EU R&I and Health Policy to Tackle Global Challenges

Does EU R&I policy involve low- and middle-income countries?

A look at the evidence from Horizon 2020 and Horizon Europe

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SUMMARY

As the EU is aiming to pursue wellbeing and sustainable development beyond its borders, the EU's Framework Programmes (FPs) aim to address global challenges and develop solutions that can be applied worldwide. Yet research and innovation (R&I) programmes remain underutilised as instruments for international cooperation, particularly in low- and middle-income countries (LMICs).

This CEPS report examines the funding patterns, participation mechanisms and effectiveness of LMIC engagement to evaluate how far the EU has involved LMICs through its R&I FPs, Horizon 2020 and Horizon Europe. While both programmes have allowed LMICs to participate and receive funding, their involvement has remained limited. The EU has contributed EUR 304 million (Horizon 2020) and EUR 335 million (Horizon Europe) to LMICs institutions – however, allocation remains unequal, as African countries dominate the total and per-capita quotas.

Five case studies, in health, food security, energy, digital transformation and gender, reveal some common challenges in how EU-funded research projects engage with LMICs. LMICs' researchers and institutions often lack leadership roles and visibility, while their EU counterparts receive the most credit for research outputs. Limited technology transfer and capacity building also undermine impact. Insufficient coordination between R&I activities and international partnership policy creates leadership gaps, leaving key components underused. Gender-focused R&I projects involving LMICs are rare and underfunded. Finally, R&I initiatives in LMICs rarely lead to long-term benefits, raising concerns about their substantial value.

FP10 should actively involve LMIC partners by having dedicated processes that help to ensure their participation. This requires placing emphasis on mutual benefits to justify greater investments in R&I through international cooperation, with evaluation frameworks that assess research quality and development outcomes.

The EU must rethink its approach to R&I cooperation with LMICs towards inclusive, impact-driven collaboration that also benefits EU domestic policy goals, such as competitiveness and strategic autonomy. Maintaining the momentum on increasing LMICs engagement with EU FPs requires identifying a compelling narrative addressing both national research interests and EU foreign policy objectives.

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INTRODUCTION

Despite representing only a tiny fraction of research and innovation (R&I) funding in the EU, Framework Programmes (FPs) for R&I have played a pivotal role in advancing excellent science and innovative solutions within the EU and associated countries. Among others, Arnold et al. (2005) argue that FPs have supported the European scientific and industrial base, even if links between stated goals were found to be unclear[1]. However, this is not the only impact they are expected to have. Given the EU's ambition to pursue well-being and sustainable development within and outside its borders, FPs such as Horizon Europe also seek to tackle global challenges and develop solutions that can be applied in the rest of the world. In line with this external dimension of Europe's R&I policy, Horizon Europe has been presented as an instrument for 'science diplomacy to address global challenges and promote understanding'[2].

While R&I FPs are open to associated countries, they also aim at involving low- and middle-income countries (LMICs)[3]. Specifically, Recital 50 of the Regulation that established Horizon Europe clarifies that the programme should adopt an 'approach of general openness to international participation and targeted international cooperation actions … including through appropriate eligibility for funding of entities established in low to middle-income countries'. It further states that 'when allocating associated countries' financial contributions to the Programme, the Commission should take into account the level of participation of legal entities of those third countries in the different parts of the Programme'.

Indeed, each of the three pillars of Horizon Europe offers opportunities for researchers and entrepreneurs from LMICs to pursue their careers through EU funding and support. For example, under Pillar I, researchers can apply for Marie Skłodowska-Curie Fellowships to pursue their work in European research institutions. Research entities in LMICs (if in the official Horizon Europe list of eligible countries) can participate in projects funded under Pillar II[4]. They are also eligible to apply for funding from the European Innovation Council to set up small or medium-sized enterprises under Pillar III.

Against this background, in this paper we investigate the extent to which the European Commission has succeeded in involving researchers and institutions from LMICs in its R&I programmes. Section 1 contains a literature review on available evidence related to the

[1] Their evaluation was perhaps premature, suffering from limited available evidence in 2005, when most of the impacts of the FPs had not yet emerged (Arnold, 2012).

[2] See 'International cooperation in research and innovation', DG RTD, European Commission.

[3] See also the Appendix for a list of countries that are classified as LMICs under different international taxonomies.

[4] Pillar II is particularly noteworthy because, beyond benefiting individual researchers, it also addresses pre-selected global challenges identified by the European Commission.

past two FPs, Horizon 2020 and Horizon Europe. It provides context for the interactions between the EU R&I FPs and LMICs, and a quantitative assessment of emerging trends. We also analyse five case studies, in which we focus on the mode of involvement of LMICs and the resulting impacts. Section 2 translates the findings of our analysis case and case studies into a set of observations and recommendations, mostly aimed at the upcoming tenth programme (FP10), set to begin in 2028 under the EU's new Multiannual Financial Framework.

1 Evaluating the external dimension of EU research and innovation policy: a look at the evidence

There is not an abundant stream of academic literature evaluating the international dimension of the EU FPs, and in particular the degree of involvement of LMICs. The existing literature mostly focuses on global health, while there are hardly any academic studies evaluating the effectiveness of the FPs in other areas, such as R&I collaborations on technology and renewable energy in LMICs, with the exception of a few studies evaluating individual projects. That said, the relevance of science diplomacy and international cooperation seems to have grown, at least on paper, as the EU has gone through several iterations of its R&I FPs.

More specifically, FP7 (2007-2013) was hailed as a big step towards making international R&I cooperation more prominent in the external objectives of the EU. The advancement coincided with the mainstreaming of the Millennium Development Goals (MDGs), which not only promoted research on MDG-related topics but also included researchers from less developed countries in FP7 (Bučar, 2010). And Horizon Europe (2021-2027) was very explicitly oriented towards the Sustainable Development Goals (SDGs). Even so, in practice its Strategic Plan 2021-2024 mentions LMICs only once, with respect to 'improving access, sustainability and quality of health care in low- and middle-income countries … in particular in Africa, through implementation research'. Moreover, most analyses examine the effectiveness of individual projects or sectoral interventions rather than the impact of the FPs as a whole.

Amid this overall scarcity of contributions, the health domain stands out as an area in which researchers have devoted more attention, probably due to the interconnectedness of public health across borders, especially in the field of infectious diseases. Still, such attention has not necessarily translated into positive findings: for example, Berner-Rodoreda et al. (2019) observed that EU FPs have not sufficiently focused on global health research, and that industrial competitiveness continues to play the most prominent role. They point to an overall decline (from 10% in Horizon 2020 to 8% in Horizon Europe) in the budget allocated to health-related R&I. They also argue that the emphasis on collaboration with LMICs has declined over recent years, as demonstrated by the lack of attention paid to LMICs in the Horizon Europe Strategic Plan.

