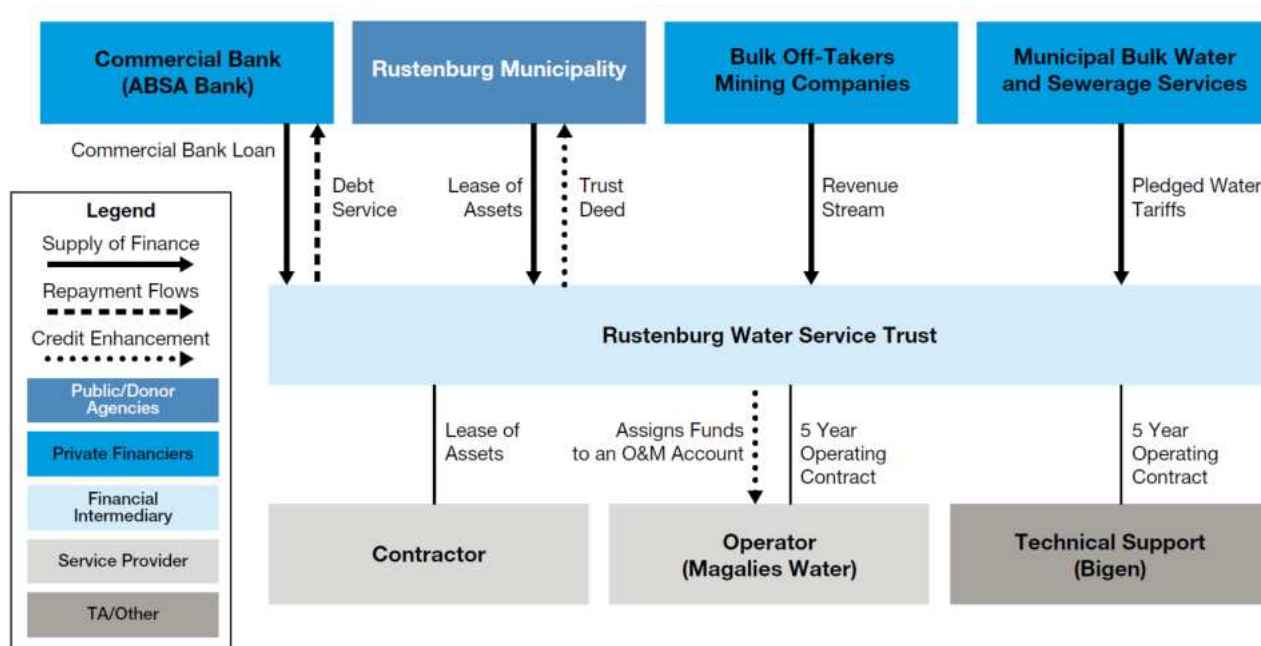


Figure 5.3: Municipal Blended Project Finance in Rustenburg, South Africa
(Supported by World Bank, World Bank, 2016)

5.3.2 Regional Development Banks

The regional development banks (RDBs), most of them founded in the 1960s, are multilateral financial institutions that provide financial and technical assistance for development in low- and middle-income countries within their regions. Established by countries or groups of countries as multilateral financial institutions, RDBs support businesses in their financial and technical development. Low-interest loans and grants are paired with expert advice in sectors like infrastructure, public administration, health and education, agriculture, environmental and natural resource management, as well as financial and private-sector development. See Table 5.2 regarding examples for RDBs. (Ottenhoff, J., 2011)

Table 5.2: Regional Development Banks (most important)

Regional Development Bank	Abbreviation	Weblink
African Development Bank	AfDB	https://www.afdb.org/
Asian Development Bank	ADB	https://www.adb.org/
European Bank for Reconstruction and Development	EBRD	https://www.ebrd.com/
European Investment Bank	EIB	https://www.eib.org/
Inter-American Development Bank	IADB	https://www.iadb.org/
Islamic Development Bank	IsDB	https://www.isdb.org/
Nordic Development Fund	NDF	https://www.ndf.int/

As outlined RDBs and their smaller partner-institutions, the Sub-Regional Development Banks (SRDBs), have very valuable features for developing countries. These are particularly clear for provision of regional and public goods and infrastructures, which are often heavily under-financed in low-income countries.

5.3.3 International Financial Initiatives

The ambitious targets, as outlined in both the United Nations (UN) Sustainable Development Goals (SDGs) and the Paris Agreement on climate change, require a deep transformation. To reach these goals many aspects of the economy, including production and consumption patterns, are affected. From a market and therefore financial sector perspective, these changes result in an uncertain landscape of risks and opportunities. Both, private and public sector stakeholders have reacted accordingly by integrating sustainability issues in existing structures and activities as well as by the establishment of various new initiatives, networks, standards and goals that have emerged particularly over the past 5-20 years. The following Table 5.3 lists selected international measures and initiatives which are supporting the further development of sustainable finance.

Table 5.3: International Financial Initiatives towards Sustainable Finance

Name of Initiative (in alphabetic order)	Abbrev.	Weblink
CDP (former Carbon Disclosure Project)	CDP	https://www.cdp.net/
Central Banks and Supervisors Network for Greening the Financial System	NGFS	https://www.ngfs.net/
Climate Finance Lab	CPI	https://www.climatefinancelab.org/
Coalition of Finance Ministers for Climate Action	CFMCA	https://www.financeministersforclimate.org/
Equator Principles	EP	https://equator-principles.com/
European Green Deal	EU GD	https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
EU Action Plan on Financing Sustainable Growth	EU-APFSG	https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/
Financial Stability Board – Task Force on Climate-related Financial Disclosures	FSB-TCFD	https://www.fsb-tcfd.org/
G20 Sustainable Finance Study Group	UNEP-SFSG	http://unepinquiry.org/
Global Alliance for Banking on Values	GABV	https://www.gabv.org/
Green Bond Transparency Platform	GBTP	https://www.greenfinancelac.org/
Green Bond Principles / Social Bond Principles / Sustainable Bond Guideline	GBP / SBP/ SBG	https://www.icmagroup.org/
International Organization of Securities Commission	IOSCO	https://www.iosco.org/
ICMA “The Principles” (Green, Social and Sustainable Bond Principles & Guidelines)	ICMA	https://www.icmagroup.org/sustainable-finance/
International Network for Financial Centers for Sustainability	FC4S	https://www.fc4s.org/
International Platform on Sustainable Finance	IPSF	https://ec.europa.eu/info/business-economy-euro/banking-and-finance/
International Capital Market Association	ICMA	https://www.icmagroup.org/
Loan Market Association – LMA	LMA	https://www.lma.eu.com/
Marrakech Pledge	MAP	http://marrakechpledge.com/

Montreal Carbon Pledge	MCP	https://montrealpledge.org/
Natural Capital Protocol + Supplement (Finance)	NCP	https://naturalcapitalcoalition.org/finance/
OECD Centre of Green Finance and Investment	CGFI	https://www.oecd.org/cgfi/
Sustainable Banking Network	SBN	https://www.ifc.org/wps/wcm/
Sustainable Insurance Forum	SIF	https://www.sustainableinsuranceforum.org/
Sustainable Stock Exchanges Initiative	SSE	https://www.unepfi.org/banking/bankingprinciples/
Institute of International Finance (IIF): Sustainable Finance Working Group	SFWG	https://www.iif.com/Key-Topics#Sustain
UN COP / Paris Agreement	UN COP	https://unfccc.int/
UNEP FI Principles for Responsible Banking	UNEP FI PRB	https://www.unepfi.org/banking/bankingprinciples/
UNEP FI Principles for Sustainable Insurance	UNEP FI PSI	https://www.unepfi.org/psi/
UN Principles for Responsible Investments	UN PRI	https://www.unpri.org/
UN SDG – Sustainable Development Goals	UN SDG	https://www.un.org/sustainabledevelopment/

5.4 Sustainable Banking Institutions

5.4.1 Global Alliance for Banking on Values

The Global Alliance for Banking on Values (GABV) is an independent network of banks using finance to deliver sustainable economic, social, and environmental development. The Alliance is a network of banking leaders from around the world committed to advancing positive change in the banking sector. Founded in 2009 the growing network consists of banks, banking cooperatives and credit unions, microfinance institutions and community development banks. The members are deeply connected to the people and the communities they serve and are accountable for the risks they both take and create for the people who use their products and services. The financial institutions focus on a deep inclusion purpose and put basic banking products in service of a greater number of people, rather than highly sophisticated products in the hands of a few. Moreover, they are highly aware of the externalities produced by the banking activities, by the projects, and clients we finance.

By May 2021, the Global Alliance comprises of 66 financial institutions and 16 strategic partners operating in countries across Asia, Africa, Australia, Latin America, North America, and Europe. Collectively they serve more than 70 million customers, hold over \$200 billion USD of combined assets under management, and are supported by more than 77.000 co-workers. All members want to ensure that banking is a healthy and productive system of society and develop a positive, viable alternative to the current banking system. At its heart, the GABV is a Chief Executive Officer network providing a unique space for collaboration for leaders who are committed to values-based banking. It also provides learning and development opportunities for senior executives, experts, and banking professionals at member banks through a Communities of Practice. The GABV takes a leading role in the debate about how to build a sustainable financial future by managing

joint projects among members, experts, and partners to help deliver it and by advocating for change. Table 5.4 is listing the 18 European members of the Global Alliance for Banking on Values.

Table 5.4: Global Alliance for Banking on Values – European members (status May 2021)

No.	Organisation	Nation	Website
1	Alternative Bank Switzerland	CH	https://www.abs.ch/
2	Banca Etica	IT	http://www.bancaetica.it/
3	Center-invest Bank	RU	http://www.centrinvest.ru/
4	Charity Bank	UK	http://www.charitybank.org/
5	Cooperative Bank of Karditsa (CBK)	GR	http://www.bankofkarditsa.com/
6	Crédit Coopératif	FR	http://www.credit-cooperatif.coop/
7	Cultura Bank	NO	http://www.cultura.no/
8	Ecology Building Society	UK	http://www.ecology.co.uk/
9	Ekobanken	SE	http://www.ekobanken.se/
10	Folkesparekassen	DK	http://www.folkesparekassen.dk/
11	Freie Gemeinschaftsbank Genossenschaft	CH	http://www.gemeinschaftsbank.ch/
12	GLS Bank	DE	http://www.gls.de/
13	MagNet Hungarian Community Bank	HU	http://www.magnetbank.hu/en
14	Megabank	UA	http://www.megabank.ua/
15	Merkur Cooperative Bank	DK	http://www.merkur.dk/
16	Opportunity Bank Serbia	RS	http://www.obs.rs/en
17	Triodos Bank	NL	http://www.triodos.com/
18	UmweltBank	DE	http://www.umweltbank.de/

5.4.2 NWB Bank – the Dutch Water Bank

The Nederlandse Waterschapsbank N.V. (NWB Bank) was formed in 1954 after the disastrous flood of the previous year and was in effect a “borrowing alliance” of the individual water boards, which were not strong enough on their own to attract the necessary long-term funds for reconstruction on suitable terms. The Bank is a public limited liability company whose shareholders are public authorities and whose borrowers have also by law to be public bodies (provinces, municipalities, Water Boards, water supply companies, etc.). All its business is done under state guarantee. It borrows long term capital on international markets at fine rates, and acts as the “house bank” to the water boards. It is a lean, cost-effective, low-risk operation with AAA rating, and as a result lends at very favourable rates. As a “significant bank” the NWB Bank is under the direct supervision of the European Central Bank. NWB Bank is the bank of and for the public water sector, an essential financial service provider in the Dutch public sector and the go-to partner for financing sustainability in the Netherlands. They present themselves as the sustainable water bank. Link: <https://nwbbank.com/en>

5.5 Alternative Financing – Crowdfunding

5.5.1 Crowdfunding – generation value for innovative projects

Crowdfunding has become a very popular financing vehicle for small to medium scale projects and businesses, especially for new and innovative products or services. Fundraisers strive to collect small amounts of money from a large number of people, usually via online platforms. Crowdfunding is considered an alternative form of financing. Examples for these young and innovative forms of lending are:

- P2P (Peer to Peer) Consumer Lending
- P2P Business Lending
- Donation Crowdfunding
- Reward Crowdfunding
- Equity Crowdfunding
- Invoice Trading
- Debt – Based Securities
- Community Share/Microfinance
- Pension – led Funding.

P2P loan platforms and crowdfunding platforms are the most widely used vehicles. For more details on alternative forms of lending see Annex 24)

Crowdfunding developed using the internet community and networks to raise capital for a variety of ideas. It is a typical collection of money (smaller or larger amounts) through the internet for the purpose one chooses. Due to the way of payment to the donors, we distinguish four types of crowdfunding (Motylska-Kuźma, 2018):

- **Donation:** projects are non-profit, usually associated with charity, so for the money paid the donor does not receive anything in return.
- **Reward:** in return for donations, donors receive rewards, but their nature is very often dependent on the amount of payment. The prize could be the prototypes of products, tickets for an event organized, etc.
- **Lending:** this kind of crowdfunding is very similar to business P2P lending, so these forms are often identified with each other. However, P2P is supposed to transfer financial surpluses from lenders to borrowers and it is not necessarily a specific purpose here. In the case of lending crowdfunding, the purpose must be specifically defined.
- **Equity:** Investors acquire shares in companies, later using dividends, distributions of profit or redemptions at initial prices.

Following types of traditional alternative finance providers acting in the arena of alternative financing can be distinguished (Altfinator, 2021):

- P2P business lending
- Invoice trading
- Balance sheet Business
- Angel networks
- Venture Capital Funds
- Venture debt
- Family offices

Some alternative finance initiatives are listed in Table 5.5 (below).

Table 5.5: Alternative Finance Initiatives and Crowdfunding Platforms (selection)

Organisation	Nation	Website
ALTFINATOR – Facilitating Access to Alternative Financing	EU	https://www.altfinator.eu/
BIC Bratislava (Business & Innovation Centre)	SK	http://www.bic.sk/
CIVITTA Estonia	EE	http://www.civitta.ee/
CIVITTA Romania	RO	https://civitta.ro/
INNOMINE Hungary	HU	http://www.innomine.com/
Observatories on Minibond, Crowdfunding and Alternative Finance	IT	http://www.osservatoriomibond.it/

At Altfinator the following 60 reward crowdfunding platforms are listed (Table 5.6):

Table 5.6: Reward Crowdfunding Platforms (as listed at Altfinator.eu)

Platform	Platform	Platform
PPL Crowdfunding Portugal	Greenfunding	CROWDTHINKING
Novo Banco Crowdfunding	Kendoo	EINICIA
Adrifund	Loveitaly	LANZANOS
HitHit	Mecenup	SEED&CLICK
Guvern24	Microcreditartistique	VERKAMI
OdplProjekt.pl	Musicraiser	Startarium
Wspólnyprojekt.pl	PlanBee	Penize pro Projekt
PolakPotrafi.pl	Produzioni dal Basso PdB	Nakopni me
Indiegogo	Schoolraising	Startovac
Kickstarter	Sea-Crowd	Easystarter
Na Starte	Sport Supporter	Crowdpolicy
Спільнокошт	Starteed	Katana Reward Crowdfunding
Be Crowdy	Triboom	Platform
BuonaCausa	WoopFood	Act4Greece
Com-Unity	Wspieram.to	Hooandja
Crowdarts	WspieramKulture.pl	Bidra
Cubevent	Fans4Club	Voordekunst
Eppela	Patronite	CrowdCulture
Finanziami il tuo futuro	ScienceShip.com	Leo Crowd
Ginger	CROWDFUNDING BIZKAIA	Crowdfunder (UK)

5.5.2 Alternative Finance Volume Per Capita

While total volume provides valuable insights, it is also important to control for relative market size. When examining total alternative finance volumes per capita, we find that in addition to the US and the UK certain countries emerge as strong markets for alternative finance as well. Here, most countries with relatively high volumes in per capita terms are European based.

These include the Netherlands, as well as Latvia, Estonia, and Lithuania, which have become home to some of the most proficient European-based international platforms in the P2P lending sphere. This also applies to

Regarding HYDROUSA replications the information about “alternative finance volume per capita” is showing where (in which countries and regions) the possibilities are higher developed. The alternative finance volume per capita compared to the national GDP is shown in the following Figure 5.4.

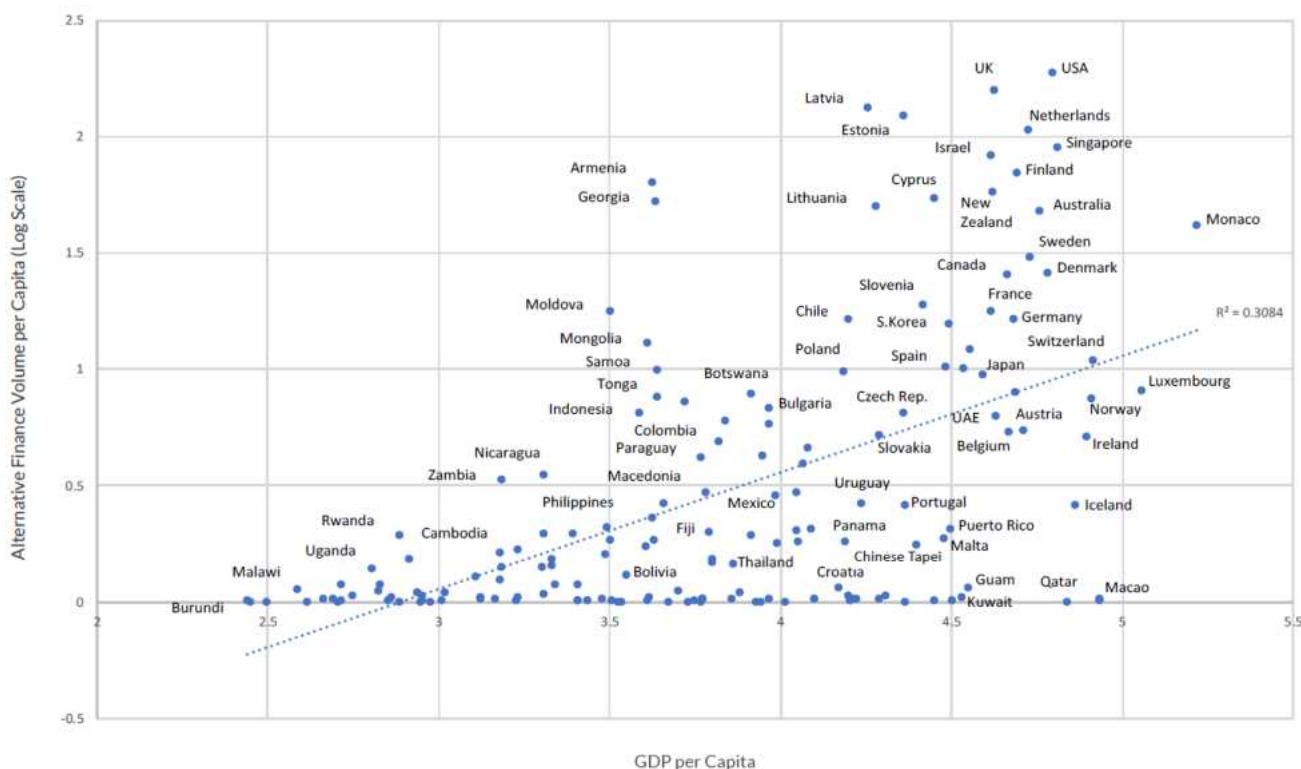


Figure 5.4: GDP per capita vs. Alternative Finance volume per capita 2018
(Log scale, Cambridge Centre for Alternative Finance, 2020)

The private financial sector, including private persons, private foundations, impact investors, venture capitalists, business angels, private banks, and asset managers, as well as asset owners, increasingly integrate sustainability considerations (e.g., ESD-integration) in their financing decisions and act as “emerging solution”. Financial instruments such as thematic bonds (including transition, green, social, blue, and SDG bonds) and sustainable lending products (e.g., ESG-based, or green/sustainability loans) can channel private and public capital to investments and activities with positive environmental impacts, such as renewable energy generation, energy efficiency in production and buildings, as well as in sustainable water and wastewater infrastructure (sanitation), in forestry, and in agriculture (GIZ, 2020).

Public interventions can help to provide a conducive environment by creating rules and regulation as well as (financial and non-financial) incentives that affect risk/return considerations, thereby fostering ESG-based financing and investment decisions. This includes a rethinking of public financing and investments. For

instance, blended finance instruments receive growing recognition, as a mean to utilize scarce public resources, following a subsidiarity principle to crowd-in private investments. The OECD definition of blended finance is: *“Blended finance is the strategic use of development finance for the mobilization of additional finance (like private and/or philanthropic capital) towards sustainable development – resulting in positive results for both investors and communities.”* (OECD, 2021).

Sustainable Investment strategies range from “Traditional Commercial Investing” to “Socially Responsible Investing (SRI)”, Sustainable Investing (with ESG-Integration), “Thematic Investing” (e.g., Impact Investing) to “Venture Philanthropy” and “Philanthropy”. This range of investment types is shown in Figure 5.5. – showing also that most of capital available is for the topic of SRI (Socially Responsible Investing). Private Investors are found in all types – as clients of sustainable acting banks, as founders in foundations, as company managers, as business angels, or as venture philanthropists.

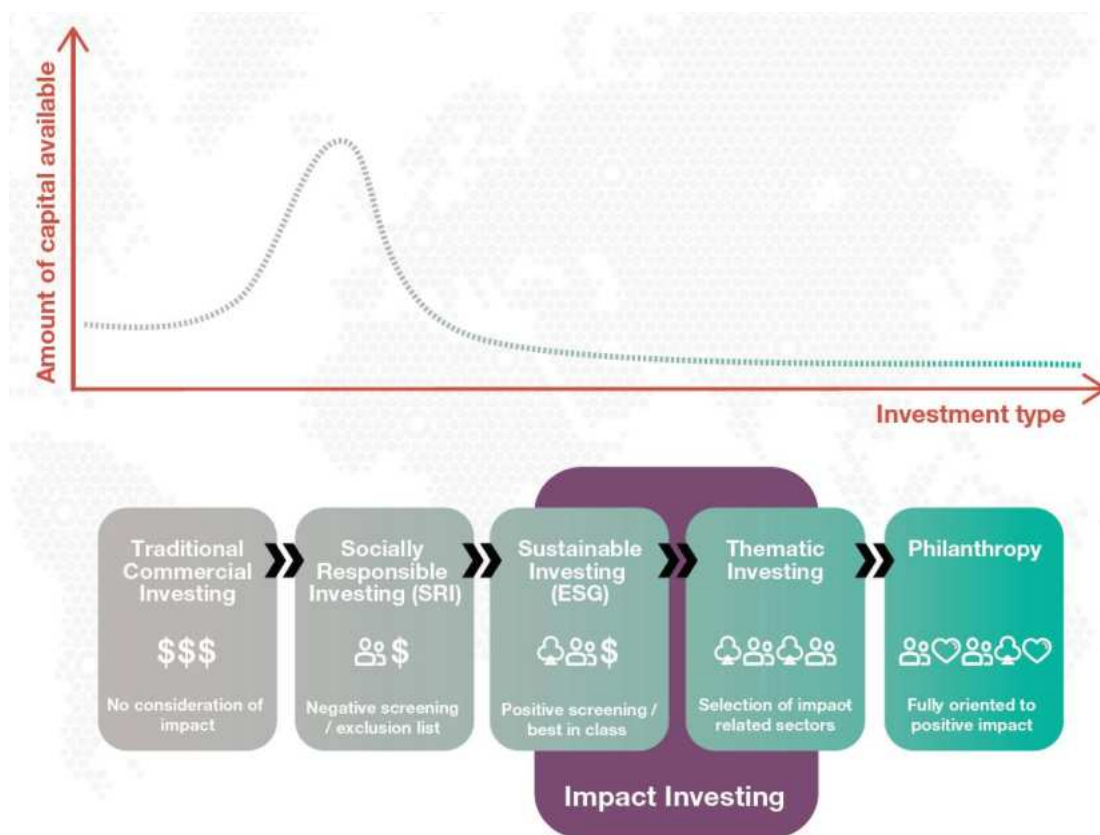


Figure 5.5: Investment types by impact and capital allocation (GIZ, 2020)

Impact Investing is at its simplest, making investments to generate positive, measurable social and environmental impact, while also making a positive financial return. Impact investments can be made in both emerging (third world) and developed (Western capitalist) economies. And impact investments (private and institutional) provide capital to address social and/or environmental issues. The investments target a range of returns, depending on the investor's goals. This industry also represents important future opportunities in the world of finance jobs. Impact investing takes place mainly in the following domains:

- Renewable energy and circular resource use
- Nature-based and environmentally friendly industries
- Sustainable farming, water, and food production
- Healthcare, sanitation, and other social industries

- Affordable housing and sustainable building
- Education and all forms of live long learning

Impact Investing is often combined and sometimes also named “Socially responsible investing (SRI)” or ESG (environmental, social and governance) investing. Intentional investors tend to be much more interested in seeking SRI or ESG investments rather than just purchasing what looks like a good stock. Women and millennials, who are holding an ever-increasing percentage of the world's wealth, are generally more likely to focus on social impact issues when making investment decisions, supporting the continued growth in this area.

Impact investment has attracted a wide variety of investors, both individual (private) and institutional. Among them there are:

- Fund Managers
- Development finance institutions
- Diversified financial institutions/banks
- Private foundations
- Pension funds and insurance companies
- Family Offices
- Individual investors
- NGOs
- Universities
- Religious institutions

Many types of investors are entering the growing impact investing market. Here are a few common investor motivations:

- Banks, pension funds, financial advisors, and wealth managers can provide client investment opportunities to both individuals and institutions with an interest in general or specific social and/or environmental causes.
- Institutional and family foundations can leverage significantly greater assets to advance their core social and/or environmental goals, while maintaining or growing their overall endowment.
- Government investors and development finance institutions can provide proof of financial viability for private-sector investors while targeting specific social and environmental goals.

Thirty ESG, SRI, and/or impact investing platforms resp. networks are listed in the following Table 5.7. The different organizations are providing several different instruments to project developers like grants, donations, equity investment, management adjustment, enterprise development, and others.

Table 5.7: Impact Investing Actors and Platforms

(Selection out of the Sustainable Sanitation and Water Management Toolbox (SSWM) Impact Investor Map: <https://sswm.info/financing-water-impact/investor-map>)

No.	Organisation	Nation, City	Main support	Weblink
1	17 Ventures	MENA Region (Jordan)	promote sustainable and inclusive economic growth	http://17-ventures.com/Funds
2	Alfanar	Middle East	ambitious social enterprises to develop sustainable revenue streams	https://www.alfanar.org/
3	Antenna Foundation	Worldwide (CH)	scientific research of technological, health and economic solutions in/for developing countries	https://www.antenna.ch/en/
4	Aqua for All	Worldwide (NL)	Sanitation, Water	https://aquaforall.org/get-

			resources, Water supply	support/apply/
5	FINCA Ventures & Microfinance	Africa	Sector agnostic	https://fincaventures.com
6	Fondation Diane VIRIDIS Investment Fund	Middle East	Agriculture, Climate, Sanitation, Energy, Water resources, Water supply	https://www.fondation-diane.org/
7	Global Impact Investing Network (GIIN)	Worldwide	Platform to all aspects of impact investing	https://thegiin.org/
8	Goodwell Investments	Worldwide (NL)	Agriculture, Climate, Sector agnostic, Water supply	https://www.goodwell.nl
9	Green Acceleration Middle Eats – GA-ME	Middle East	leading impactful companies to investment readiness and scaling of sustainable business models	https://ga-me.creation.camp/
10	Hassad – Agritech Accelerator	Middle East (Jordan)	Agriculture	https://www.hassad.io/
11	Innovations Against Poverty	Worldwide (Asia, Africa)	Agriculture, Hygiene, Sanitation, Waste Management, Energy, Water resources, Water supply	http://innovationsagainstpove-ty.org/
12	IsDB – The Islamic Development Bank Transform Fund	Worldwide (Islamic)	Agriculture, Climate, Health, Hygiene, Sanitation, Energy, Water supply	https://www.isdb-engage.org/en/page/transform-fund-en
13	ISSF – Innovative Startups & SMEs Fund	Middle East (Jordan)	Sector agnostic	https://issfjo.com/
14	Lydia Hill Foundation	Worldwide	Science, transforming community, preserving nature	https://www.lydahillphilanthropies.org/
15	PureTerra Ventures	Worldwide (NL)	Climate, Water resources, Water supply	https://pureterra.com/
16	SEAF - Small Enterprise Assistance Funds	Worldwide (US/NL)	investment management group providing growth capital and business assistance to SMEs in emerging and transition markets	https://www.seaf.com/
17	Siemens Foundation's empowering people Award	Worldwide (DE)	Agriculture, Climate, Health, Hygiene, Sanitation, Waste Management, Energy	https://www.empowering-people-network.siemens-stiftung.org/en/award/
18	Take-a-Stake Fund	Worldwide (NL)	Hygiene, Sanitation, Waste Management, Water resources, Water supply	http://takeastakefund.org/
19	The Rockefeller	Worldwide	energy, climate change,	https://www.rockefellerfound

	Foundation		agriculture, water	ation.org/
20	The Stone Family Foundation	Worldwide (UK)	Hygiene, Sanitation, Water supply	https://www.thesff.com/water-and-sanitation/
21	The Switchers Fund – the impact fund for green start-ups	Mediterranean	Agriculture, climate, waste Management, energy, water	https://www.theswitchersfund.eu/en/
22	The Waterloo Foundation	Worldwide (UK)	Health, Hygiene, Sanitation, Water supply	http://www.waterloofoundation.org.uk/
23	Total Impact Capital	Worldwide (US)	Climate, Health, Hygiene, Sanitation, Waste Management, Energy, Water resources, Water supply	https://www.totalimpactcapital.com/
24	UNDP Accelerator Lab	Worldwide	Sector agnostic	https://acceleratorlabs.undp.org/
25	Vitol Foundation	Worldwide (UK)	Health, Hygiene, Sanitation, Water resources, Water supply	https://www.vitol.com/vitol-foundation/
26	WASHfundes	Worldwide (US)	Funders working together to solve the world's water crisis	https://washfundes.org/
27	Water Equity	Worldwide (US)	Building a global capital market that accelerates universal access to safe water and sanitation	https://waterequity.org/
28	WaterSpark	Worldwide (NL)	Water resources, Water supply	https://waterspark.org/
29	WE4F – Water and Energy for Food	Middle East & North Africa	MENA Regional Innovation Hub supports producers of more food while using less water and energy	https://we4f.org/mena
30	WFP – United Nations World Food Programme Innovation Accelerator	Worldwide	Agriculture	https://innovation.wfp.org/

Impact Measurement

One key element of impact investment entails measurement. Impact investors are committed to measure and report social and/or environmental performance of their investments. This is vital to ensure transparency, comparability, and accountability throughout all impact investments. Metrics and particularly standardized metrics play an important role to support credible and effective impact measurement.

There is defacto no international standard on impact measurement – although all HYDROUSA related topics can be found in the different impact measurement schemes. More information on impact measurement can be obtained on:

- IRIS+: The generally accepted system for measuring, managing, and optimizing impact (<https://iris.thegiin.org/>)
- IMP – Impact Management Project: A forum for building global consensus on measuring, managing, and reporting impacts on sustainability (<https://impactmanagementproject.com/>)
- The GIIN (Global Impact Investing Network) – Impact Toolkit: (<https://thegiin.org/tools/>)

5.7 Accelerator and Start-up Organizations

Accelerator programs (AP) are programs especially designed for (dedicated to) early-stage start-ups or business projects with the aim to make them investment ready or to strengthen their investment case. The programs typically intent to achieve intensive business and personal development by supporting a small team of founders, usually with a business idea of their own. The support comes in a form of mentorship, affordable office spaces, and some starting capital. In a nutshell, a program consists of the following core elements:

- An application process that is open to all, yet highly competitive.
- A provision of pre-seed investment, normally in exchange for a single-digit equity.
- A focus on small teams, not individual founders.
- Time-limited support comprising programmed events and intensive mentoring.
- A final event – “A demo day” – when start-ups pitch their ideas to raise first big funding.

At the same time, it is important to realize that start-up accelerators are ultimately investment management companies. They look for the most promising companies at the very early stage and then invest into them. Yet, they expect companies to raise the next rounds of funding and ultimately (and hopefully) make an exit – either through companies’ acquisitions or IPOs (Initial Public Offering).

Since the 1970s, accelerator programs have become very popular and are nowadays an important instrument to get start-up businesses off the ground. There are many thousands of different APs, some have with very specific topics, some are very wide-ranged or have no topic at all. Since the 2000s social impact has become an important issue in the world of accelerator programs. And since the Paris Agreement 2015, environmental and especially climate impact has finally also gained importance. The following list (Table 5.8) shows a very small variety of important accelerator programs in Europe and worldwide.

(<https://www.alphagamma.eu/entrepreneurship/best-startup-accelerator-programs-europe/>)

Table 5.8: Acceleration and Start-up Organizations

No.	Organization	Nation, City	Main support	Weblink
1	Accelerace	København, Denmark	Investm. up to 500 000 DKK + corporate matchmaking	https://www.accelerace.io/accelerator
2	Antler Amsterdam	Amsterdam, the Netherlands London, UK Oslo, Norway Stockholm, Sweden	€/£ 100,000 resp. NOK/SEK 1M for 10% equity + monthly allowance	https://www.antler.co
3	Birdhouse	Gent & Antwerp, Belgium	Mentoring, coaching & access to investors	https://gobirdhouse.com/accelerator
4	EIC Accelerator	European Union Member States and countries associated to Horizon Europe	grant funding, investments, coaching, mentoring, access to investors and corporates, etc.	https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator_en
5	EIC Accelerator Challenges 2021	European Union Member States and countries associated to Horizon Europe	funding + access to coaches and global partners, to innovation ecosystems and peers, etc.	https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-eic-2021-acceleratorchallenges-01-02
6	EIT Climate-Kic	European Union Member States and global	many different programs	https://climaccelerator.climate-kic.org/
7	Impact Hub Vienna	Austria, Vienna	many different programmes	https://vienna.impacthub.net/startup-accelerator-programs
8	PANDO Ventures	Frankfurt, Germany	Mentoring, coaching & access to investors	https://pando-ventures.com
9	Yunus Social Business Accelerator	Europe & worldwide	up to € 500,000 dept investment & technical assistance and support	https://www.yunussb.com
10	Techstars	USA, different US states	different types of programs	https://www.techstars.com/accelerators

5.8 Business Angels and Business Angels Networks

A business angel is an independent individual, who provides capital for the development of a business. Typically, business angels or angel investors aim to help entrepreneurial individuals succeed with a business idea by investing their own money. Business Angels are often persons (donors) who do not describe themselves as “angels”. They are focused on assisting, helping, supporting, and mentoring project and/or technology developers on small, local/regional, and more relational scale. The influx of the business angel capital can help an idea develop into a viable company and provide the base to begin producing the product

or service proposed. This private investor not only provides money, but also generally is interested in becoming involved in the project by acting as a guide or mentor. Business angels invest their time as well as provide connections to their larger network to help guide the entrepreneur in the new business venture. They also invest personal resources into projects they believe are financially viable.