Below, we provide a quantitative analysis of the involvement of LMICs in the past and current FP, spanning more than a decade of R&I funding.

1.1 INVOLVEMENT OF LMICS IN HORIZON 2020 AND HORIZON EUROPE: A QUANTITATIVE ASSESSMENT

Participation in Horizon Europe is governed by the Horizon Europe Regulation 2021/695, which establishes the operational framework for how all EU FPs operate. Participants are categorised into three distinct groups of countries. The first category comprises EU Member States, which are automatically included in the programme. The second category is associated countries, namely non-EU countries that are eligible to participate but must apply for association. Legal entities from the associated countries can participate in Horizon Europe under the same conditions as those from the EU Member States. The third category comprises non-associated countries, which can participate in the programme but may not always receive funding. Specific requirements are sometimes given in the work programme that require or encourage certain non-associated countries to be included in projects.

To determine eligibility for EU funding under an FP, the EU has designated 116 countries as LMICs, making them automatically eligible for funding. The analysis of this paper will adhere to this definition of LMICs. In certain instances, funding calls emphasise the need to involve a specific country where a particular challenge exists, with a substantial portion of the allocated funds being directed to that country. For instance, the University of Sierra Leone received over EUR 9 million through the Horizon 2020 project EBOVAC1.

According to the data provided via the Horizon Dashboard, the EU has contributed a total of EUR 304 million and EUR 335 million to institutions located in LMICs through Horizon 2020 and Horizon Europe, respectively (up to December 2024), as illustrated in Tables 1 and Table 2. Given that Horizon Europe is still ongoing, the total amount to be disbursed under Horizon Europe will eventually be higher than the current figure. The collective contribution of the two FPs is itself noteworthy as an important achievement in advancing research in LMICs: a comparison of the funding distribution ratio between LMICs and the EU Member States reveals a substantial enhancement, with a shift from 1:201 to 1:99. In other words, under Horizon Europe, LMICs receive EUR 1 for every EUR 99 allocated to entities within EU Member States.

Table 1 – Summary statistics of EU contributions

	Horizon 2020			Horizon Europe		
	No. of countries	Total EU contributions (million EUR)	Average EU contributions (million EUR)	No. of countries	Total EU contributions (million EUR)	Average EU contributions (million EUR)
LMICs	116	303.6	2.6	116	335.7	2.9
Member States	28	61 020	2 179	27	33 370	1 236
Associated countries	16	6 070	379	19	2 970	156

Source: Horizon Dashboard – Country Profile, European Commission.

While the average pattern seems to portray a rather bright picture, looking into the extremes clearly shows that EU funding has been unevenly allocated among LMICs. More specifically, 32 (28%) of these countries did not participate in any Horizon 2020 project, while 42 (36%) have not received any EU contribution under Horizon Europe so far. Among LMICs, 32 have not participated in either Horizon 2020 or Horizon Europe (so far)[5]. The 10 largest recipient countries (for the two FPs combined) are listed in Table 2. South Africa stands out as the largest recipient, having received 70% more than Kenya, the first runner-up. Notably, all top 10 recipient countries are in Africa.

Table 2 – The top 10 largest recipient countries of Horizon 2020 and Horizon Europe allocations, combined, as of December 2024

Country	Sum of net EU contribution (EUR million)
South Africa	118.69
Kenya	68.51
Uganda	33.70
Tanzania	31.03
Ghana	30.16
Tunisia	26.95

[5] The list of non-participating countries is given in Table A1 in the Appendix.

Sierra Leone	20.78
Ethiopia	20.21
Senegal	17.97
Burkina Faso	17.02

Source: Horizon Dashboard, European Commission.

African countries still dominate the chart even if we compare recipients in terms of EU funding per capita, with 9 African countries among the top 10, as shown in Table 3.

Table 3 – The top 10 largest per-capita recipient countries of Horizon 2020 and Horizon Europe allocations, combined, as of December 2024

Country	Sum of per capita net EU contribution (EUR per 1 000 habitants)
Cabo Verde	6 098
Sierra Leone	3 091
Namibia	2 810
Gabon	2 765
Tunisia	2 333
South Africa	2 066
Botswana	1 579
Mauritius	1 555
Lebanon	1 529
Kenya	1 409

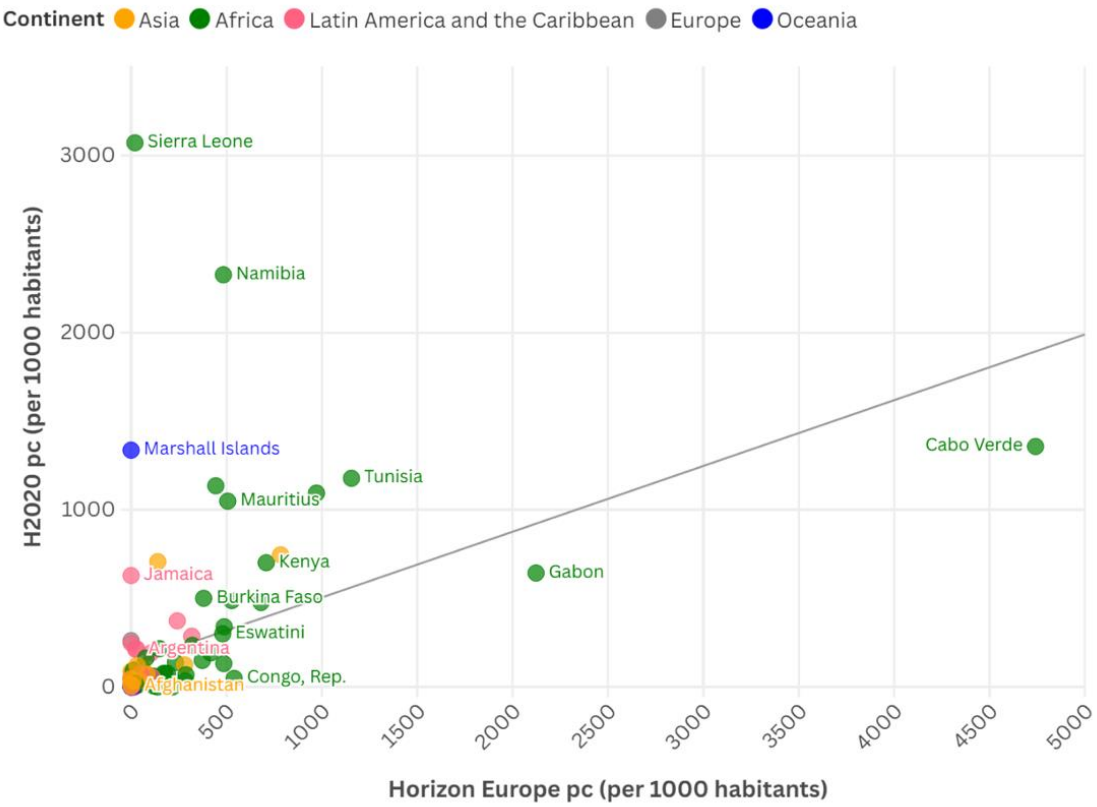
Sources: Horizon Dashboard, European Commission and World Bank Dataset.