What differs business angels from other types of investors?

Angel investors are easily distinguishable from other types of investors, such as venture capitalists, through several factors:

- They invest their own money into the project, less than would be invested by a venture capitalist
- They make their own decisions concerning investments
- They invest according to the viability of the project, with expectations of future gains
- Their main objective is to receive a return on their investment
- There are different types of business angels and their relationships to your businesses. They can be affiliated, which can include suppliers. They can be customers, or even competitors. They can also be nonaffiliated, which means they are individuals without a previous connection with the company.

Business angels can be an excellent way for a new company to gain ground quickly and step into a new stage of growth. By providing capital and guidance, the investment can have a substantial impact on the business (see Figure 5.6). Angel investors essentially provide a bridge between a fledgling business concept and a company that is developed enough to receive funds from a venture capitalist.

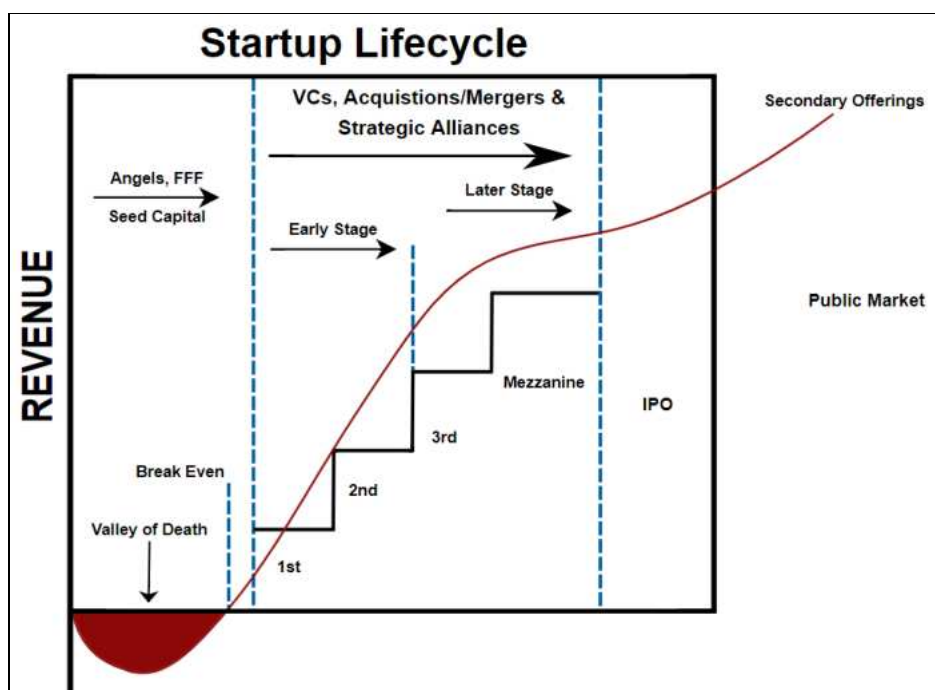


Figure 5.6 Start-up Lifecycle and assistance possibilities
(Ref. www.eban.org/angel-investing-explained/)

Business Angel Networks

In today's business world it is very common for investors to be part of business angel networks. The main reason is to divide risks amongst the network members which largely increases the number of granted seed stage impact investments. This way they spread the investment costs and expenses over the members. Larger business angel networks often grant the opportunity to invest even in small amounts.

These networks are well organized and have specific objectives and criteria for their investments. They host highly competitive pitch events to find the most promising investment cases. For start-ups, to attend these pitch events often is the one and only way to get the attention of business angels. How to apply differs from event to event. In most countries you will find pitch coaches who can help with the application and to pimp up the business presentation as well as the pitch. Business angel mostly group in networks on geographical basis. Please find some examples in the following list.

Table 5.9 Business angel network in selected regions
(Ref.: <https://www.eban.org/angel-investing-explained/>)

No.	Organization	Region / Nation	Main objectives	Weblink
1	Business Angels Europe	Europe	network of business angel networks, many different programs	https://www.businessangelseurope.com
2	MED Angels	Mediterranean, seated in Alexandria	help Mediterranean startups scale to the next stage	https://www.med-angels.com
3	BANC – Business Angels Network Catalunya	Mediterranean, seated in Barcelona	help Mediterranean startups scale to the next stage	http://www.bancat.com/en
4	Maghreb Business Angel Network (part of Konrad-Adenauer-Stiftung e.V.)	Mediterranean, seated in Tunis, Tunisia	regional programme political dialogue and regional integration in the southern Mediterranean	https://www.kas.de/en/web/poldimed/single-title/-/content/maghreb-business-angel-network-1
5	Alex Angels – Alexandria Angel Network	MENA region (Middle East and North Africa)	help startups within the MENA region scale to the next stage	https://www.alexandriaangels.com
6	Angel investment network	Worldwide, organised by country	18 diverse sectors	different sites for each country, e.g., https://www.middleeastinvestmentnetwork.com/ ; https://www.angelinvestmentnetwork.co.uk/
7	aaia – Austrian Angel Investors Association	Austria	door opener for new businesses in Austria	https://aaia.at/startups/

6 RECOMMENDATIONS AND OUTLOOK

6.1 General Recommendations

To summarize, there exists no “ideal” financing, management, and governance structure for projects within the water domain. Nor there is a unique financing solution for an efficient, equitable and sustainable circular economy and nature-based water project.

What matters from a coherent financing perspective – for circular economy water projects – is that (Figure 6.1):

- 1. Understanding the project and value:** all the water resources management and service provision roles and functions within the project are adequately known, covered and managed,
- 2. Considering funding and finance options:** clarity exists over who does what, and mechanisms (tools and instruments) are in place (the “how”) to coordinate their activities – especially within the broader stakeholder community, and
- 3. Determining relevant procurement and delivery method:** those with responsibilities have the capacity and willingness to undertake and secure financing and funding for themselves (personal resources) and for the project (technical and financial resources).

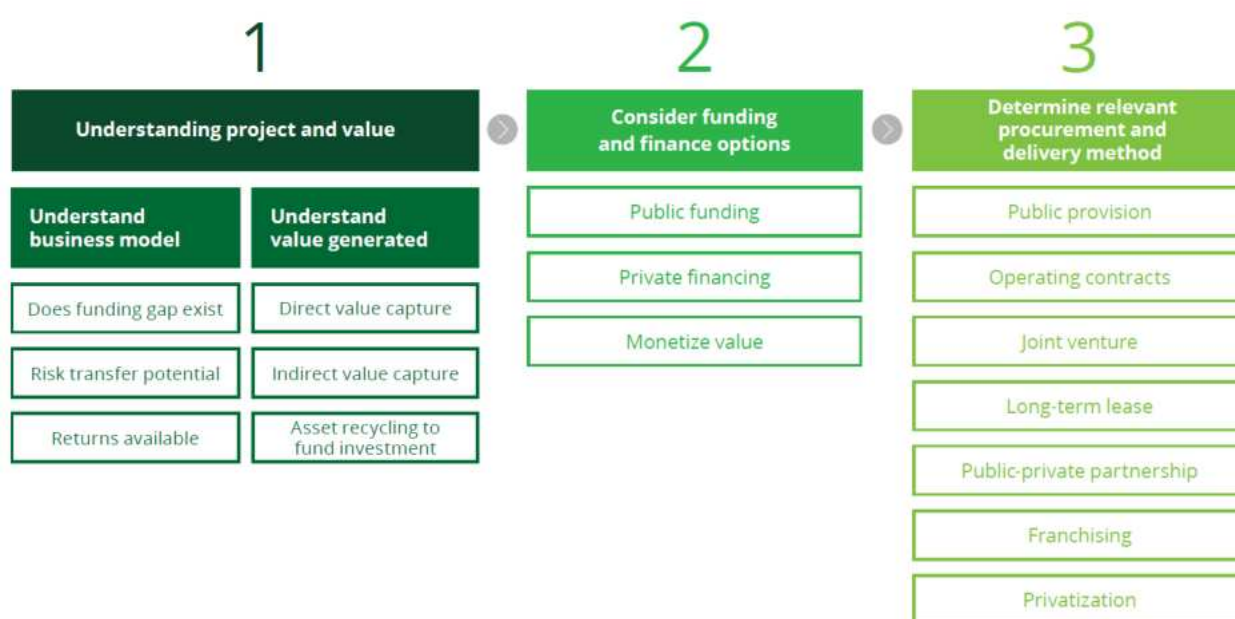


Figure 6.1: Model for delivery of a successful project (Deloitte, 2018)

One important factor that will make every innovative project successful is determining a clear path to steady revenue – its revenue model. A clear financing and/or funding stream is especially critical if the project is seeking private financing. Having this in mind the main steps in developing and framing a strategy for financing an innovative water project are:

1. **Defining purpose and core elements of the water project:** Define a clear purpose and vision for and circumscribe the core elements of the water project. Be aware of the boundaries, obstacles, challenges around and midst the project. But also, be convinced of its uniqueness and meaningfulness.

At this very first step of the project development process, the project promoter must make a full commitment to the project as its “source”. The project source is responsible to meet and strategize with potential partners, to start the project – with and without financial support, with and without local ties, and with the full possibility of risking himself/herself.

2. **Determining the feasibility of the project:** When the promising water project has been characterized and described, the next and most important step is to determine the feasibility of launching the venture. This step involves drafting a carefully detailed plan of action within a “feasibility study”, which reflects the venture partners' understanding of:

- the project viability (technical, legal, environmental, etc.).
- the costs of human resources, technology, and other components of your venture.
- domestic and international competition in your chosen field of operation.
- the markets in which the project operates like revenue structure, tariffs, and other barriers to entry, etc.
- the expected revenue that the project can generate, as well as sources of capital. You should also consider repayment strategies for any borrowed funds.
- the competitive advantage: above all, the feasibility study must also support your belief that there is your special room in the market / in the region for your project and that you will be able to deliver a quality product at a competitive price.

To determine the most effective way to finance an innovative water project, it must be decided who will pay for the service and assume the associated risks. Historically, the public sector has been the first choice. Often, the government pays to build and operate the service, receiving a return in the form of savings or greater efficiency. But the government could also recoup its investment by getting the public to pay fees (directly or indirectly) to use the service.

In an alternative scenario, revenues to support the water project could come from selling value generated to other third parties. The project sponsor might, for example, sell the cleaning function and/or the energy and/or biomass production of the plant. Also, reputation, image, other socio-economic values, and even advertising space can be a monetized asset for the donor and/or sponsor. Such a sponsor should continuously look for opportunities to leverage the technology platform and network to generate additional project revenue streams. Vendors and partners can find creative ways to generate revenue from the solutions and services they provide in each layer of the business architecture. These opportunities may mirror the revenue models used in the wider digital economy.

3. **Describing the revenue model of the project:** As the project sponsor evaluates potential revenue models for an innovative water project, here are some questions to consider:

- How does the project capture economic benefit through direct revenue streams? Will it generate any free cash flow (money left over after all costs have been paid) that can be used to cover

various expenses, such as up-front capital and finance costs and ongoing operation and maintenance?

- What kinds of risk connected with free cash flow, quantum, certainty, and source does the project face, and how do those risks affect the kind of finance the sponsor may source?
- Can public and private sources of finance be combined? This is sometimes done if the cash flows are insufficient to repay finance from the private sector, which will include a premium for the level of risk transferred.
- Is the present value of the total investment costs greater than the present value of net revenues? If such a funding gap exists, the sponsor will need to identify alternative funding mechanisms.

Innovative projects often require multiple investors. Attracting appropriate sources of capital (debt or equity) for a given project requires effort, innovation, and a sophisticated understanding of the project's fundamental components. Water projects often include traditional physical infrastructure assets, new technologies and connectivity, transportation systems, and safety and security features. They may also include aspects of a project associated with economic development, agriculture, energy, mobility, tourism hot spots, citizen sociality, and sustainability. Investors/financiers generally have investment criteria to evaluate such projects.

Some investors will invest only in "traditional" (less innovative) infrastructure projects such as classical water and wastewater treatment systems, while other (more innovative) investors will invest only in projects that match investment strategies focused on particular assets, criteria, sectors, countries, or themes. Therefore, it is important to develop a strategic plan to secure financing from different sources for different aspects of the project as required. Grouping various elements of a project matching specific financial investor criteria can make an attractive project proposal.

Different types of possible financing sources / investors are shown in Figure 6.2. Most of the concepts shown in the figure have been described in previous chapters (in other words), some are new (Deloitte, 2018).

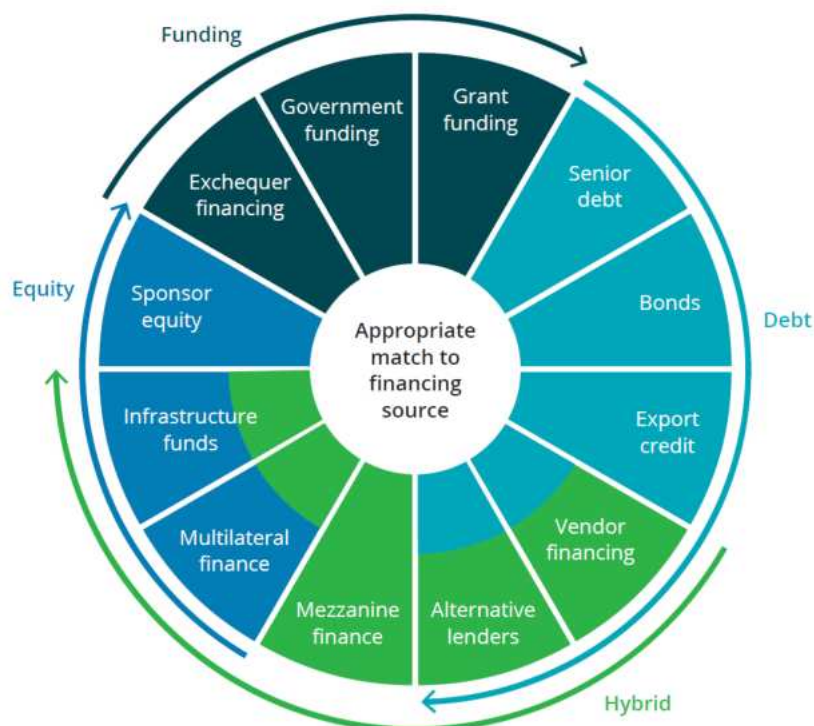


Figure 6.2: Financing options realizing (water) project

- 4. Mapping team and partners for the particular region:** The first step is to map who is in the stakeholder field (internally and externally), who does what (actively) and who is responsible or critical in terms of decisions, legalization, catalyzing, etc. The next step is to acquire the necessary equipment for the venture and people with the right skills to manage the project and manufacture your product. One fast way to determine which technical inputs will be needed to launch the venture is to contact one of the many national industry associations or technology hubs/clusters. There are several publications available at most public libraries listing the various industry associations and their contact information.

It is also worth to get in touch with companies and projects that already makes the same or similar products and/or services you plan to offer. Once the full idea and plan for technical skills and technology is completed, the next task is to determine how the inputs will be obtained in the selected region, climate zone, and juristic/administrative environment. It should be considered whether the equipment and machinery should be bought / sold or leased or in some cases owned, but you may be required to purchase them because they are intended for overseas use. Regional industry and business associations are often good sources of information on suppliers of both new and used equipment plus information about local personnel resources.

Also, the after-sales service is – especially in water projects – very important. When acquiring technology, it should be ensured that there is a seller guarantee to provide after-sales services and supplies. Many manufacturing projects have failed because of minor machinery breakdowns in which the project manager did not have access to the required service and supplies. Finally, communicating with bilateral or multilateral institutions with offices in the country of operation can be helpful, as it can contribute to the identification and, in some cases, funding, technical consultants or staff for manufacturing ventures. These cases will depend largely on the agency and country to which it is approached.

5. **Searching for material funding opportunities:** It will be necessary to discover and verify which funding sources should be suitable for each part and/or function of the project and to unfold potential mechanisms available to harness them.

There is often no substitute to having some capital of your own. Only few organizations and/or municipalities can afford to put up the full cost of a broader water venture. In many cases finance is available to offset some of the initial investment costs of establishing the operation. If there are partners operating in another country than the water venture project, debt, and equity financing available through the “Overseas” or the “Development Aid” National or Private Investment Corporations may be beneficial. The mandate of such Export Credit Agencies (ECA) is to provide project finance, management service, and insurance to investment projects in foreign or developing countries. ECA are good in risk management and attractive financing vital for achieving sustainable success with export transactions and investments abroad. This is the core competence of ECA that additionally offer tools to strengthen company’s position against global competition through making their extensive export experience available to the venture project.

Project finance is also accessible from banks within the private sector that provides similar services to those of the institutional world. Two key factors to note in seeking different funding are: (1) that projects can take six up to twelve months to get funded because these institutions pay a great deal of effort to proposals to ensure that the public funds they handle are invested properly; and (2) larger project will receive preference over smaller projects since the same scrutiny will be applied to both projects regardless of size, but larger projects will have a higher revenue stream when the borrower begins to repay.

6. **Good negotiations and contracts to overcome gaps:** Financing risks, gaps, and areas where traditional financing sources create funding problems need to be identified - such as current governance arrangements or traditional loans from banks. To overcome these critical areas, the investment must be based on a strong stakeholder network. In addition, there should be adaptability in managing new and alternative funding opportunities. Alternative sources for funding, which have been described in this funding opportunities report, are crowdfunding, alternative money from sustainable investment sources like alternative banks and sustainability investment companies and money (like grants and equity) from potential private donors (foundations and venture philanthropy associations).

Despite the best intentions and thorough planning, unforeseen events can occur that will disrupt the project. These could be sovereign risks such as unanticipated instability in the government of the host region/municipality, changes in local situations and circumstances, or hazardous environmental developments. Along with providing investment finance, the project needs to secure and provide political risk insurance. As mentioned earlier, many institutional financiers like EU-institutions, the World Bank, the IMF, National and Supranational Export Credit Agencies also provides political risk insurance for projects in developing regions of the world.

In the contract-negotiation stage the project participants negotiate and formalize agreements defining the technical, economic, financial, and commercial outlines of the project. The risk sharing provisions of the documents are usually structured in such a way as to remove risk from the project vehicle and allocate it to someone else in a higher or better position to absorb it. The project sponsor (project source) can approach the financial markets when the contract negotiation stage of project development has been successfully achieved and therefore the project agreements and contracts has been completed and signed.

Within the project agreements there can be:

- engineering, procurement, and construction (EPC) contract,
- operations and maintenance (O&M) agreement,
- input supply contracts, and
- customer contracts.

7. Securing revenue through a vital financial model: If the project is completed on schedule and within budget, its economic and financial viability will depend primarily on the marketability of the project's output. In the absence of an “offtake agreement”, the project sponsor may commission a market study of projected demand over the expected life of the project. The study must confirm that, under a reasonable set of economic assumptions, demand will be sufficient to absorb the planned output of the project at a price sufficient to recover full cost of production or service, enable the project to service debt, and provide an acceptable rate of return to equity investors.

A concise financing model is inevitable. This financial model has also to reflect the provisions made and reached at in the project agreements, which also contain reasonably accurate assumptions about cost financing. The project developer will focus on the level of projected distributions, their pace and timing, and the acceptability of the project's resulting internal rate of return (IRR). The financial model often considers, through sensitivity analyses, any weakness that may result from construction delays, cost overruns, adverse regulation, inefficiency of the facility relative to existing and projected competition, interest rate fluctuations, unavailability of extractive reserves or major project inputs, and major unanticipated inflation or volatility in foreign exchange rates.

It should be noted that the money-raising stage often starts parallel or earlier than the technical and local project planning and agreements and it ends sometimes later than the facility is build and commissioned. At this stage, the sponsor mobilizes the required financing and supervises the management organization, construction, and successful commissioning of the facility. Until financial closing is reached, the project developer and sponsor are responsible for all development costs. As mentioned, all sources of private debt in the capital and credit markets are at least theoretically available to water infrastructure projects located in industrialized countries as well as developing countries that are rated investment grade. In contrast, only multilateral, bilateral and export credit agency (ECA) debt are available to projects located in middle- and low-income developing countries that are not investment grade.

Finally, the question of “finance-ability” is often the most critical point in project success. The project must generate enough cash flow to give lenders a margin of safety with respect to its debt service obligations. In this context the “debt-to-equity ratio” must be calculated and managed. In general, the lowest cost of capital will be achieved when debt is maximized as a percentage of total capitalization and the amortization schedule for the project debt is matched, as closely as the financial markets will permit, to the cash flows of the project. The appropriate project debt-to-equity ratio depends very much on the strength of the off-take agreement. A strong off-take agreement will permit the sponsor to achieve a debt-equity ratio as high as 3. In contrast, the absence of an off-take could result in a ratio of 1.5 or lower.

The guiding box below (Figure 6.3) is given as an example for financing “public sector projects” – related to water utilities (e.g., HYDRO 1) and is not relevant for private sector projects (e.g., HYDRO 6). The following box presents different mechanisms for the development of the funding / financing strategy.

Direct Delivery: The public sector provides goods or services directly to the customer utilizing the public sector staff/assets.

Conventional Procurement: The public sector defines its requirement for goods and/or services, procures them via traditional procurement and contracting methods, and pays for them.

Operating Contracts: The public sector contracts with a vendor to provide goods and services. These contracts may cover a range of activities, from technical assistance to full responsibility for the operation and management of the public (water) infrastructure. They are generally shorter term in nature.

Licensing: Typically used for procuring technologies, these agreements generally come in two varieties. The first is a perpetual license, which is a one-time, up-front purchase funded by the CAPEX budget. The other is a subscription license, supported with periodic payments from the OPEX budget.

Long-Term Lease: Leasing property or equipment, rather than buying, provides flexibility and reduces up-front costs.

Joint Venture (JV): In this Private Sector Participation (PSP) model, the public sector joins with the private sector to jointly deliver a service/asset to utilize the best of each party. In many cases, this structure is utilized by the public sector to involve itself in a project (often) without providing funding.

Public-Private Partnership (PPP): Under this structure, the government contracts with the private sector (usually long term) for the provision of a service. The delivery of the service may involve the construction of a related and underlying asset; however, payment is made based on performance and availability of the service. Using risk transfer, the public sector pushes manageable risks to the private sector to deliver value for money.

Franchising: An agreement to operate government-owned assets on a commercial basis to generate returns (e.g., water operator contracts where government supplies the water infrastructure).

Privatization: This is where the private sector is fully responsible for the design, delivery, and operation of projects that provide (or previously provided) the public water and wastewater service. The public sector has no direct control over these entities except for legislation and regulation. In certain cases, these project services may have been provided by government, and the private sector may acquire the project/asset for consideration.

Figure 6.3: Guiding box for options realizing public water project

When do you start the realization and construction of the water utility? Usually, the project sponsor never should begin construction until financing is secured. Once construction begins, draws from loan commitments usually match the schedule of construction expenditures. Matching finance needs minimizes warehousing of excess funds and/or short-term and expensive bridge financing. Just as different funding and financing strategies work best for different water and wastewater projects, so do different (money) procurement structures, and specific procurement mechanisms are required to accommodate different funding/financing strategies. In summary the options include (see also Figure 6.4 below, Deloitte 2018):

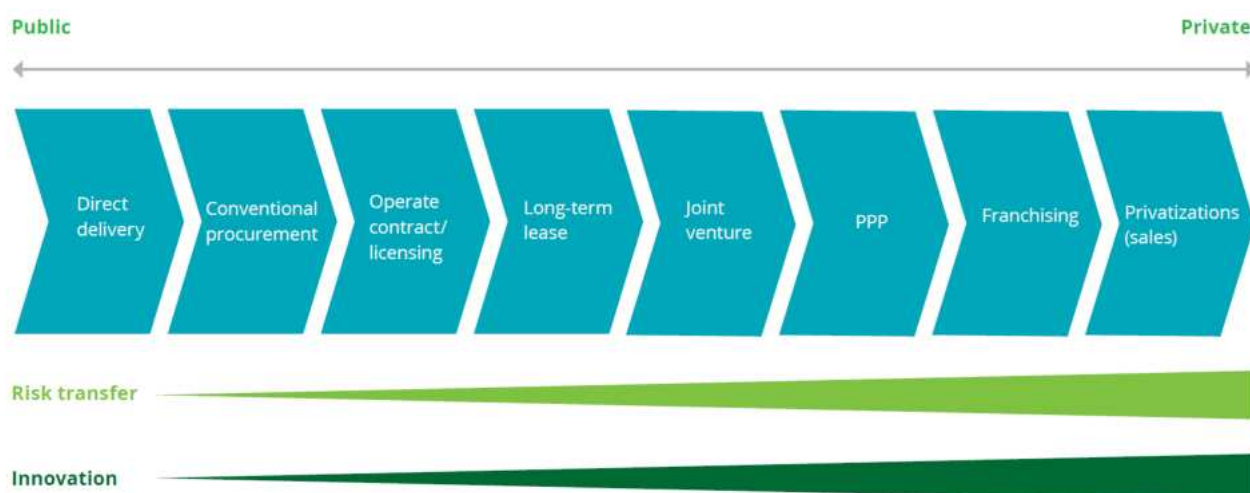


Figure 6.4: Different partnership and finance strategies (Deloitte, 2018)

6.2 Outlook

The challenge of paying for innovative nature-based decentralized circular water projects is great and remaining. While the sustainability and greening the economy-movement offers exciting new opportunities for all – economy, governments, their citizens, and businesses – finding and allocating the money to support sustainable water services can be a complex undertaking. When government officials understand the full range of options for funding, financing, and procurement, analyze the advantages of each, and choose strategies that best fit their situation; they can vastly increase the odds that their circular economy and sustainability initiative will succeed.

Greening Finance and financing the green transition are two essential demands. EU and many other authorities have developed “green finance strategies” to align private sector financial flows with clean, environmentally sustainable, and resilient growth, supported by public and government action. They do this for meeting the needs of an eco-social transformation, but also to strengthen the competitiveness of the own financial sector. Such strategies mainly have three strategic pillars (HM Government, 2019):

1. **“Greening Finance.** Ensuring current and future financial risks and opportunities from climate and environmental factors are integrated into mainstream financial decision making, and that markets for green financial products are robust in nature.
2. **Financing Green.** Accelerating finance to support the delivery of the EU’s carbon targets and clean growth, resilience, and environmental ambitions, as well as international objectives.
3. **Capturing the Opportunity.** Ensuring national and EU financial services capture the domestic and international commercial opportunities arising from the “greening of finance”, such as climate related data and analytics, and from “financing green”, such as new green financial products and services.” (HM Government, 2019)

Building consumer awareness and demand will be one substantial task within the sustainability transformation of the financial system. As green and sustainable finance becomes increasingly mainstream, there will be a growing demand for retail products such as green mortgages, sustainable investments (through investment funds), green bonds, and green financial services like insurance, home savings, green savings books. Improved consumer awareness and understanding of how their money is invested will give



individuals greater agency in choosing these financial products. This will help stimulate demand for green products and create a feedback loop with greater innovation in the green finance sector again. Crowdfunding options and retail investment platforms are already leading the way and tapping into this nascent market.

While many governmental and authoritarian green finance strategies have sought to address the role of regulators, governments, financial institutions, and industry in growing green finance, we would like to recognize and underline the vital role of individuals and the private sector in driving demand for green financial products and services. That is why authorities (like EU and national governments) should aim to reach, inform, and engage consumers on clean growth, circular economy, and sustainability issues, including green finance through events, (social) media, and campaigns. **We welcome all kinds of participation of citizens, customer engagement and processes of gathering shared collective wisdom and power to provide and leverage further opportunities for the sustainability turn.**

Authorities should take forward a range of broader activities to engage with individuals and make it easier for them to invest in line with their personal values. Leading cross-government initiatives throughout the EU and beyond EU is of crucial importance to make progress on this agenda. Taskforces on sustainable finance activities, growing a culture of social impact investing and investing for a better world need to be strengthened and their ideas brought to public life through involving civil society, academia, education, business, and media.

This will bring a better understanding of the public's views on ethical, responsible, and impactful investment practices. Finance is one of the most vital forces helping business and industry to shape supply and demand towards responsible and impactful solutions. This will strongly support the 17 Sustainable Development Goals (SDGs) and will re-place the "infamous" investment industry as supporter to develop a sustainable world, helping to deliver the end of poverty, the protection of the environment, and the healing of our planet.

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ANNEXES

ANNEX 1

UN SDGs and water

“Gaps in access to water supply and sanitation, growing populations, more water-intensive patterns of growth, increasing rainfall variability, and pollution are combining in many places to make water one of the greatest risks to economic progress, poverty eradication and sustainable development. The consequences of such stress are local, national, transboundary, regional, and global in today’s interconnected and rapidly changing world. Consequences will be disproportionately felt by the poorest and most vulnerable.” (World Bank, 2021)

Water is also essential for livelihoods. Nearly 80 % of the jobs constituting the global workforce depend on water. The nearly 1 billion people who work in the world’s farming, forestry, and fisheries sectors are heavily water dependent. Agriculture accounts for about 70% of total freshwater withdrawals in the world and more than 90% in least developed countries. Rising food demand, together with the impacts of climate change, will put added stress on increasingly scarce water resources (World Bank, 2021).

Most of the world’s electricity production depends on water for cooling or for hydroelectric generation. As a result, energy production uses about 15% of the world’s water. Global energy demand is projected to increase by 30% by 2040. Electricity will take an increasingly larger share of final energy consumption, from about one-quarter of energy consumption today to nearly 40% in 2040, which means the energy sector’s water demands will add further stress on water resources (International Energy Agency, 2020). Water is inextricably linked to the development of all nations. But unsustainable development is placing pressure on water resources: by 2030, global demand for water is expected to increase by 50%. Meanwhile, agriculture (which currently consumes around 70% of global water usage) is expected to experience a 70% increase in demand by 2050 (United Nations University, 2021).

“In 2015, world leaders adopted the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). There are 17 SDGs that cover an ambitious global agenda: from ending poverty to regaining peace and stability while leaving no-one behind. SDG 6 – the “water goal” – is to ensure availability and sustainable management of water and sanitation for all. SDG 6 does not only aim for sustainable water management across the globe. It also underpins many other SDGs. Meeting SDG 6 would go a long way towards achieving much of the 2030 Agenda.” (United Nations University, 2021).

Annex 2

European Green Deal Investment Plan

“The European Green Deal Investment Plan will mobilize EU funding and create an enabling framework to facilitate and stimulate the public and private investments needed for the transition to a climate-neutral, green, competitive, and inclusive economy. Complementing other initiatives announced under the Green Deal, the Plan is based on three dimensions:

- 1. Financing: mobilizing at least €1 trillion of sustainable investments over the next decade. A greater share of spending on climate and environmental action from the EU budget than ever before will crowd in private funding, with a key role to be played by the European Investment Bank.*

2. *Enabling: providing incentives to unlock and redirect public and private investment. The EU will provide tools for investors by putting sustainable finance at the heart of the financial system and will facilitate sustainable investment by public authorities by encouraging green budgeting and procurement, and by designing ways to facilitate procedures to approve State Aid for just transition regions.*
3. *Practical support: The Commission will provide support to public authorities and project promoters in planning, designing, and executing sustainable projects.” (ENI CBCMED, 2021)*

Annex 3

Just Transition Mechanism

“The Just Transition Mechanism (JTM) is a key tool to ensure that the transition towards a climate-neutral economy happens in a fair way, leaving no one behind. While all regions will require funding and the European Green Deal Investment Plan caters for that, the Mechanism provides targeted support to help mobilize at least €100 billion over the period 2021-2027 in the most affected regions, to alleviate the socio-economic impact of the transition. The Mechanism will create the necessary investment to help workers and communities which rely on the fossil fuel value chain. It will come in addition to the substantial contribution of the EU's budget through all instruments directly relevant to the transition. The Just Transition Mechanism will consist of three main sources of financing:

1. *A Just Transition Fund, which will receive €7.5 billion of fresh EU funds, coming on top of the Commission's proposal for the next long-term EU budget. To tap into their share of the Fund, Member States will, in dialogue with the Commission, must identify the eligible territories through dedicated territorial just transition plans. They will also have to commit to match each euro from the Just Transition Fund with money from the European Regional Development Fund and the European Social Fund Plus and provide additional national resources. Taken together, this will provide between €30 and €50 billion of funding, which will mobilize even more investments. The **Fund will primarily provide grants to regions**. It will, for example, support workers to develop skills and competences for the job market of the future and help SMEs, start-ups, and incubators to create new economic opportunities in these regions. It will also support investments in the clean energy transition, for example in energy efficiency.*
2. *A dedicated just transition scheme under InvestEU to mobilize up to €45 billion of investments. It will seek to attract private investments, including in sustainable energy and transport that benefit those regions and help their economies find new sources of growth.*
3. *A public sector loan facility with the European Investment Bank backed by the EU budget to mobilize between €25 and €30 billion of investments. It will be used for loans to the public sector, for instance for investments in district heating networks and renovation of buildings. The Commission will come with a legislative proposal to set this up in March 2020.”*

The Just Transition Mechanism is about more than funding: relying on a Just Transition Platform, the Commission will be providing technical assistance to Member States and investors and make sure the affected communities, local authorities, social partners, and non-governmental organizations are involved. *“The Just Transition Mechanism will include a strong governance framework centered on territorial just transition plans.”*

(European Commission (2), 2020)

Annex 4

EU Action Plan “Towards Zero Pollution for Air, Water and Soil”

“On May 12th, 2021, the European Commission adopted the EU Action Plan: “Towards Zero Pollution for Air, Water and Soil” – a key deliverable of the European Green Deal. It sets out an integrated vision for 2050: a world where pollution is reduced to levels that are no longer harmful to human health and natural ecosystems, as well as the steps to get there. The plan ties together all relevant EU policies to tackle and prevent pollution, with a special emphasis on how to use digital solutions to tackle pollution. Reviews of relevant EU legislation are foreseen to identify remaining gaps in EU legislation and where better implementation is necessary to meet these legal obligations.