As readers will have noticed, Sierra Leone is a surprising entry in both tables. Indeed, Sierre Leone received more than EUR 9 million for one project addressing Ebola under Horizon 2020. It shows that Horizon projects can be highly topical and targeted at salient issues and affected areas.

As expected, EU funding to LMICs exhibits a strong correlation across the two FPs. Figure 1 plots the breakdown of the EU contributions per capita allocated to the LMICs under

the two FPs separately. In general, the most active participating countries in Horizon 2020 continued to be more involved in Horizon Europe projects.

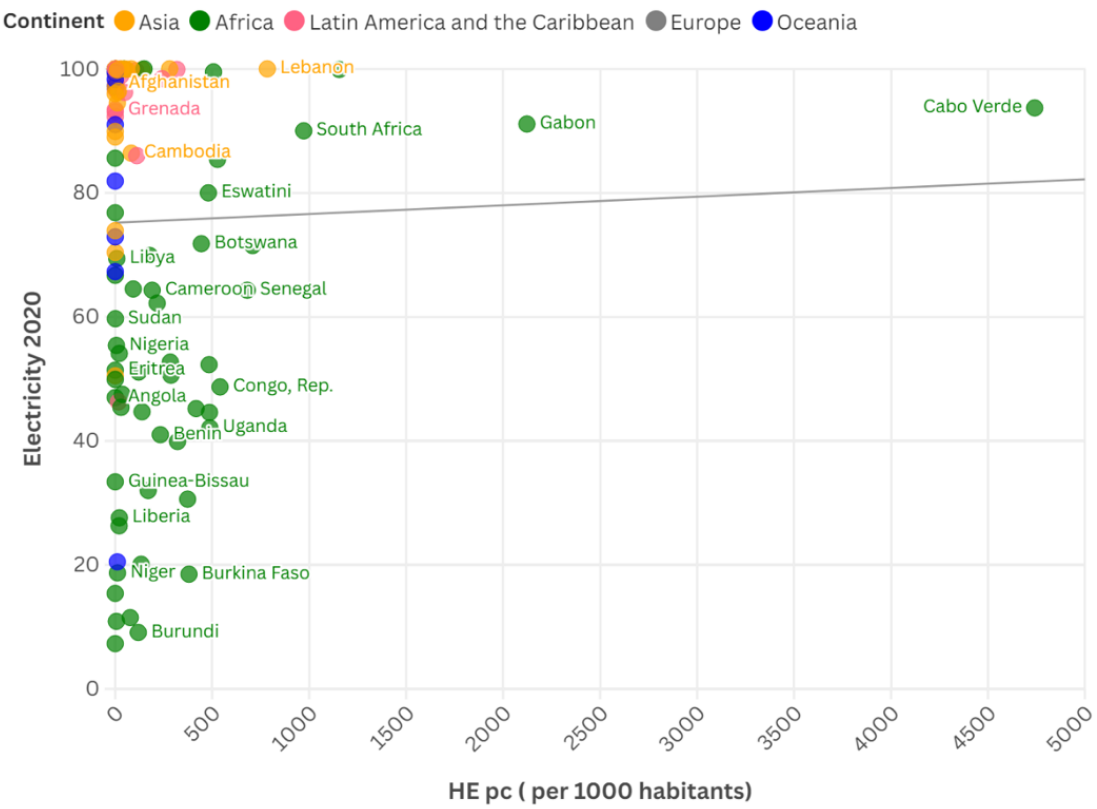
Figure 1 – Horizon 2020 and Horizon Europe per capita



Source: Horizon Dashboard – Country Profile, European Commission.

As EU R&I programmes are designed to achieve research excellence, rather than be tied to international development goals, one might expect funding to flow to countries with better fundamentals for research and a better institutional environment. Figure 2 shows the relationship between access to electricity in 2020, which is a commonly accepted proxy for the level of economic development, and Horizon Europe allocation per capita. No countries with limited electricity access received more than EUR 1 000 per capita. Countries that received substantial funding, including Cabo Verde, Gabon, Tunisia and South Africa, also rank high on infrastructure (proxied by access to electricity). Our data appear to suggest that the presence of robust infrastructure is a framework condition correlated with the receipt of funding from EU R&I programmes.

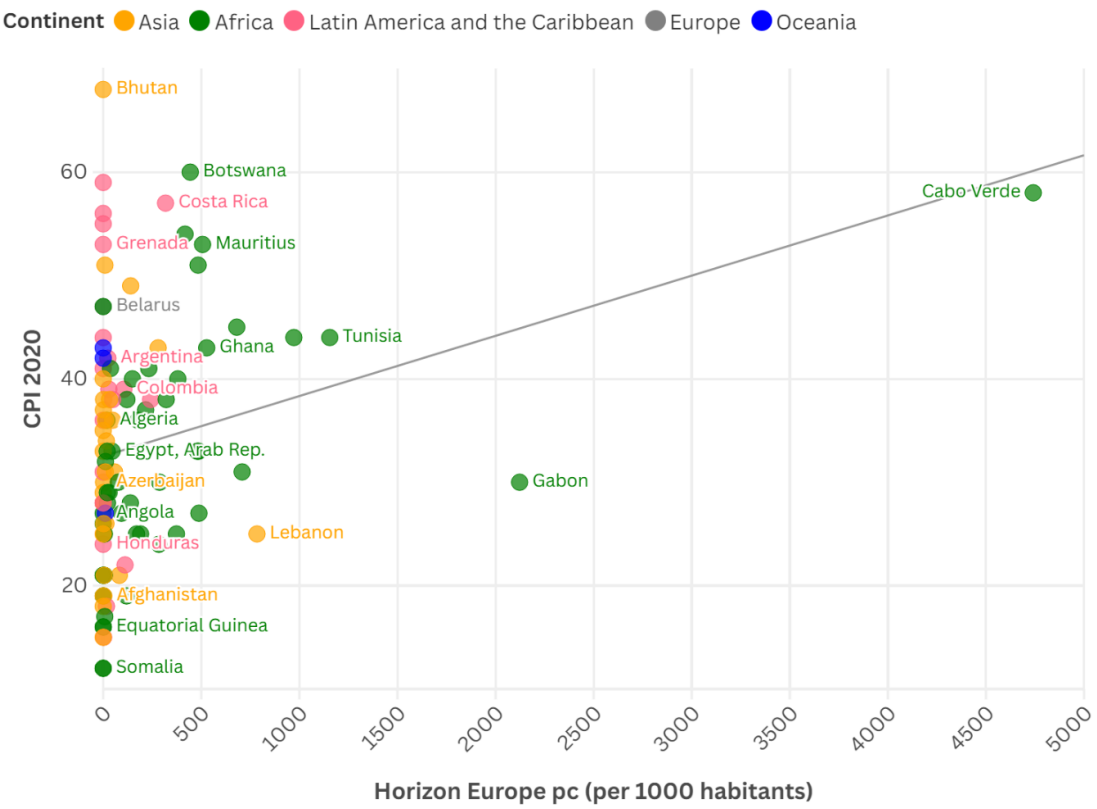
Figure 2 – Horizon Europe per capita and electricity access in 2020



Sources: World Bank Development Indicators and Horizon Dashboard – Country Profile, European Commission.