To steer the EU towards the 2050 goal of a healthy planet for healthy people, the EU Action Plan sets key 2030 targets to reduce pollution at source, in comparison to the current situation. Namely:

- *improving air quality to reduce the number of premature deaths caused by air pollution by 55%*
- *improving water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (by 30%);*
- *improving soil quality by reducing nutrient losses and chemical pesticides' use by 50%*
- *reducing by 25% the EU ecosystems where air pollution threatens biodiversity*
- *reducing the share of people chronically disturbed by transport noise by 30%, and*
- *significantly reducing waste generation and by 50% residual municipal waste.*

The Plan outlines several flagship initiatives and actions, including:

- *aligning the air quality standards more closely to the latest recommendations of the WHO,*
- *reviewing the standards for the quality of water, including in EU rivers and seas,*
- *reducing soil pollution and enhancing restoration,*
- *reviewing most EU waste laws to adapt them to the clean and circular economy principles,*
- *fostering zero pollution from production and consumption,*
- *presenting a Scoreboard of EU regions' green performance to promote zero pollution across regions,*
- *reduce health inequalities caused by the disproportionate share of harmful health impacts now borne by the most vulnerable,*
- *reducing the EU's external pollution footprint by restricting the export of products and wastes that have harmful, toxic impacts in third countries,*
- *launching Living Labs for green digital solutions and smart zero pollution,*
- *consolidating the EU's Knowledge Centers for Zero Pollution and bringing stakeholders together in the Zero Pollution Stakeholder Platform,*
- *stronger enforcement of zero pollution together with environmental and other authorities.*

Jointly with the Chemicals Strategy for Sustainability adopted in October 2020, the “EU Action Plan Towards Zero Pollution” translates the EU's zero pollution ambition for a toxic-free environment into action. It goes hand in hand with the EU's goals for climate neutrality, health, biodiversity, and resource efficiency and builds on initiatives in the field of energy, industry, mobility, food, circular economy, and agriculture.”
(European Commission (3), 2021)

Annex 5

EU Taxonomy for Sustainable Activities

“To meet the EU's climate and energy targets for 2030 and reach the objectives of the European Green Deal, it is fundamental to direct investments towards sustainable projects and activities. The COVID-19 pandemic has reinforced the need to redirect capital flows towards sustainable projects to make our economies, businesses, and societies, in particular health systems, more resilient against climate and environmental

shocks and risks with clear co-benefits for health. To achieve this, a common language, and a clear definition of what is 'sustainable' is needed. Therefore, the action plan on financing sustainable growth called for the creation of a common classification system for sustainable economic activities, or an "EU taxonomy".

The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. The EU taxonomy is an important enabler to scale up sustainable investment and to implement the European Green Deal. Notably, by providing appropriate definitions to companies, investors, and policymakers on which economic activities can be considered environmentally sustainable, it is expected to create security for investors, protect private investors from greenwashing, help companies to plan the transition, mitigate market fragmentation and eventually help shift investments where they are most needed.

The Taxonomy Regulation establishes six environmental objectives:

- 1. Climate change mitigation*
- 2. Climate change adaptation*
- 3. The sustainable use and protection of water and marine resources*
- 4. The transition to a circular economy*
- 5. Pollution prevention and control*
- 6. The protection and restoration of biodiversity and ecosystems*

The Commission is currently (May 2021) preparing an IT tool that will facilitate the use of the taxonomy by allowing users to navigate easily through the taxonomy."
(European Commission (5), 2021)

Annex 6

The Issuers of Bonds

Governments (at all levels) and corporations commonly use bonds to borrow money. Governments need to fund roads, schools, or other infrastructure. The sudden expense of war may also demand the need to raise funds. Similarly, corporations will often borrow to grow their business, to buy property and equipment, to undertake profitable projects, for research and development or to hire employees. The problem that large organizations run into is that they typically need far more money than the average bank can provide. Bonds provide a solution by allowing many individual investors to assume the role of the lender. Indeed, public debt markets let thousands of investors each lend a portion of the capital needed. Moreover, markets allow lenders to sell their bonds to other investors or to buy bonds from other individuals - long after the original issuing organization raised capital." (Jason Fernando et al. (1), 2021)

Annex 7

Example for a project utilizing an institutional bond market:

"The Government and the banks alone cannot fund South Africa's R3.4 trillion infrastructure program. The use of bonds allows project developers to tap into R3 trillion worth of assets under management by South African institutional investors. In addition, Sovereign Wealth Funds are beginning to invest directly into infrastructure projects, so this may also provide an additional source of funding for capital projects into the future." (Deloitte, 2021).

Annex 8

Typical features of a PPP (European Investment Bank, 2021):

- *“a long-term contract between a public authority and a private partner focusing on the provision of services rather than assets,*
- *the transfer of certain project risks to the private partner, notably about designing, building, operating/maintaining and/or financing the project,*
- *a focus on the specification of project outputs rather than project inputs, taking account of the whole life cycle implications for the project,*
- *the application of private financing (often “project finance”) to underpin the risks transferred to the private partner, and*
- *the public authority makes performance-based payments to the private partner for the provision of the service (e.g., for the availability of a road) or grants the private partner a right to generate revenues from the provision of the service (e.g., tolls from users of a bridge).”*

Annex 9

Three domains of advisory services provided by the EIB

1. *Strategic development – offering strategic support to help promoters and beneficiaries to realize their projects both inside the European Union and worldwide.*
2. *Market development – helping clients define the parameters and specific needs of a sector, a region, or a specific investment programme.*
3. *Project Development – offering support in preparing, structuring, and implementing projects that are then funded by the European institutions like EIB or by other financiers.*

Annex 10

PRIMA – Partnership for Research and Innovation in the Mediterranean Area (Chapter 4.1)

General description

PRIMA is a ten-year initiative (2018-2028), partly funded by EU's research and innovation programme Horizon 2020. *“PRIMA is the most ambitious joint programme to be undertaken in the frame of Euro-Mediterranean cooperation.”* By funding Research and Innovation (R&I) through competitive calls, PRIMA aims to: *“build research and innovation capacities and to develop knowledge and common innovative solutions for agro-food systems, to make them sustainable, and for integrated water provision and management in the Mediterranean area, to make those systems and that provision and management more climate resilient, efficient, cost-effective and environmentally and socially sustainable, and to contribute to solving water scarcity, food security, nutrition, health, well-being and migration problems upstream”.*

PRIMA also aims at to contribute to United Nations' Agenda 2030 through the achievement of the Sustainable Development Goals (SDGs). PRIMA consists of European Union Member States, Horizon 2020 Associated Countries and Mediterranean Partner Countries on an equal footing basis (co-ownership, co-management and co-funding) with the participation of the European Commission, under the framework of Art. 185 TFEU.

To date, 19 countries committed to the initiative: Algeria, Croatia, Cyprus, Egypt, France, Germany, Greece, Israel, Italy, Jordan, Lebanon, Luxembourg, Malta, Morocco, Portugal, Slovenia, Spain, Tunisia, and Turkey have formally become PRIMA Participating States. The partnership will be financed through a combination of



funding from PRIMA Participating States (currently € 274 million), and a € 220 million contribution from the EU through Horizon 2020, its research and innovation funding programme (2014 – 2020).

PRIMA programmes will support research and innovation through distinct types of actions/activities:

In Section 1: Research & Innovation Actions (RIA), and Innovation actions (IA) as defined in the General Annexes of Horizon2020

In Section 2: Research and Innovation Activities (RIA*[2]) based on national rules

In Section 3: National research programmes (PSIAs)

How to reach out/apply?

Each country has nominated representatives at national level to act as National Contact Points (NCPs). These representatives give support to applicants, are the primary points of contact for all general matters related to calls for proposals and can act as a link between PRIMA and the coordinator of the project.

NPCs: <https://prima-med.org/calls-for-proposals/ncps/>

More information on application: <https://prima-med.org/calls-for-proposals/general-information/>

Form of grant, reimbursement rates and forms of costs

The grant reimburses for research and innovation actions (RIA) and for coordination and support actions (CSA) are funded by 100 % of the action's eligible costs. Also, innovation actions (IA) are funded by 100% of the eligible costs for beneficiaries and linked third parties that are non-profit legal entities and 70% of the eligible costs for beneficiaries and linked third parties that are profit legal entities for exceptional cases if foreseen in the work plan.

For more information see: <http://prima-med.org/>

Recited source: <https://prima-med.org/about-us/prima-in-brief/> and <https://prima-med.org/calls-for-proposals/ncps/>

Annex 11

ERDF The European Regional Development Fund (Chapter 4.3.)

Short summary:

The European Regional Development Fund (ERDF) is one of the main financial instruments of the EUs cohesion policy. Its purpose is to contribute to reducing disparities between the levels of development of European regions. Thematically it concentrates on research and innovation, on information and communication technologies (ICT), on SMEs and on the promotion of a low-carbon economy. Depending on the degree of a region's development the ERDF can finance up to between 85% (in the less developed regions) and 50% (in the more developed regions) of the cost of a project.

General description

The European Regional Development Fund (ERDF) is one of the main financial instruments of the EUs cohesion policy. Its purpose is to contribute to reducing disparities between the levels of development of European regions and to reduce the backwardness of the least favored regions. Particular attention is paid to regions which suffer from severe and permanent natural or demographic handicaps, such as the northernmost regions with very low population density as well as island, cross-border and mountain regions. The first programming period of the ERDF will end 2020 (around EUR 350 billion were planned for cohesion policy, which is equal to 32.5% of the overall EU budget). Around EUR 199 billion was allocated to the European Regional Development Fund (ERDF), including EUR 10.2 billion for

European Territorial Cooperation (ETC) and EUR 1.5 billion of special allocations for outermost and sparsely populated regions. According to the Commission proposals, in the programming period 2021-2027, around EUR 200.6 billion will be allocated to the ERDF (including EUR 8.4 billion for ETC and EUR 1.5 billion of special allocations for the outermost regions).

The level of co-financing required in projects financed by the ERDF is geared to the development of the regions concerned.

- In the less developed regions (and outermost regions), the ERDF can finance up to 85% of the cost of the project.
- In the transition regions this can be up to 60% of the cost of the project, and
- in the more developed regions up to 50%.

Main objectives

1. The development and structural adjustment of regions whose development is lagging,
2. The conversion of declining industrial regions.

The ERDF had two main goals for the period 2014-2020, namely:

- Investment for growth and jobs — aiming to strengthen the labor market and regional economies,
- European Territorial Cooperation — aiming to strengthen cross-border, transnational, and interregional cooperation within the European Union.

Resources assigned to the first goal were allocated to three different categories of regions:

- More developed regions whose GDP per capita is above 90% of the EU average,
- Transition regions whose GDP per capita is between 75% and 90% of the EU average,
- Less developed regions whose GDP per capita is below 75% of the EU average.

The ERDF also supports sustainable urban development. At least 5% of the ERDF allocation for each Member State has to be earmarked for integrated actions for sustainable urban development that will tackle the economic, environmental, climate, demographic and social challenges affecting urban areas.

Details of the allocation and future use of ERDF funds are determined in the Partnership Agreements. These are strategy documents drawn up by each Member State with the assistance of regional and social partners.

Thematic concentration

As the ERDF contributes to the Europe 2020 Strategy for smart, sustainable, and inclusive growth, it must focus on the priorities specified in this strategy. The main priorities are:

7. Research and innovation,
8. Information and communication technologies (ICT),
9. Small and medium-sized enterprises (SMEs),
10. Promotion of a low-carbon economy.

The level of concentration required varies according to the category of regions being supported. More developed regions must allocate at least 80% of their ERDF resources to at least two of these priorities and at least 20% to the low-carbon economy. Transition regions must allocate at least 60% of their ERDF resources to at least two of these priorities and at least 15% to the low-carbon economy. Less developed regions must allocate at least 50% of their ERDF resources to at least two of these priorities and at least 12% to the low-carbon economy.

European Territorial Cooperation



Under the European Territorial Cooperation programmes (Interreg), at least 80 % of funds will be concentrated on these four priority areas mentioned above. Five programming periods of Interreg have succeeded each other and will end 2020.

Specific Territorial Characteristics

Areas that are naturally disadvantaged from a geographical viewpoint (remote, mountainous, or sparsely populated areas) benefit from special treatment. Lastly, the outermost areas also benefit from specific assistance from the ERDF to address possible disadvantages due to their remoteness.

Proposal for the post-2020 EU cohesion policy

In May 2018, the European Commission proposed regulations for EU cohesion policy after 2020. These include:

- A regulation on the European Regional Development Fund and on the Cohesion Fund,
- A regulation on specific provisions for the European Territorial Cooperation goal (Interreg).

These proposals maintain the two current goals of the ERDF, as it was by 2020:

1. 'Investment for jobs and growth' and
2. 'European Territorial Cooperation'.

They also maintain thematic concentration for the top two priorities:

- support to innovation, digital economy and SMEs delivered through a smart specialization strategy (PO1);
- and a greener, low carbon and circular economy (PO2) – interesting for the HYDROUSA project.

The Commission also proposed a list of activities that are not to be supported by the ERDF, including direct support to large enterprises, airport infrastructure (except in the outermost regions) and some waste management operations (e.g., landfill).

According to the Commission proposals, in the programming period 2021-2027, around EUR 200.6 billion will be allocated to the ERDF (including EUR 8.4 billion for ETC and EUR 1.5 billion of special allocations for the outermost regions).

These regulations are subject to the ordinary legislative procedure, where the European Parliament is on an equal footing with the Council. This means that before the end of 2020, these two institutions will have to find a consensus on the rules for the ERDF in the future.

This will be crucial for the HYDROUSA project.

How to apply:

The application for ERDF funds is managed regionally. In order to apply one has to reach out to the authority managing the relevant regional programme.

More information can be found here: https://ec.europa.eu/regional_policy/en/funding/accessing-funds

Where to get support:

There are many sources of help and advice on getting EU regional funding. For HYDROUSA sites the most useful sources to address could be the Europe Direct information relays, with hundreds of information points all over Europe and the Enterprise Europe Network, which provides expert advice to small businesses on how to access EU public funds and grants for research and development, innovation, investment, employment. and training.

Main recited sources (May 2021):

https://ec.europa.eu/regional_policy/en/funding/accessing-funds/

<https://www.europarl.europa.eu/factsheets/en/sheet/95/european-regional-development-fund-erdf->

Annex 12

Cohesion Fund (Chapter 4.4)

General description

The Cohesion Fund, set up in 1994, provides funding for environmental and trans-European network projects in the Member States whose gross national income per capita is less than 90% of the EU average. During the 2014-2020 programming period, the Cohesion Fund is providing funding for 15 Member States: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, and Slovenia. For the 2014-2020 programming period, the EU is allocating some EUR 63.4 billion to the Cohesion Fund (excluding transfers to the Connecting Europe Facility), and the level of financing from the Cohesion Fund for a project can amount to up to 85% of its cost.

Main objectives

The Cohesion Fund was established for the purpose of strengthen the economic, social, and territorial cohesion of the European Union in the interests of promoting sustainable development. For the 2014-2020 programming period it provides support to:

- Investment in the environment, including areas related to sustainable development and energy which present environmental benefits;
- Trans-European networks in the area of transport infrastructure (TEN-T);
- Technical assistance.

Proposal for post-2020 EU cohesion policy

In May 2018, the Commission published its proposals for the regulation of EU cohesion policy after 2020. These include a regulation on the European Regional Development Fund (ERDF) and on the Cohesion Fund. The Cohesion Fund will continue to support projects under the 'Investment for growth and jobs' goal.

This proposal maintains thematic concentration. The Cohesion Fund will support two specific objectives:

- a greener, low-carbon and circular economy (Policy Objective (PO2) – in particular interesting for the HYDROUSA project),
- and a more connected Europe (PO3).

For the 2021-2027 programming period, the proposed allocation to the Cohesion Fund is EUR 41.3 billion, of which the contribution to the Connecting Europe Facility would be EUR 10 billion. The post-2020 Cohesion Fund will finance projects in the same 15 Member States as in the 2014-2020 programming period. The Commission's proposal is subject to the ordinary legislative procedure, see above (ERDF). This program will probably be crucial for the HYDROUSA project.

Recited source: <https://www.europarl.europa.eu/factsheets/en/sheet/96/cohesion-fund>

Annex 13

European Agricultural Fund for Rural Development – EAFRD (Chapter 4.5)

Among the most popular, however, are mainly P2P loan platforms and crowdfunding platforms. Although this market **General description**

The European Agricultural Fund for Rural Development (EAFRD) is the funding instrument of the second pillar of the EU's Common Agricultural Policy (CAP) and it is one of the European Structural and Investment Funds (ESIF). The EAFRD aims at strengthening the EU's agriculture, agro-food and forestry sectors, as well as rural areas in general.

The EAFRD had a total budget of over EUR 96 billion for the period 2014-2020. Almost half of this budget was planned for investments, through grants and financial instruments, in agriculture, forestry, environment and natural resources management as well as sustainable development of the rural economy. By end of 2018, more than 54 managing authorities carried out ex-ante assessments for financial instruments under the EAFRD and around 25 of them have at least started to launch their financial instruments.

For the 2014-20 programming period, the Fund focused on six main objectives:

1. fostering knowledge transfer and innovation in agriculture, forestry and rural areas;
2. enhancing the viability and competitiveness of all types of agriculture, and promoting innovative farm technologies and sustainable forest management;
3. promoting food chain organization, animal welfare and risk management in agriculture;
4. promoting resource efficiency and supporting the shift toward a low-carbon and climate resilient economy in the agriculture, food and forestry sectors;
5. restoring, preserving and enhancing ecosystems related to agriculture and forestry;
6. promoting social inclusion, poverty reduction and economic development in rural areas.

Financial instruments under the EAFRD are available to all potential recipients in agriculture, forestry and in the rural areas who are undertaking financially viable investment projects.

The **EAFRD finances** through a broad range of potential instruments like loans, microcredits, guarantees and equity. Financial instruments may also be offered in combination with grants and other forms of assistance. It is often necessary to improve the investment readiness as a pre-requisite for attracting investment funds. Advisory and other support can be grant-aided through the EAFRD.

Financial instruments co-funded by EAFRD can contribute to the long-term development and diversification of the sector and investment in it by supporting activities in areas where levels of investment have often been suboptimal and stimulating the development of commercially viable projects thus opening up new market opportunities. They can also create opportunities for investors and financial intermediaries. Access to financing has typically been costly and difficult for firms in the agriculture and forestry sectors. In many Member States, the sectors are considered by banks and other financial institutions as high risk in terms of lending and access to credit. However, some projects can become more attractive investments due to public sector backed financial instruments and related risk-sharing.

Criteria for support:

The financial instruments of the EAFRD:

- are expected to be repaid;
- are revolving, i.e. with funds repaid being used again in the same area;
- are suitable for financially viable projects, i.e. those which are expected to generate enough income or savings to pay back the support received;
- are designed to attract co-investment from other sources, including private investment, to increase the amount of funds available in particular in sectors/areas where there are problems with access to finance;

- can take the form of loans, guarantees or equity;
- can also support supply-side development, by contributing to development of the market;
- can be used in a complementary way with grants; and
- may be managed by national or regional banks, international organisations such as the European Investment Bank or the European Investment Fund, by financial intermediaries, and (for loans and guarantees only) by managing authorities.

Links:

[https://www.fi-](https://www.fi-compass.eu/sites/default/files/publications/EAFRD%20The%20european%20agricultural%20fund%20for%20rural%20development%20EN%200.pdf)

[compass.eu/sites/default/files/publications/EAFRD The european agricultural fund for rural de
velopment EN 0.pdf](https://www.fi-compass.eu/sites/default/files/publications/EAFRD%20The%20european%20agricultural%20fund%20for%20rural%20development%20EN%200.pdf)

[https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-
policy/financing-cap/cap-funds](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/financing-cap/cap-funds)

[https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-
development en](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en)

Recited sources: <https://www.fi-compass.eu/esif/eafrd> and [https://www.fi-compass.eu/sites/default/files/publications/EAFRD The european agricultural fund for rural de
velopment EN 0.pdf](https://www.fi-compass.eu/sites/default/files/publications/EAFRD%20The%20european%20agricultural%20fund%20for%20rural%20development%20EN%200.pdf)

Annex 14

European Fund for Strategic Investments – EFSI (until 2020) (Chapter 4.7.1)

General description

EFSI is the European Fund for Strategic Investments. It was conceived in 2014, when Europe was emerging from the worst financial crisis since the Great Depression. To speed up the recovery, the European Commission, supported by the European Investment Bank (EIB), launched a policy initiative to break the vicious circle of declining investment and sluggish growth. The initiative is called the Investment Plan for Europe. EFSI is the financial component of this plan.

EFSI is not a “fund” in the traditional sense. It is a **guarantee instrument** that enables the EIB Group to **accelerate projects and take more risks when investing** in them. EFSI beneficiaries follow the same procedures in place for a traditional EIB loan or for lending organized via an EIB partner. If the project meets the EFSI criteria, it is presented to a group of eight independent experts called the Investment Committee. This group decides if the project qualifies for backing by the EU guarantee.

The original goal of EFSI was to trigger EUR 315 billion in additional investments over three years. The initiative was extended in late 2017 and now aims to mobilize EUR 500 billion by 2020. This was possible with the help of a EUR 26 billion guarantee from the EU. The EIB plans to complement this guarantee with EUR 7.5 billion from its own resources. The total new amount of EUR 33.5 billion will be used to leverage more investment in two ways:

- It will enable the EIB Group to support the European economy with some EUR 100 billion on top of the Bank’s normal activity.
- Since the EIB Group is never the only investor in a project, each euro of EIB financing will generate third-party investment worth several times this amount. This process of attracting co-investment is called “crowding in”.



Overall, the EIB Group aims to create about 15 times the level of investment from the initial EUR 33.5 billion endowment. Spread over five years, this money will not bridge the whole investment gap in the European Union. Still, it has the power to substantially increase competitiveness while generating quality jobs and economic growth in cities and regions.

The European Fund for Strategic Investments is at the heart of the Investment Plan, supporting innovative projects that may have high risks. The joint initiative of the European Investment Bank and the European Commission **helps to attract private investment for:**

- Research, development, and innovation
- Energy
- Digital
- Transport
- Environment and resource efficiency
- Social infrastructure
- Sustainable agriculture, forestry, fishery, and aquaculture
- Industry-support in less-developed and transition regions
- Smaller and midcap companies

Who can apply?

- Companies of all sizes
- Utilities
- Public sector entities
- National promotional banks or other banks providing intermediated loans
- Bespoke investment platforms

How to apply?

Large infrastructure and innovation clients in the public or private sectors can apply for a loan through the European Investment Bank. SMEs and mid-caps can secure financing for their projects via national promotional banks and local financial intermediaries. Projects must be:

- Commercially sound, and economically and technically viable
- Designed to contribute to EU objectives, sustainable growth, and employment
- Mature enough to be bankable
- Priced in a manner commensurate with the risk.

Where to get help? The European Investment Advisory Hub (EIAH)

The EIAH is an EIB/European Commission initiative to accelerate investment, offering a single point of access to wide-ranging support for projects and investments at all stages of the project cycle.

Advisory services include:

- Technical support for project preparation and implementation
- Enhancing use of EU funds in financial instruments
- Capacity building support
- Policy, programme and project support for public-private partnerships
- Access to finance for innovation projects

Financing conditions and rates

The EFSI-Programme supports economically viable projects of greater risk than generally accepted by the EIB and aims lending in less stable regulatory/market environment. As for the scale, similarly to the traditional EIB support, EFSI can finance projects of more than €25 million or smaller ones through a suitable

intermediary. Co-financing should represent 50% but blending is possible: EFSI can support parts of projects which are not eligible under “EU Structural Funds” but which are part of a bigger investment.

Links:

<http://eiah.eib.org>

<https://www.eib.org/en/efsi/index.htm>

<https://www.eib.org/de/products/mandates-partnerships/efsi/index.htm>

Recited source: https://www.eib.org/attachments/thematic/investment_plan_for_europe_en.pdf

Annex 15

InvestEU (starting 2021) (Chapter 4.7.2)

General description

The InvestEU Programme builds on the successful model of the Investment Plan for Europe, the Juncker Plan. It will bring together under one roof, the European Fund for Strategic Investments (EFSI) with 13 other EU financial instruments. Triggering more than €372 billion in additional investment over the period 2021-27, the InvestEU Programme aims to give an additional boost to sustainable investment, innovation, and job creation in Europe.

What does the Programme consist of?

- **InvestEU Fund:** The InvestEU Fund aims to mobilise more than €372 billion of public and private investment through an EU budget guarantee of €26.2 billion that backs the investment of implementing partners such as the European Investment Bank (EIB) Group and other financial institutions.
- **InvestEU Advisory Hub:** The InvestEU Advisory Hub provides technical support and assistance to help with the preparation, development, structuring and implementation of investment projects, including capacity building.
- **InvestEU Portal:** The InvestEU Portal brings together investors and project promoters on a single EU-wide platform, by providing an easily accessible and user-friendly database of investment opportunities available within the EU. https://europa.eu/investeu/about-investeu_en

The InvestEU Programme supports the following 4 main policy areas (“windows”):

Sustainable infrastructure

- Transport, in particular clean and sustainable transport modes, multimodal transport, road safety, renewal and maintenance of rail and road infrastructure
- Energy, in particular renewable energy, energy efficiency and building renovation projects focused on energy savings and the integration of buildings into a connected energy source, storage, digital and transport system, improving energy infrastructure interconnection levels
- Digital connectivity and access including in rural areas
- Supply and processing of raw materials, space, oceans, water, including inland waterways, waste management in line with the waste hierarchy and the circular economy



- Nature and other environment infrastructure
- Cultural heritage, tourism
- Equipment, mobile assets and deployment of innovative technologies that contribute to the environmental climate resilience or social sustainability objectives of the EU, and meet the environmental or social sustainability standards of the EU

Research, innovation and digitisation

- Research, product development and innovation activities
- Transfer of technologies and research results to the market, supporting market enablers and cooperation between enterprises
- Demonstration and deployment of innovative solutions and support to scaling up of innovative companies as well as digitisation of EU industry

SMEs

- Access to and availability of finance primarily for SMEs, including innovative ones and those operating in the cultural and creative sectors, as well as for small mid-cap companies
- Possibility of capital support to SMEs that were not in difficulty in State aid terms already at the end of 2019, but since then face significant risks due to the crisis caused by the Covid-19 pandemic

Social investment and skills

- Microfinance
- Social enterprise finance and social economy
- Measures to promote gender equality skills, education, training and related services
- Social infrastructure (including health and educational infrastructure and social and student housing)
- Social innovation, including social impact, impact investing and social outcome contracting
- Health and long-term care
- Inclusion and accessibility
- Cultural and creative activities with a social goal
- Integration of vulnerable people, including third country nationals

All 4 areas can contain **strategic investments** including Important Projects of Common European Interest to support final recipients whose activities are of strategic importance to the EU, in particular in view of the green and digital transitions, of enhanced resilience and of strengthening strategic value chains.

InvestEU and agriculture: Agriculture related investments could be supported under all four of InvestEU windows. Examples could be rural infrastructure (Sustainable Infrastructure Window), research in agriculture (RID window), agricultural SMEs (SME Window) or female entrepreneurs in rural areas (Social Investment & Skills Window)

More information:

https://europa.eu/investeu/about-investeu_en

https://europa.eu/investeu/about-investeu/what-investeu-programme_en

Annex 16

InnovFin – EU Finance for Innovators (Chapter 4.8)

Just like EFSI, InnovFin has been reorganised and renamed in 2021. It now runs under the programme Horizon Europe Pillar III - Innovative Europe, which contains the European Innovation Council as well as the European Institute of Innovation and Technology.

InnovFin were financial instruments and advisory services by the European Commission and the European Investment Bank Group to help innovative enterprises of all scales to easily access finance in the EU and beyond. Under Horizon 2020, the EU Research and Innovation programme for 2014-20, “InnovFin – EU Finance for Innovators” offered a range of tailored products which provided financing to support research and innovation by companies - large and small, young and old - and to support promoters of research infrastructure.

InnovFin supported activities, which by their nature were riskier and harder to assess than traditional investments, and therefore faced difficulties in accessing finance. All are demand-driven instruments, with no prior allocations between sectors, countries, or regions. Firms and other entities located in EU Member States and Horizon 2020 Associated Countries are eligible to become final beneficiaries. Typically, the EIB provides between 35% and 50% of the project or investment cost and is often key in attracting other investors from the public or private sector.

The EIB assesses the eligibility of the company and/or the project, technological and economic viability, and environmental soundness, as well as the promoter's financial situation and outlook. Subject to the completeness of the information available and the nature of the financing, the time between a first contact with the EIB and the signature of a financing contract takes approximately six months.

The InnovFin product range consists of a suite of tailored financial instruments (see Figure 0.1). Whatever the size and stage of the project, there can be found suitable matches. See some of the InnovFin products described:

- **InnovFin Technology Transfer** targets investments in technology transfer funds, focusing on pre-seed (including proof of concept) and seed stages, especially in areas of key enabling technologies (including—but not limited to—ICT, nanotechnology, biotech, cleantech, and medtech) and other Horizon 2020 objectives, such as promotion of intellectual property, licensing and spin off activities.
- **InnovFin SME Guarantee** improves access to finance by making debt financing available to innovative small and medium-sized enterprises and small midcaps (up to 499 employees).
- **InnovFin Emerging Innovators** bridges the research and innovation (R&I) investment gap in Moderate and Modest Innovator EU Member States (per the European Innovation Scoreboard) and Horizon 2020 Associated Countries.
- **InnovFin Corporate Research Equity** increases the supply of equity-type financing under the European Fund for Strategic Investment to large R&I programmes and to innovative large midcaps.
- **InnovFin Science** supports R&I investment by research institutes, universities and public or private research organisations.
- **InnovFin Thematic Investment Platforms:** InnovFin Circular Bioeconomy Investment Platform will be the first thematic investment platform. This platform will be managed by a financial intermediary / fund manager to be selected through an open call for expression of interest.

Recited source: <https://www.eib.org/en/products/blending/innovfin/index.htm>

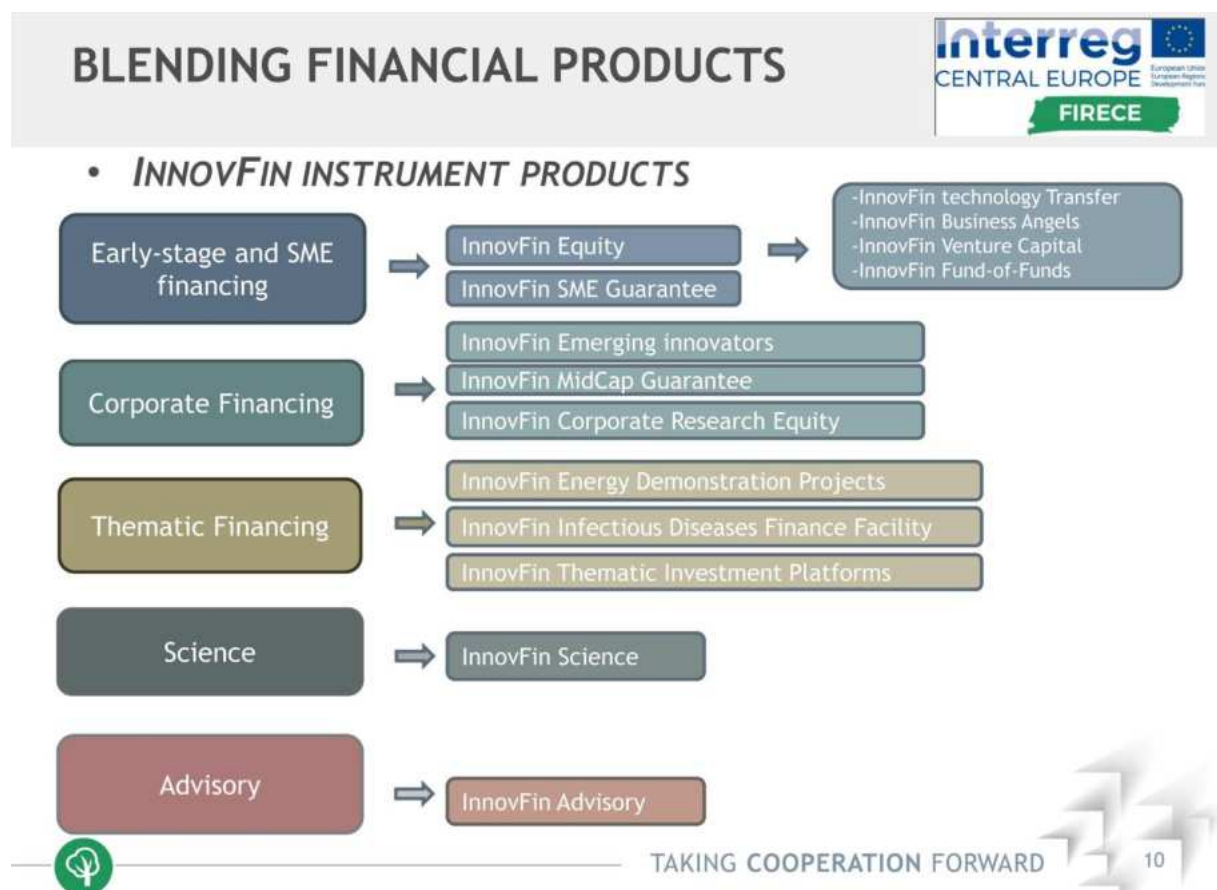


Figure 0.1: InnovFin – overview of blended financial products

Annex 17

LEADER (Chapter 4.9)

General description

Thanks to its success over 30 years, the LEADER approach has been adopted by the European regional development Fund (ERDF), the European social funds (ESF) and the European maritime and fisheries fund (EMFF) in a wider Community led local development (CLLD). Today LEADER / CLLD groups manage tens of thousands of projects for economic, cultural, social and environmental benefits in the rural Europe.

https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en

In the rural development context, LEADER is implemented under the national and regional Rural Development Programmes (RDPs) of each EU Member State, co-financed from the European Agricultural Fund for Rural Development (EAFRD). Although LEADER is obligatory only under the EAFRD, a single action can now be supported under two or more of the four EU Funds at the same time through the concept

of multi-funded CLLD. Where this is applied, it enables LAGs to comprehensively integrate local needs and solutions and helps to reinforce the links between rural, urban and fisheries areas.