Another important factor that correlates with EU funding is the quality of institutions, as it shapes the conditions necessary for a quality research environment. Figure 3 demonstrates the relationship between Horizon Europe funding per capita and the Corruption Perception Index 2020 (the higher the index, the more transparent the country), compiled by Transparency International, which is often taken as a measure of institutional quality in the country. A weak positive correlation was identified; however, it is also true that having low corruption is not necessarily associated with higher EU research funding.

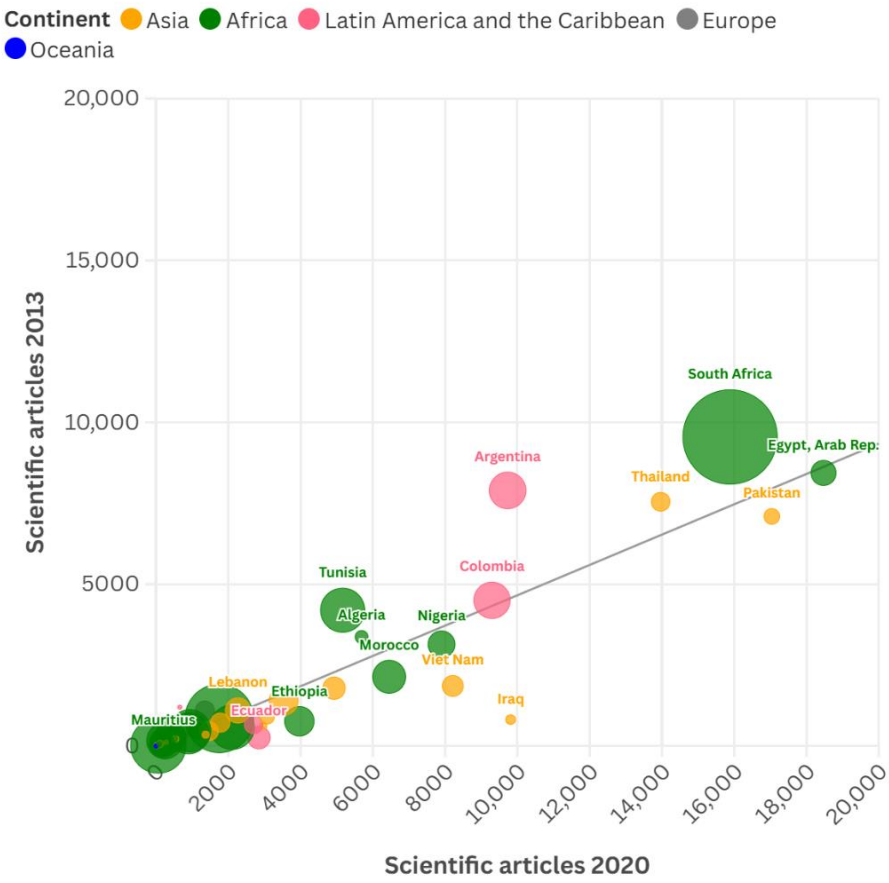
Figure 3 – Corruption Perception Index and Horizon Europe per capita



Sources: Transparency International (2021) and Horizon Dashboard – Country Profile, European Commission.

It is interesting to note that a nation's historical capacity for research does not appear to be a significant factor in the allocation of the EU research budget. Figure 4 illustrates the number of scientific and technical journal articles from LMICs in 2013 and 2020, with dot size representing the extent of Horizon 2020 funding received by the respective country. A considerable sum of budget was allocated to countries with comparatively low research outputs, even if South Africa received a significant amount of funding, presumably due to its robust research foundation and established universities.

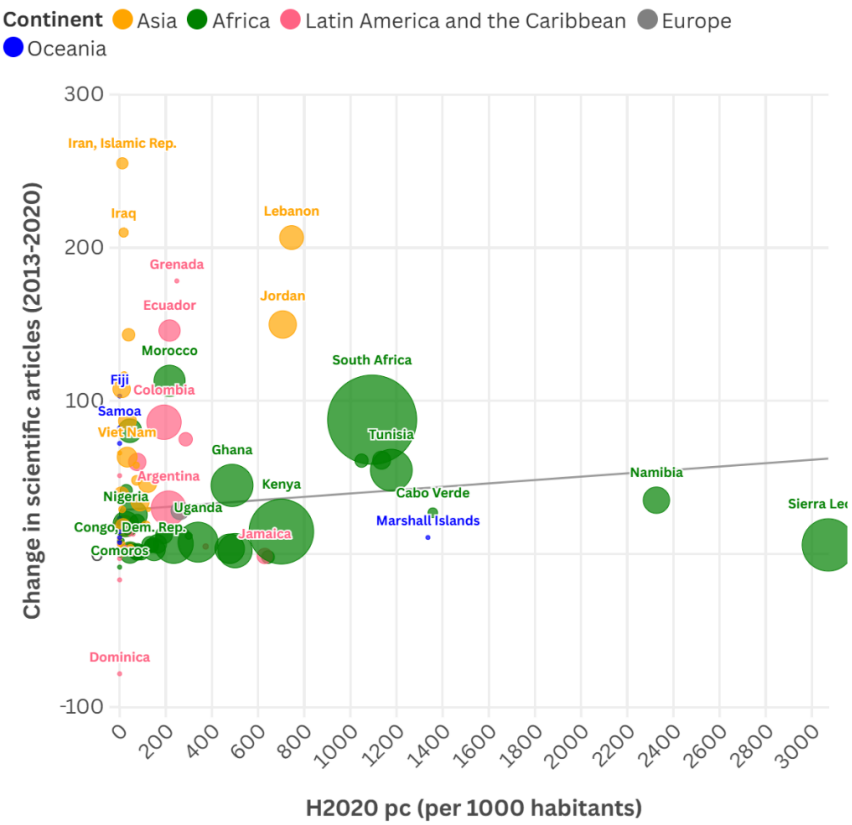
Figure 4 – Scientific and technical journal articles in 2013 and 2020 correlated with Horizon 2020 allocations



Sources: World Bank Development Indicators and Horizon Dashboard – Country Profile, European Commission.

A separate, relevant question is whether Horizon 2020 has had a positive impact on research capabilities in recipient countries. This is a very difficult question, due to the complexity of singling out the impact of R&I funding on local research capabilities. A possible way to measure the impact of Horizon 2020 allocations on research productivity is shown in Figure 5. The data reveal a general increase in research productivity per capita from 2013 to 2020, yet with the highest performers not necessarily being those that received significant amounts of EU research funding. A substantial proportion of African countries, despite receiving relatively large budget allocations, did not experience sizable increases in research productivity from 2013 to 2020. Our analysis reveals limited information about the determinants or the impacts of the funding.

Figure 5 – Change in scientific articles 2013-2020 and Horizon 2020 allocations per capita



Sources: Work Bank Development Indicators and Horizon Dashboard – Country Profile, European Commission.

The next section studies five randomly selected projects to understand how successful Horizon programmes were in engaging with LMICs and how LMICs were involved.

1.2 A CLOSER LOOK AT THE IMPACT OF HORIZON 2020/HORIZON EUROPE ON LMICS: A SELECTION OF CASE STUDIES

The quantitative data presented thus far provide insights into the broader context but reveal little about the tangible impacts of Horizon projects on the development of LMICs. This section seeks to explore this area in greater depth, evaluating how LMICs benefit from the Horizon programmes. However, our research acknowledges the challenge of comparing diverse research projects, as their impacts cannot be systematically summarised. Instead, the analysis of the international research partnerships relies on some indicators that highlight specific aspects of these collaborations. Among them are (i) whether the call required an LMIC institution; (ii) the proportion of budget allocated to LMIC institutions; (iii) the number of work packages led by LMIC institutions; and (iv) the proportion of publications involving LMIC researchers.

We selected five topics: health and disease control, food security and sustainability, energy, digital transformation, and gender. One case study is selected from each of these topics for a more in-depth investigation. Table 4 lists examples of projects in these five domains. For each project, a brief description is provided along with the main activities. In addition to the four indicators mentioned above, each case study considers other sources on the legacy of these projects, with the aim of identifying the real impacts on the corresponding LMICs. These sources include news outlets, follow-up projects or academic publications, and institutional or official documents.

Table 4 – Horizon 2020 and Horizon Europe joint projects with LMICs in five areas

Topic	Example	Beneficiaries (LMICs)	Budget for LMICs	Full title
Health and disease control	B3Africa	Uganda, Kenya, Nigeria	530 000	Bridging Biobanking and Biomedical Research across Europe and Africa
	EBODAC	Sierra Leone	6 174 969.81	Communication strategy and tools for optimizing the impact of Ebola vaccination deployment
Food security and sustainability	AfriCultuReS	Ghana, Niger, Mozambique, Ethiopia, Kenya, Tunisia, Rwanda	2 366 878.75	Enhancing Food Security in AFRIcan AgriCULTUral Systems with the Support of REmote Sensing
	WATERSPOUTT	Malawi, Uganda, Ethiopia	731 000	Water – Sustainable Point-Of-Use Treatment Technologies
Energy	LEAP-RE	Kenya, Rwanda, Burkina Faso, Cameroon, Madagascar, Ethiopia, Djibouti, Mozambique, Egypt, Tanzania, Zambia, Nigeria, Morocco, Benin, Senegal, Togo	2 973 486	Long-Term Joint EU-AU Research and Innovation Partnership on Renewable Energy
	RePower	Senegal, Niger, Madagascar, South Africa, Kenya, Ghana	2 910 039.48	
Digital transformation	WAZIHUB	Senegal, Ghana, Tanzania, Uganda	743 425	Accelerating Open IoT and Big Data Innovation in Africa
	DIGILOGIC	Nigeria, Ghana, Zambia, Nigeria	902 238.17	Facilitating and stimulating the unleashing of innovation potential through the first Pan EU-Africa sustainable network of Digital Innovation Hubs (DIHs) focusing on smart logistics
Gender	GENESYS	Rwanda	60 000.00	Transforming Gendered Interrelations of Power and Inequalities for Just Energy Systems

The following case studies attempt to illustrate some tangible impacts and outcomes from EU R&I collaborations in LMICs. It is noteworthy that the majority of these projects have not produced actual innovations led by LMICs that later found commercial viability in the EU or other advanced economies. In terms of academic output, most of the authors of studies related to these projects were European, and there were almost no lead authors from LMICs. Most of these projects have only leveraged existing technology from Europe that has been repurposed for use in LMICs to address a specific use case. Lastly, the available evidence in these cases demonstrates that follow-up is lacking, so it is unclear whether these interventions are able continue beyond project close-out.

Case study 1: B3Africa

Overview: Biological data should be processed and stored in a standardised way to ensure findings are reliable. B3Africa (Bridging Biobanking and Biomedical Research across Europe and Africa) aimed to create a platform for collaboration between African and European biobanks and biomedical research institutions. B3Africa integrated open-source software, services and tools for use by African and European biobanks and research institutions. The consortium involved institutions from Kenya, Nigeria, South Africa and Uganda. The project was also designed to train and enable researchers in LMICs to conduct high-quality research with data collected in these countries, ensuring that data collection and follow-up studies could be conducted efficiently and locally.

Timeline: July 2015–September 2018

Main activities: Provide education and training to participating African institutions, as well as software development and integration for participating African institutions.

Impacts on LMICs: B3Africa has been cited by research papers beyond the research programme (Vaught, 2017; Kinkorová and Topolčan, 2018; Staunton and de Vries, 2020; Anderson et al., 2022). B3Africa has also been mentioned in conjunction with the H3Africa, Human Heredity and Health in Africa. The latter is a substantially larger consortium (more than 500 consortium members with a budget of US$ 176 million funded by the National Institutes of Health and the Wellcome Trust) for the testing of toolkits developed for H3Africa biorepositories (Abimiku et al., 2017).

The eB3Kit, a laboratory information management system developed by B3Africa, has been listed in the IT infrastructure resources compiled by the International Agency for Research on Cancer of the WHO. The eB3Kit has since been employed by a number of universities and research institutions, including the Makerere University in Uganda (Mboowa et al., 2018), and facilitated research in a variety of areas, such as RNA data analysis (Fallmann et al., 2019).

This evidence demonstrates that the impacts of B3Africa have extended beyond the institutions and countries which participated in the consortium.

Indicators:

The call required an LMIC institution	Yes
Proportion of budget allocated to LMIC institutions	26.5%
Number of work packages led by LMIC institutions	12.5% (1 out of 8 work packages)
Number of publications involving LMIC researchers	25% (2 out of 8 publications)

Case study 2: AfriCultuReS

Overview: AfriCultuRes (Enhancing Food Security in AFRIcan AgriCULTUral Systems with the Support of REmote Sensing) sought to design and implement an integrated agricultural monitoring and early warning system in the field of food security. The project applied geospatial science and delivered services for sustainable agricultural development, natural resource management and biodiversity conservation in Africa.