For further information, explore the ENRD's (European Network for Rural Development) FAQ sheet on LEADER https://enrd.ec.europa.eu/sites/default/files/leader-clld_faqs.pdf.

The ENRD provides detailed information on the LEADER approach, including resources, toolkits, and a database of LAGs.

Recited sources: https://enrd.ec.europa.eu/leader-clld_en and https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en

Annex 18

Green Climate Fund (GCF) (Chapter 4.10)

General description

GCF is a global platform responding to climate change by investing in low-emission and climate-resilient development. GCF was established by 194 governments to limit or reduce greenhouse gas (GHG) emissions in developing countries, and to help vulnerable societies adapt to the unavoidable impacts of climate change.

The Green Climate Fund (GCF) was set up by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010. GCF has a crucial role in serving the Paris Agreement, supporting the goal of keeping average global temperature rise well below 2 degrees C. It does this by channeling climate finance to developing countries, which have joined other nations in committing to climate action.

Responding to the climate challenge requires collective action from all countries, including by both public and private sectors. Among these concerted efforts, advanced economies have agreed to jointly mobilize significant financial resources. Coming from a variety of sources, these resources address the pressing mitigation and adaptation needs of developing countries. GCF launched its initial resource mobilisation in 2014, and rapidly gathered pledges worth USD 10.3 billion.

The Fund pays particular attention to the needs of societies that are highly vulnerable to the effects of climate change, in particular Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States. Focus of the GCF is to use public investment to stimulate private finance, unlocking climate-friendly investment for low emission, climate resilient development. To achieve maximum impact, GCF seeks to catalyze funds, multiplying the effect of its initial financing by opening markets to new investments.

Key features of the Green Climate Fund

GCF invests in adaptation and mitigation activities in developing countries, managing a project portfolio that is implemented by its partner organizations, known as Accredited Entities.

GCF's approach is marked by several distinct features:

- **Balanced portfolio.** GCF's investments are aimed at achieving maximum impact in the developing world, supporting paradigm shifts in both mitigation and adaptation. The Fund aims for a 50:50 balance between mitigation and adaptation investments over time. It also aims for a floor of 50 percent of the adaptation allocation for particularly vulnerable countries, including Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States.
- **Unlocking private finance.** The Fund engages directly with both the public and private sectors in transformational climate-sensitive investments. GCF engages directly with the private sector

through its Private Sector Facility (PSF). As part of its framework, it has the capacity to bear significant climate-related risk, allowing it to leverage and crowd in additional financing. It offers a wide range of financial products including grants, concessional loans, subordinated debt, equity, and guarantees. This enables it to match project needs and adapt to specific investment contexts, including using its funding to overcome market barriers for private finance.

- **Country ownership.** GCF recognizes the need to ensure that developing country partners exercise ownership of climate change funding and integrate it within their own national action plans. Developing countries appoint a National Designated Authority (NDA) that acts as the interface between their government and GCF and must approve all GCF project activities within the country.

The GCF describes its transformative approach as follows: “We achieve our goal by investing across four transitions – built environment; energy & industry; human security, livelihoods and wellbeing; and land-use, forests and ecosystems – and employing a four-pronged approach:

1. Transformational planning and programming: by promoting integrated strategies, planning and policymaking to maximise the co-benefits between mitigation, adaptation, and sustainable development.
2. Catalysing climate innovation: by investing in new technologies, business models, and practices to establish a proof of concept.
3. De-risking investment to mobilize finance at scale: by using scarce public resources to improve the risk-reward profile of low emission climate resilient investment and crowd-in private finance, notably for adaptation, nature-based solutions, least developed countries (LDCs) and small island developing states (SIDS).
4. Mainstreaming climate risks and opportunities into investment decision-making to align finance with sustainable development: by promoting methodologies, standards and practices that foster new norms and values.

Investment criteria

The investment criteria and its related indicators guide GCF stakeholders in the development, assessment, and approval of projects. They seek to promote consistency and transparency in funding proposals and promote efficiency in the assessment process. By enhancing the clarity of how funding proposals meet GCF investment criteria, these indicators should be used by Accredited Entities to enhance the quality of funding proposals (details on: <https://www.greenclimate.fund/projects/criteria>).

Recited source: <https://www.greenclimate.fund/>

Annex 19

Natural Capital Financing Facility (NCF) (Chapter 4.11)

General description of the NCF Support Facility

The NCF includes a Support Facility of EUR 10 million for financing capacity building measures to help the development of successful projects. Support and capacity-building will be provided only to projects that are likely to meet the NCF eligibility criteria. Maximum support will be limited to EUR 1 million per operation. The Support Facility will consist of external advice and consultancy services to potential NCF recipients. External experts will be selected by the EIB based on needs assessment developed in cooperation with project developers. Depending on this assessment, this service may cover technical, business, and financial advice, training, assessment of social, economic, and environmental aspects of individual projects or monitoring and reporting impacts on environment and ecosystems (see Figure 0.2).

OVERVIEW OF STEPS FOR SETTING UP A PROJECT:



Figure 0.2: NCFF – Overview of steps for setting up a project

Financial intermediaries (including funds) may benefit from the Support Facility for the identification, screening, and assessment of innovative projects in line with the project eligibility criteria set for the NCFF. This support should not, however, substitute normal operating costs. In order to stimulate and develop the reach of the NCFF, the Support Facility can also be used for horizontal activities such as market studies and surveys, feasibility studies for operations still to be developed, testing of pilot project ideas, workshops and seminars.

The EU network of LIFE **National Contact Points (NCPs)** may also be able to assist in the development of a strong NCFF project. Given their coordinating role for the LIFE Programme, the LIFE NCP will have a good knowledge of potential partners and regulatory drivers specific to your Member State.

Call for projects: The NCFF has been extended and it accepts project proposals until the end of 2021! Since HYDROUSA project uses nature-based solutions to adapt to climate change, this seems to be an appropriate financing instrument.

Detailed information on the NCFF, including how to apply, can be found here:

https://ec.europa.eu/environment/archives/life/funding/financial_instruments/ncff.htm

Contact details of the NCPs can be found at:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/ncp>

<https://www.eib.org/attachments/pj/ncff-invest-nature-report-en.pdf>

Recited source: https://ec.europa.eu/environment/archives/life/funding/financial_instruments/ncff.htm

Annex 20

The LIFE Programme (2021-2027) (Chapter 4.12)

General description

LIFE is the EU's multiannual parent work programme to a range of instruments and funding programs, all within the topic of environment and climate action. The new LIFE programme (2021-2027) will cover the following areas:

- Nature and biodiversity
- Circular economy and quality of life
- Climate change mitigation and adaptation
- Clean energy transition

LIFE began in 1992 and to date there have been five phases of the programme (LIFE I: 1992-1995, LIFE II: 1996-1999, LIFE III: 2000-2006, LIFE+: 2007-2013 and LIFE 2014-2020). During this period, LIFE has co-financed some 4600 projects across the EU, with a total contribution of approximately 6.5 billion Euros to

the protection of the environment and of climate. For the next phase of the programme (2021-2027) the European Commission proposes to raise the budget to 5.45 billion Euros.

The European Commission (DG Environment and DG Climate Action) manages the LIFE Programme. The Commission has delegated the implementation of many components of the LIFE programme to the Executive Agency for Small and Medium-sized Enterprises (EASME) until March 2021 and to the European Climate, Infrastructure and Environment Executive Agency (CINEA) as from 1 April 2021. External selection, monitoring and communication teams provide assistance to the Commission and EASME. The European Investment Bank is managing the two new financial instruments (NCFF and PF4EE).

Type of grants under the LIFE programme:

- **Standard Action Projects (SAP):** Projects, other than strategic integrated projects, strategic nature projects or technical assistance projects, that pursue the specific objectives of the LIFE programme.
- **Strategic Nature Projects (SNAP):** Projects that support the achievement of Union nature and biodiversity objectives by implementing coherent programmes of action in Member States in order to mainstream those objectives and priorities into other policies and financing instruments, including through coordinated implementation of the prioritised action frameworks adopted pursuant to Directive 92/43/EEC.
- **Strategic Integrated Projects (SIP):** Projects that implement, on a regional, multi-regional, national, or transnational scale, environmental or climate strategies or action plans developed by Member States' authorities and required by specific environmental, climate or relevant energy legislation or policy of the Union, while ensuring that stakeholders are involved and promoting coordination with and mobilisation of at least one other Union, national or private funding source.
- **Technical Assistance Projects (TA):** Projects that support the development of capacity for participation in standard action projects, the preparation of strategic nature projects and strategic integrated projects, the preparation for accessing other Union financial instruments or other measures necessary for preparing the upscaling or replication of results from other projects funded by the LIFE programme, its predecessor programmes or other Union programmes, with a view to pursuing the LIFE programme objectives set out in Article 3; such projects can also include capacity-building related to the activities of Member States' authorities for effective participation in the LIFE programme.
- **Other Action Grants (OAG):** Actions needed for the purpose of achieving the general objective of the LIFE programme, including coordination and support actions aimed at capacity-building, at dissemination of information and of knowledge, and at awareness-raising to support the transition to renewable energy and increased energy efficiency.
- **Operating Grants (OG):** Grants that support the functioning of non-profit making entities which are involved in the development, implementation and enforcement of Union legislation and policy, and which are primarily active in the environment or in climate action, including energy transition, in line with the objectives of the LIFE programme.

Further information (April 2021):

<https://ec.europa.eu/easme/en/section/life/frequently-asked-questions-faqs>

Support for applicants: https://cinea.ec.europa.eu/life/life-support-applicants_en

EU National Contact Points : <https://ec.europa.eu/easme/en/section/life/life-eu-countries>

Call for proposals:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/life2027>

Recited sources (June 2021): https://cinea.ec.europa.eu/life/life-calls-proposals_en and

https://en.wikipedia.org/wiki/The_LIFE_Programme

Annex 21

Horizon Europe (Chapter 4.13)

Short summary

Horizon Europe, follow up program of Horizon 2020, is the EU's key funding programme for research and innovation with a budget of €95.5 billion. It tackles climate change, helps to achieve the UN's Sustainable Development Goals, and boosts the EU's competitiveness and growth. The programme aims to facilitate collaboration and to strengthen the impact of research and innovation in developing, supporting, and implementing EU policies while tackling global challenges. It supports creating and better dispersing of excellent knowledge and technologies.

General description:

Work programmes

Work programmes set out funding opportunities under Horizon Europe. One specific programme under Horizon Europe is implemented through the following:

The main work programme

- Marie Skłodowska-Curie actions and research infrastructures under Pillar I
- all clusters under Pillar II
- European innovation ecosystems under Pillar III
- the part widening participation and strengthening the European Research Area

Other work programmes cover

- European Research Council (ERC)
- Joint Research Centre (JRC)
- European Innovation Council (EIC)

A significant part of Pillar II of Horizon Europe will be implemented through institutionalised partnerships, particularly in the areas of Mobility, Energy, Digital and Bio-based economy, which will also have separate work programmes. The activities of the European Institute of Technology (EIT) are set out in separate programming documents. Horizon Europe is also implemented through another specific programme (the European Defence Fund) and is complemented by the Euratom Research and Training Programme. Each of these will also have a separate work programme.

New elements in Horizon Europe are (see also Figure 0.3):

- **European Innovation Council:** Support for innovations with potential breakthrough and disruptive nature with scale-up potential that may be too risky for private investors. This is 70% of the budget earmarked for SMEs.
- **Missions:** Sets of measures to achieve bold, inspirational, and measurable goals within a set timeframe. There are 5 main missions as part of Horizon Europe.
- **Open science policy:** Mandatory open access to publications and open science principles are applied throughout the programme.
- **New approach to partnerships:** Objective-driven and more ambitious partnerships with industry in support of EU policy objectives

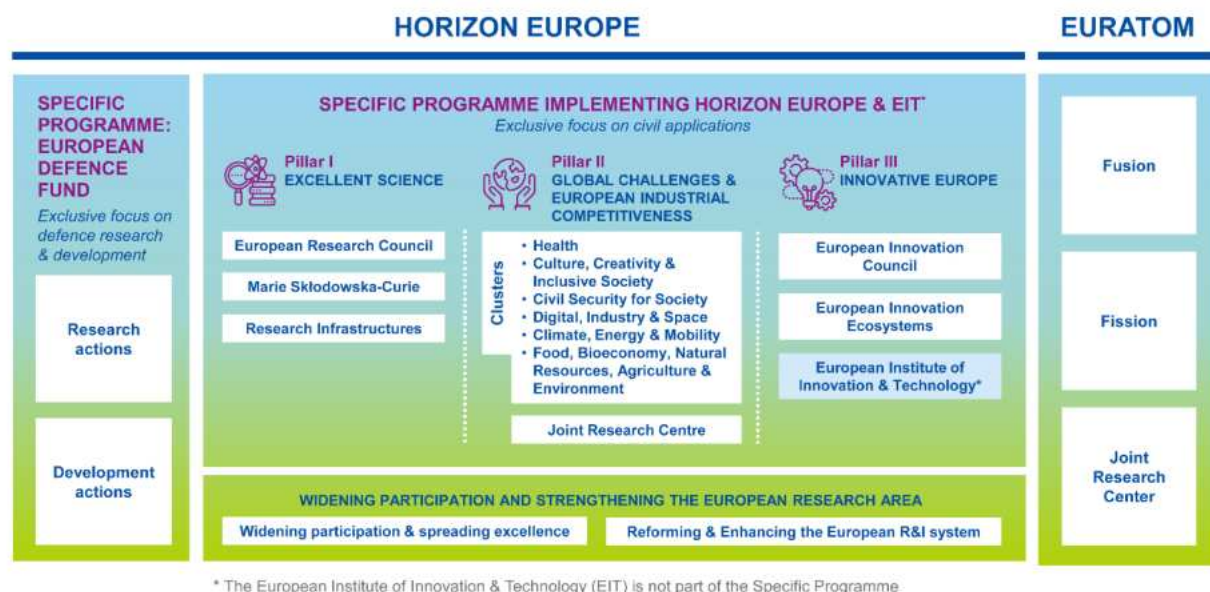


Figure 0.3: HORIZON EUROPE: Overview of the programme

Most potentially interesting for some HYDROUSA demonstration and replication sites are Pillars II and III:

- **Pillar II** - Global Challenges and European Industrial Competitiveness contains the clusters Climate, Energy and Mobility and Food, Bioeconomy, Natural Resources, Agriculture and Environment.
- **Pillar III** - Innovative Europe contains the European Innovation Council as well as the European Institute of Innovation and Technology

More Details:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents;programCode=HORIZON>

Apply for funding:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/>

Recited source:

https://ec.europa.eu/info/sites/default/files/research_and_innovation/funding/presentations/ec_rtd_he-investing-to-shape-our-future.pdf

Annex 22

European Circular Bioeconomy Fund (ECBF) (Chapter 4.14)

General description

The ECBF's primary objective is to stimulate capital investment to scale-up companies with high potential for innovation, favorable returns, and sustainable impact. The transition of today's economies to become more sustainable is creating attractive business and investment opportunities. The fund is still open for new investors looking for sustainable investment offering, strategic benefits, and risk adequate returns.



ECBF aims to contribute as a financial instrument to achieve the European Green Deal goals of making Europe climate neutral by 2050. By contributing to the transition to a circular economy, implementing binding sustainability criteria within the investment decision process, and complying with the latest European legislative developments regarding Environmental, Social and Governance (ESG) disclosure, ECBF is working towards that aim.

ECBFs pipeline contains investments ranging from bio-based chemicals and textiles recycling to industrial biotechnology, agri-tech, and bio-based-compostable packaging solutions etc. (see Figure 0.4).