Timeline: 1 November 2017–31 October 2022

Main activities: Develop geospatial products for sustainable agriculture.

Impacts on LMICs: AfriCultuRes developed 7 services, sub-divided into 23 products. The project experimented with the products in eight use cases/African countries. For instance, the project supported a new water detection method in South Africa using data derived from Google Earth Engine and showed that the new method can reduce the false-positive rate in steep areas (Cherif et al., 2021). The consortium claimed to have had more than 123 000 unique visits of their website between 2018 and 2022.

Indicators:

The call required an LMIC institution	No but encouraged
Proportion of budget allocated to LMIC institutions	27.7%
Number of work packages led by LMIC institutions	None
Number of publications involving LMIC researchers	50%

Case study 3: LEAP-RE

Overview: LEAP-RE is a long-term joint R&I partnership between Europe and Africa, counting 85 research partners jointly developing renewable energy solutions. The EU Green Deal is at the heart of the EU's new growth strategy, reinforcing Europe's commitment to developing and improving renewable energies. The African Union (AU) highlights renewable energy as critical to ensuring the sustainable development of the continent and it is at the core of the AU's Agenda 2063. The programme is built around the following key thematic priorities to make renewable energy sustainable and efficient: innovation priorities, smart-grid and off-grid systems, productive and domestic uses, access to energy, and recycling.

Timeline: 2020–2025

Main activities: LEAP-RE is based on three pillars:

- Pillar I – external research funding and capacity building activities,
- Pillar II – collaboration by European and African operators in eight key internal R&I projects (EURICA, Energy Village, Geothermal Atlas for Africa, Geothermal Village, Leopard, PURAMS, RE4AFAGRI, SETADISMA) and capacity building activities,
- Pillar III – management, coordination, monitoring and evaluation, and development of the future long-term partnership.

Academic publications: Out of the peer-reviewed publications and conference presentations listed on the project website, a significant portion, 15 out of 33, listed authors from LMICs.

Impacts on LMICs: The impacts to date have not been sufficiently tracked, quantified, or disseminated according to LEAP-RE's own monitoring report. Now in its last year of operation, the project still has not submitted annual workplans for years four and five.

Most of the scientific contributions for dissemination from Pillar II, which focuses on the actual research collaboration between the EU and Africa, were produced by only 2 of the work packages (out of 16). In practice, the programme outputs should be more equally balanced. One of the report's main recommendations is to improve the discoverability of technical reports by embedding a specific text string so that the research output reports can more readily be found by external researchers. Additionally, the monitoring report suggests that dissemination should go beyond conferences and scientific publications to include 'future technical reports and deliverables; these include policy briefs, result presentations to local community groups and stakeholders, didactic materials or toolkits, open-source databases, and coding structures'. Of the 8 research and innovation projects

in Pillar II, only 3 have issued reports on the scientific outcomes of the project, and most of these are not true innovations, but rather context-specific applications of existing technologies.

Indicators:

The call required an LMIC institution	Yes
Proportion of budget allocated to LMIC institutions	19.9%
Number of work packages led by LMIC institutions	Not publicly available
Number of publications involving LMIC researchers	45.5% (15 out of 33 publications)

Case study 4: DIGILOGIC

Overview: The vision of DIGILOGIC was to leverage, strengthen and connect digital innovation hubs (DIHs) in Europe and Africa to build the first smart, logistic pan-EU-Africa hub fostering a broad digital transformation in the African logistics sector. DIGILOGIC encouraged the adoption of emerging technologies, such as cloud computing, big data, Augmented Reality or Virtual Reality machine learning, blockchain, intelligent objects (AI), smart devices, internet of things and intelligent transportation system for smart logistic solutions. They were promoted through the deployment of a dynamic and impactful knowledge transfer and implementation programme. DIGILOGIC recognised the logistics industry as a crucial hub for digital innovation, which is critical to sustainable social and economic development for prosperity in Europe and Africa.

DIGILOGIC had three DIHs in Europe, in Germany, Finland and Italy, and two in Africa reaching 9 countries: Ghana, Nigeria, Zambia, South Africa, Kenya, Malawi, Zimbabwe, Namibia, and Mozambique.

Timeline: January 2021–December 2023

Main activities: As an 'ecosystem of ecosystems', the main objective of DIGILOGIC was to accelerate the development and uptake of digital innovations to help companies become more competitive in their business/production processes, products or services using digital technologies, specifically:

developing EU-AU DIHs as long-lasting, sustainable partnerships based on the common interest of concretely boosting collaboration on smart logistics;

defining an EU-AU framework and toolset for smart logistics learning and technology to contribute to a vibrant digital economy ecosystem and sustainable uptake of the results; and

enabling the growth of a common innovators' ecosystem, where talents from both the EU and AU can benefit from access to technology, knowledge, and ultimately market opportunities and investors.

Academic publications: Of the four academic publications listed on the project website, none mentions a researcher from Africa, and they were all published by the VTT Technical Research Centre of Finland. Further, none of these publications addresses digital innovation or the impacts on Africa, but rather only startups and their business models generally. A search on Google Scholar revealed several references to DIGILOGIC by other researchers studying startup activity and digital innovation in Africa. A more general search for 'digital innovation hub Africa' yields more than 17 000 results, so it would appear that the topic is well studied generally, but not by the project specifically.

Impacts on LMICs: DIGILOGIC aimed at not only supporting innovation in the smart logistics sector in Africa but also at changing the system of critical mile logistics by altering the dynamics that currently hinder the inclusion of innovation and startups in the sector. It tested formats that can now be replicated because DIGILOGIC created a network of organisations that implemented the activities together and because DIGILOGIC took a bottom-up approach which also considered the needs of innovators in the sector. Key activities included:

- a system map with system dynamics and the relevant actors to increase knowledge;
- a policy recommendation paper to engage with policymakers together with other Horizon 2020 projects under the ICT58 call, thus creating many opportunities for stakeholder exchange;
- an online platform for programme and outreach activities, in addition to organised matching events such as virtual job fairs and networking sessions during consortium meetings;
- linkages to finance providers, training on how to pitch, and information on how to find the right source of financing;
- co-creation of business ideas for the informal sector in co-creation IMPACT labs, by supporting startups that strengthen and collaborate with the informal sector and by working with key actors like the Global Distributors Collective to improve the ecosystem for informal trade and logistics;

- the organisation of peer exchange on the topic of how to better support smart logistics startups by helping them directly and by re- and up-skilling talents for the smart logistics sector;
- a trend radar meta study on startups participating in DIGILOGIC mentoring, the principal findings of which are
- a digital logistics trend radar focused on Africa is the first of its kind,
- relevance beyond Africa by extending the scope of the logistics trend radar from societal and technological factors to also encompass biological trends,
- an example demonstrating how a lack of published continent-specific studies need not prevent the formulation of a trend radar for that continent;
- co-creation labs to address problems in implementing and scaling smart solutions to transform critical mile logistics systems. The labs consisted of six thematic co-creation labs of 16 hours each, and employed a structured methodology comprising problem analysis, resource examination, and co-creation. Participants worked in teams to develop a solution to a real-world issue in the African Logistics Critical Mile. The labs saw 231 people attend in total, 192 of whom were unique participants. Of these, 20% (39) participated in multiple labs.

Indicators

The call required an LMIC institution	Yes
Proportion of budget allocated to LMIC institutions	46.5%
Number of work packages led by LMIC institutions	17% (1 out of 6 work packages)
Number of publications involving LMIC researchers	0 out of 33 publications

Case study 5: gEneSys

Overview: gEneSys (Transforming Gendered Interrelations of Power and Inequalities for Just Energy Systems) is a three-year research project focused on exploring the energy transition as a 'dynamic, gendered, mission-oriented socio-technical innovation'. It emphasises the interconnected nature of key subsystems (technological, policy, social, environmental, governance, and economic). Each subsystem reflects distinct sustainability visions, values, and priorities, shaped by diverse stakeholders and change actors. Importantly, these actors influence not only their own subsystems but also drive

change across the broader ecosystem. By adopting a gender-sensitive lens, the project aims to advance inclusive and sustainable pathways for energy transitions.

Timeline: 2023–2026

Main activities: gEneSys highlights the critical role of gender in energy transitions by collaborating with African partners to address gender concerns in EU and UN missions for affordable, secure energy, aligning with SDG7. Specifically, it focuses on:

- assessing gender inclusion by analysing intersectional inequalities, reviewing energy policies for gender mainstreaming, and examining women's roles in energy sectors. Through original data collection, it explores women's and men's attitudes towards an energy transition as consumers and individuals;
- building a gender-specific evidence base for transformative climate policies, challenging discriminatory structures, and identifying career opportunities for women in energy;
- fostering collaboration between Europe and Africa, demonstrating how gender equality drives sustainable socioeconomic development and integrating gender-intersectional perspectives into energy transition research and practices.

Academic publications: At this stage, the project has not produced any peer-reviewed publications, as indicated on its Zenodo and project websites. However, the deliverables across various work packages are highly relevant to gender and LMIC linkages, such as the *Report on past and current international cooperation initiatives between Europe and Africa*. Additionally, the project regularly updates evidence from the gEneSys team, collaborating experts, and webinar discussions with 'sister' initiatives that will nurture future scientific publications and further explore the linkages between gender and energy.

Impacts on LMICs: The gEneSys project incorporates an LMIC dimension through its collaboration with partners in Africa – including a Rwandan partner – to address gender disparities in energy access and transition. For example, one of the aims is the *effective* collaboration with partners in Africa to integrate gender perspectives into SDG7 (on affordable and clean energy), as well as to engage a diverse range of change agents and stakeholders in Europe and Africa. Within this framework, gender equality can serve as a catalyst for sustainable socioeconomic development and, therefore, empower local communities.

Indicators:

The call required an LMIC institution	No
Proportion of budget allocated to LMIC institutions	2.3%
Number of work packages led by LMIC institutions	17% (1 out of 6 work packages)
Number of publications involving LMIC researchers	N/A

1.3 SELECTED PROJECTS WHERE THE EU PARTNERS WITH OTHER COUNTRIES (INCLUDING LMICS)

The analysis of the EU R&I funding allocated to LMICs reveals an uneven distribution. The allocation is influenced by numerous factors, with successful partnerships being more probable when the EU and participating countries share common long-term priorities. For these partnerships to flourish, both parties must engage in stable and productive dialogue – a principle that is exemplified by EU-Africa cooperation in R&I. The strong relationship between the EU and the AU has been a key factor in fostering more successful collaborations between EU and AU Member States.

- One example of this type of collaboration is the Partnership for Research and Innovation in the Mediterranean Area (PRIMA), which strives to build R&I capacities in the areas of water management, farming systems, and the agrifood value chain. The PRIMA partnership comprises 25 countries, encompassing EU Member States, associate countries of Horizon programmes and also other, non-associate countries[6]. PRIMA was co-funded by the two Horizon programmes (EUR 220 million from Horizon 2020 and EUR 105 million from Horizon Europe) and additional contributions by participating states (EUR 384 million).

- Another good example is found in the domain of clinical trials. In 2003, the European and Developing Countries Clinical Trials Partnership (EDCTP) was established, to find solutions to reduce the burden of infectious diseases and strengthen research capacities in sub-Saharan countries. The third edition of the partnership, EDCTP3, involves 15 European countries and 20 countries from sub-Saharan Africa. EDCTP is also co-funded by Horizon programmes and participating countries.

[6] The EU Member States involved are Bulgaria, Croatia, Cyprus, France, Germany, Greece, Italy, Luxembourg, Malta, Portugal, Slovenia, and Spain; the associated countries are Israel, Tunisia, and Türkiye; the southern Mediterranean countries are Algeria, Egypt, Jordan, Lebanon, and Morocco.

- A related programme, the Team Europe Initiative on Manufacturing and Access to Vaccines, Medicines and Health Technologies (MAV+) is also partially funded by Horizon Europe, with EUR 663.80 million out of the total EUR 1.1 billion budget of MAV+ in the form of loans. These programmes demonstrate how the close relationship between the EU and Africa has contributed to flourishing research collaborations between institutions of these two continents.

The EU has allocated comparatively smaller amounts of funds to Asian and Latin American countries. The infrequent research cooperation stands in contrast to the EU's active presence in Latin America and the Caribbean, where international partnerships have been more active than joint research.

The Global Gateway initiative, a European strategy to bolster the digital, energy, transport, health and education sectors worldwide, has adopted a 'Team Europe approach' that combines loans and grants to finance development projects. For instance, the Global Gateway Investment Agenda has committed over EUR 45 billion to development projects in Latin America and the Caribbean. However, Global Gateway is mainly financed by the European Investment Bank and implemented by the Directorate-General for International Partnerships (DG INTPA) through the Team Europe Initiatives, primarily focusing on the development of global sustainable infrastructure. A modest research component is included, to fund projects that upgrade research facilities and boost research cooperation. The potential for collaboration between Global Gateway and FP10 remains to be elucidated, with the prospect of Global Gateway encouraging global institutions to participate in FP10 research projects to be explored.

1.4 MAIN FINDINGS FROM OUR ANALYSIS

Our analysis and case studies shed light on a number of important findings.