ECBFs investment criteria include:

- Growth-stage companies in the bioeconomy
- Located in the European Union or one of the Horizon 2020 associated countries
- Underlying technology at least demonstrated in a relevant environment, i.e., Technology Readiness Level from 6 to 9.
- Commitment to Environmental, Social, and Governance criteria on ECBFs ESG guideline is a condition for an investment. Contributions to CO₂-reduction, biodiversity, circularity, mitigation toxic substances are highly valued.

The investment size ranges from € 2.5 – 10 million.

Recited sources:

www.ecbf.vc

https://static1.squarespace.com/static/5f59fb96f6adb61fc160c8d4/t/60506f83e89c4b4c7902cdcd/1615884164729/20210316+Website+SFDR_FV.pdf

https://static1.squarespace.com/static/5f59fb96f6adb61fc160c8d4/t/606c069726be53510a7b58df/1617692311724/20210405_Fact+Sheet.pdf



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 776643



ECBF Facts

Targeted Fund Size:	EUR 250m
Potential Investors:	European Investment Bank (EIB), cornerstone investor
	Investment from European countries/national promotional banks
	Industry Investors (corporates)
	Financial investors (e.g. family offices, institutional investors, pension funds)
Minimum Investment:	EUR 5m
Duration:	5 years investment period 5 years disinvestment period Option to extend for 2x 1 year
Domicile of the Fund:	Luxembourg
Legal Structure:	Specialized Limited Partnership (SCSp)
Planned Portfolio Composition:	EUR 40m into 8 companies at first growth stage (e.g. scaling up from pilot to demonstration stage)
	EUR 100m into 8 companies at second growth stage (e.g. transition from demonstration to industrialization)
	EUR 60m into 6 projects focusing on global expansion
Instruments:	Equity, mezzanine, venture debt
Regional Focus:	European Union including the HORIZON 2020 associated countries
Added Value:	High-profile networks within the bioeconomy sector: investors, corporates, industry experts and local agencies in key investment geographies
Syndication:	ECBF will act as lead- or co-investor. In structuring financing rounds with other investors and other sources such as grants, regional and local incentive schemes will be key.

AIFM:	Hauck & Aufhäuser Fund Services S.A.
Investment Advisor:	ECBF Management GmbH, Germany 70+ years investment and corporate experience within the team
Management Fee:	2.15% on committed capital during the investment period, on invested capital thereafter. All fund expenses capped at 20% of committed over the term of the Fund. An average annualized management fee of around 1.6% p.a. is expected.
Preferred Return:	8% p.a., compounding
Alignment of Interest:	Team contributes significantly to ECBF I SCSp
Envisaged DPI:	Ca. 160%
Envisaged IRR:	23% (gross)
First Closing (08/2020):	EUR 80 m
Second Closing (12/2020):	EUR 175 m
Final Closing (08/2021):	EUR 250 m (Cap @ EUR 300 m)

Investors



Press Release (December 2020)

[The European Circular Bioeconomy has raised €175 million to foster sustainable innovations](#)

Figure 0.4: European Circular Bioeconomy Fund (ECBF) – Overview

Annex 23

Innovation Fund by EU ETS (Chapter 4.15)

Short summary

The Innovation Fund is one of the world's largest funding programmes for the demonstration of innovative low-carbon technologies. Its aim is to bring to the market industrial solutions to decarbonise Europe and support its transition to climate neutrality. The Innovation Fund focuses on highly innovative technologies and big flagship projects within Europe that can bring on significant emission reductions. It is about sharing the risk with project promoters to help with the demonstration of first-of-a-kind highly innovative projects. (Figure 0.5 gives a schematic overview)

For application there will be regular calls for proposals in the lifetime of the Innovation Fund. The Innovation Fund (Figure 4.6) will support up to 60% of project costs. Projects will be selected based on effectiveness of greenhouse gas emissions avoidance, degree of innovation, project maturity, scalability, and cost efficiency. The *Innovation Fund* support can be combined with other public support.

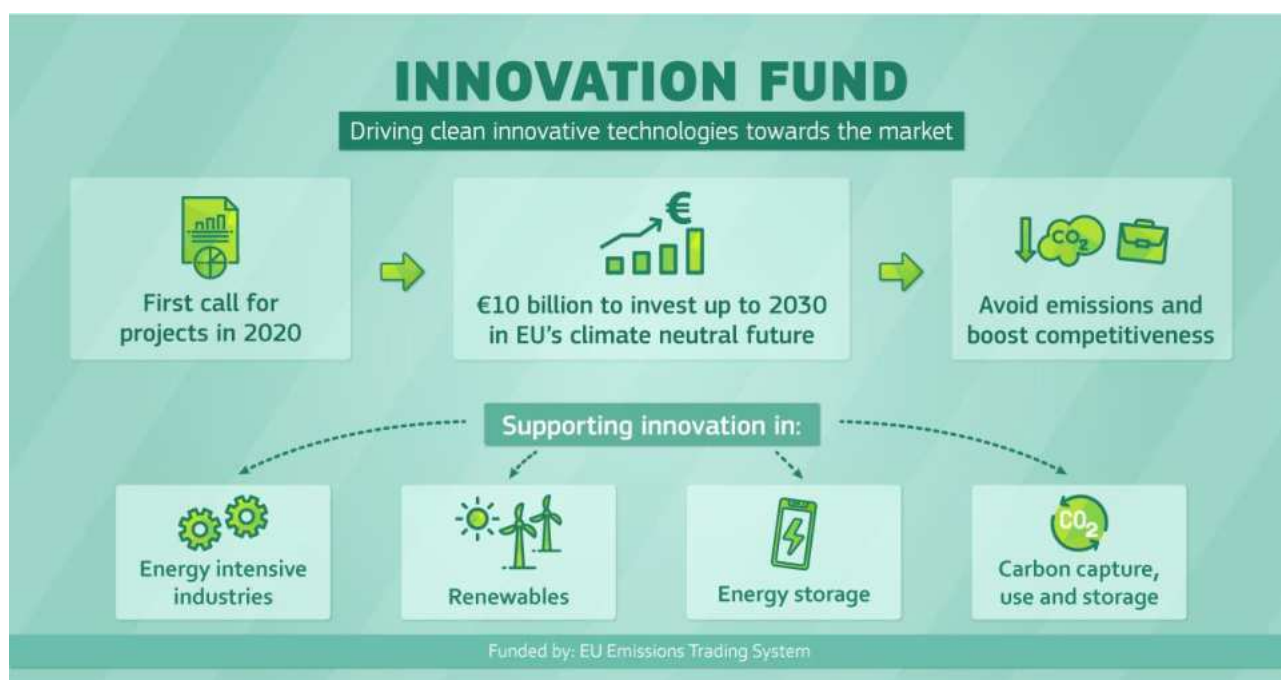


Figure 0.5: Innovation Fund by EU ETS – Overview

General description

The Innovation Fund is one of the world's largest funding programmes for the demonstration of innovative low-carbon technologies. It will provide around EUR 10 billion of support over 2020-2030 for the commercial demonstration of innovative low-carbon technologies, aiming to bring to the market industrial solutions to decarbonise Europe and support its transition to climate neutrality.

The goal is to help businesses invest in clean energy and industry to boost economic growth, create local future-proof jobs and reinforce European technological leadership on a global scale.

This is done through calls for large and small-scale projects focusing on:

- innovative low-carbon technologies and processes in energy-intensive industries, including products substituting carbon-intensive ones

- carbon capture and utilisation (CCU)
- construction and operation of carbon capture and storage (CCS)
- innovative renewable energy generation
- energy storage

How is the Innovation Fund funded?

The EU Emissions Trading System (EU ETS), the world's largest carbon pricing system, is providing the revenues for the Innovation Fund from the auctioning of 450 million allowances from 2020 to 2030, as well as any unspent funds from the NER300 programme. As the successor of the NER300 programme, the Innovation Fund improves the risk-sharing for projects by giving more funding in a more flexible way through a simpler selection process and is also open to projects from energy-intensive industries.

For the period 2020-2030, the Fund may amount to about EUR 10 billion, depending on the carbon price. In parallel to the Innovation Fund, the EU ETS provides the main long-term incentive for these technologies to be deployed. The Innovation Fund is a key funding instrument for delivering the EU's economy-wide commitments under the Paris Agreement and its objective to be climate neutral by 2050, as recognised in the European Green Deal Investment Plan.

What will be funded?

The Innovation Fund focuses on highly innovative technologies and big flagship projects within Europe that can bring on significant emission reductions. It is about sharing the risk with project promoters to help with the demonstration of first-of-a-kind highly innovative projects. It aims to finance a varied project pipeline achieving an optimal balance of a wide range of innovative technologies in all eligible sectors and Member States, Norway, and Iceland.

At the same time, the projects need to be sufficiently mature in terms of planning, business model as well as financial and legal structure. The fund supports cross-cutting projects on innovative low-carbon solutions that lead to emission reductions in multiple sectors, for example, through industrial symbiosis. The Fund is also open to small-scale projects with total capital costs under € 7.5 million. The general funding procedure is shown in Figure 0.6.

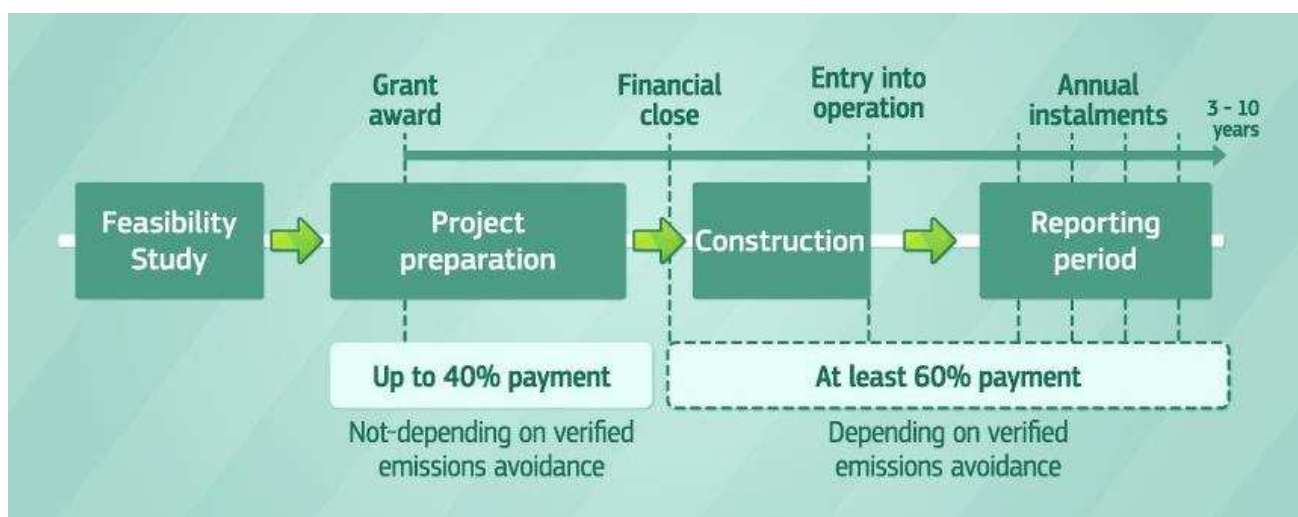


Figure 0.6: Innovation Fund by EU ETS – funding procedure

Application process

There will be regular calls for proposals in the lifetime of the Innovation Fund.

Large-scale call

The application process has two stages:

- **expression of interest**, with a first assessment on the project effectiveness, innovation, and maturity level. Projects that meet only the first two criteria may qualify for project development assistance.
- **full application**, where projects are assessed on all the criteria, including scalability and cost efficiency.

Project proponents can apply by submitting their projects when there is an open call for proposals. Projects can apply via the EU Funding and Tenders portal. The first call for proposals for large-scale projects closed on 29 October 2020. For more information, check the large-scale projects tab. There will be regular calls for proposals in the lifetime of the Innovation Fund.

Small-scale call

The application process is simplified and has only one stage: full application, where projects are assessed on all the selection criteria, as specified below. Project proponents can apply by submitting their projects when there is an open call for proposals. The first call for proposals for small-scale projects is open until 10 March 2021. Projects can apply via the EU Funding and Tenders portal. For more information, check the small-scale projects tab.

Award criteria

Projects will be selected based on:

- effectiveness of greenhouse gas emissions avoidance
- degree of innovation
- project maturity
- scalability
- cost efficiency

The detailed scoring and ranking methodology, as well as possible additional criteria for geographical and sectorial balance, are set in each call for proposals. For small-scale projects, the selection criteria are simplified. For the criteria of the first call for proposals for large-scale projects, check the Funding and Tenders Portal and for the criteria of the call for the small-scale projects, check the small-scale projects tab. The funding can be combined with other EU funding instruments like Horizon Europe or Invest EU (see Figure 0.7).

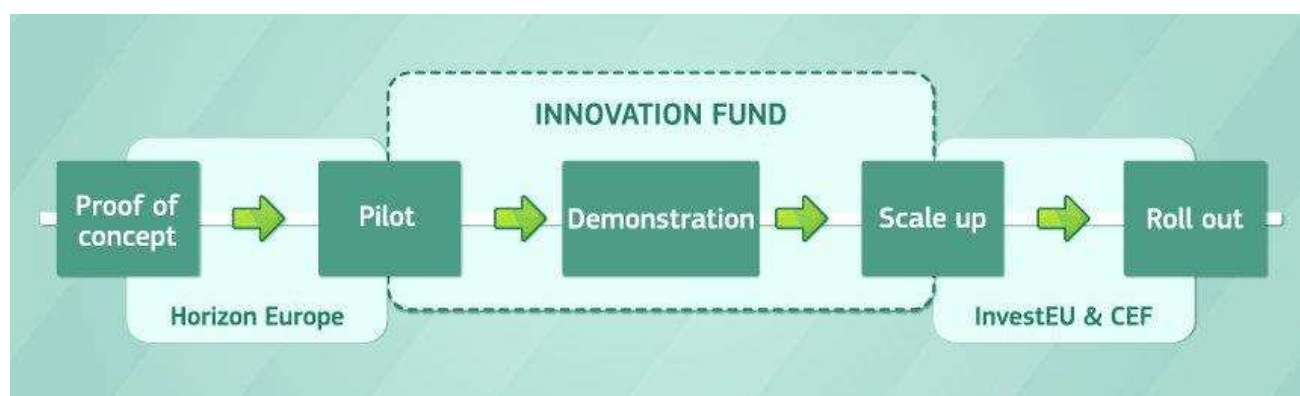


Figure 0.7: Innovation Fund (by EU ETS) – combination with other EU funding vehicles

Grant financing

The Innovation Fund will support up to 60% of the additional capital and operational costs of large-scale projects and up to 60% of the capital costs of small-scale projects. The grants will be disbursed in a flexible way based on project financing needs, considering the milestones achieved during the project lifetime. Up to 40% of the grants can be given based on pre-defined milestones before the whole project is fully up and running.

Implementation

The Commission has designated the Executive Agency for Innovation and Networks as the implementing body of the Innovation Fund. It will:

- manage the calls for proposals and all related procedures,
- provide guidance and support for applicants,
- manage the project proposal submission and evaluation processes, including eligibility checks,
- sign grant agreements,
- disburse the Innovation Fund grants,
- monitor the technical/financial management of projects in the Innovation Fund portfolio,
- provide expert technical support and services to project promoters,
- monitor and control projects ex-post, including management of recoveries,
- ensure visibility of the programme, available funding, results and achievements via communication actions and products, including events.

CINEA will report regularly to the Commission and provide feedback on general orientations for further development of the Innovation Fund. A paper provides more clarifications on the combination of Innovation Fund support with other public support.

For more information, please use the following link:

https://ec.europa.eu/clima/policies/innovation-fund_en

For application:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/innovfund>

Recited source: https://ec.europa.eu/clima/policies/innovation-fund_en

Annex 24

Crowdfunding and other alternative forms of financing

Among the most popular, however, are mainly P2P loan platforms and crowdfunding platforms. Although this market is rather new today hundreds of platforms with different thematic topics exist within the same business model. The alternative finance (AF) market is highly competitive, with a clear advantage for the first comers. Although the number of active platforms has been growing over the years, the number of platforms founded in a specific year has been steadily decreasing since 2014. (European Commission (11), 2017)

Most alternative finance platforms are autonomous, profit-oriented companies (73% of surveyed platforms). Yet most of the platforms are relatively small with a turnover below EUR 500 thousand (78% of surveyed platforms) and, research and innovation-oriented platforms have a problem in finding a sustainable business model (European Commission (11), 2017).

Another key success factor mentioned is the national and international recognition of a platform. The latter is specifically important in the context of cross-border operations, perceived by platforms as a natural way to



scale-up. However, regulatory fragmentation at EU level and the existence of different regulatory regimes amongst different countries are named as the main obstacles in cross-border operations. So far, the following EU-countries introduced their own bespoke alternative finance regimes: Austria, Germany, Finland, France, Italy, Lithuania, Portugal, and Spain. Concerning platforms specialising strictly on research & innovation (R&I), the majority of the alternative finance platforms adopt equity funding models (over 50%) followed by hybrid funding models (24% of platforms). The major distinctive categories of R&I-oriented platforms include renewable energy and energy efficiency: 32.5%, innovation, start-ups, and SMEs: 32.5%; and health & life sciences: 12.5% (Cambridge Centre for Alternative Finance, 2020).