First, researchers or research institutions in LMICs usually occupy a secondary role in Horizon programmes. R&I collaborations are often characterised by a marked imbalance, with leadership positions dominated by researchers from the more advanced economies (Walsh et al., 2016; Anghileri et al., 2023). This phenomenon is pervasive, as research funding typically originates from the more advanced economies and therefore research institutions from the funders naturally assume leadership roles in research projects.

This imbalance might be attributed, in part, to the historical legacy of colonialism, wherein the more advanced economies control the research direction and resources (Walsh et al., 2016). These problems may also be attributed to the same failings inherent in the adjacent domain of development aid – which are often political and donor-led rather than designed for and by the recipient. Our case studies show that work packages led by LMIC

researchers are rare, and peer-reviewed research outputs are mainly authored by European scholars with some participation by researchers from LMICs.

Second, even when LMICs are involved, this leads to insufficient knowledge and technology transfer. Several reasons may explain this shortcoming. For example, a lack of intellectual property (IP) protection in many LMICs is frequently cited as a significant barrier to technology transfer and diffusion[7]. This, in turn, may trigger reluctance by researchers in developed countries to share their IP with partners in LMICs. Moreover, R&I solutions that work in developed countries may not be applicable or effective in a less developed country context. Some researchers have found that the problem of technology transfer goes beyond physical tools and intellectual property, and rather includes building 'software' (referring to Bell's 1990 definition), such as skills, knowledge, and innovation ecosystems, to ensure sustainable use and adaptation.

Given the disparities in R&I spending between industrialised countries and LMICs, it is critical to implement systemic strategies to make technology transfer impactful and equitable. To this end, multistakeholder partnerships are especially important for leveraging capacity building, multilateral/donor support, and the private sector.

Local actors need absorptive capacity, technical expertise, and institutional support to adapt and innovate technologies. Institutional support is also crucial to building institutional memory that carries over from one administration to the next so that knowledge and methods do not have to be relearned time and again. International R&I cooperation should thus emphasise and leverage local innovation ecosystems, align with specific development goals, and balance donor-driven approaches with recipient autonomy (Stamm, 2023).

Third, and relatedly, the chasm between R&I activities and international partnership policy creates a vacuum of leadership and coordination, with the research-education and innovation components often falling into no man's land, and as such remaining under-exploited. While EU research policy is mainly managed by the DG for Research and Innovation (DG RTD), EU international partnerships are managed by DG INTPA. Although it is natural to envisage a more integrated approach to linking research to international development that ensures EU funding on research achieves its potential in LMICs, in practice collaboration between the two DGs is suboptimal. The Global Gateway

[7] Know-how (software according to Bell's definition) and technology (hardware) provide competitive advantages for technology holders, making them reluctant to share these assets freely. IP-protected technologies favour countries with strong IP regimes, excluding those with weaker protections or lower innovative capacities. This restricts developing nations from acquiring the necessary knowledge to adapt and innovate technologies locally, which exacerbates the North-South divide and limits the effectiveness of current technology transfer initiatives in low-carbon and renewable energy sectors. Addressing these issues requires revisiting IP frameworks and aligning them with global sustainability goals (Weko and Goldthau, 2022).

programme features a dedicated pillar on research, education and innovation, yet this pillar is often less exploited than the others. The missing link between DG RTD and DG INTPA implies that valuable research findings and innovations do not receive sufficient support in the deployment and scale-up phase and are overlooked in the European Commission's routine of approving and closing research projects.

A more integrated approach would have the potential to facilitate a more complete research-policy-implementation process that collects research ideas, formulates policies, and carries forward the ideas and policies until they lead to concrete changes on the ground in LMICs.

Fourth, gender inequalities are often more pronounced and entrenched in less advanced social and economic environments. We identified 32 projects under Horizon 2020 and 42 projects under Horizon Europe that are related to gender research[8]. Horizon 2020 had an interesting priority of funding projects on gender equality in research, which was discontinued in Horizon Europe. Among the Horizon Europe projects, 6 of the 42 had connections with LMICs, compared with 4 projects out of 32 under Horizon 2020.

However, a more careful analysis reveals that projects focusing on or studying gender issues with an LMIC dimension are rare. Gender issues are often grouped into a broader research scope of inclusivity, discrimination or well-being[9]. While this research topic is highly relevant for LMICs, the level of LMIC involvement is low, with only one institute from Rwanda involved, with a budget of EUR 60 000. For instance, *R-I PEERS* (Pilot experiences for improving gender equality in research organisations) involved an official agency from Tunisia (the National Agency for Scientific Research Promotion, or ANPR), which received a budget of EUR 113 750. The primary output of the project for ANPR is the Gender Equality Plan, which enumerates 13 actions accompanied by indicators in 5 areas. While this initiative has yielded encouraging results, this particular priority has been superseded by other considerations in Horizon Europe, being grouped under a more expansive scope that encompasses a range of inclusivity-related topics.

Fifth, the evaluation and follow-up phase of funded projects appears rather weak. While it is reasonable that research projects should be subject to some commonly accepted evaluation criteria, such as the number of academic publications, the European Commission has thus far struggled to ensure that its research budget is transformed into tangible development outcomes. LMICs often seem unable to leverage the allocated

[8] For Horizon 2020, the relevant legal code is H2020-EU.5.2.: Gender equality in research and innovation. For Horizon Europe, the corresponding legal code is HORIZON-EU.2.2.: Culture, Creativity, and Inclusive Society. Such an inclusion criterion nonetheless excludes some projects that respond to other priorities, and hence legal codes, but touch upon gender in their programmes.

[9] For example, the Horizon Europe project *gEneSys* (Transforming Gendered Interrelations of Power and Inequalities for Just Energy Systems) partners with an institute in Rwanda to address gender disparities in energy access and transition.

budget for building their own research capacity or carrying forward the research findings for their own development.

A significant proportion of projects are perceived to have been successful at the time of their conclusion; however, it is notable that in many cases, subsequent follow-ups are not conducted. This calls into question whether the products and tools developed within these projects are appropriately maintained and updated[10]. The conditionality of funding, which is contingent on performance during the project's designated lifespan, is a salient factor in this context. Furthermore, it is important to note that when the funding period concludes, institutions may encounter financial challenges in sustaining the tools and services that were developed.

[10] For example, the official website of one of the case studies, accessed on 28 October 2024, displays the message 'Web services under maintenance. Stay tuned!', despite the project having been scheduled for completion by October 2022. Sometimes the absence of clear instructions for the utilisation of these web services constrains the potential for continued usage after the designated project lifespan, hindering the accessibility of crucial data beyond the programme's duration. This underscores the under-utilisation of their research and innovation outcomes.

2 POLICY RECOMMENDATIONS: TOWARDS MORE MEANINGFUL INVOLVEMENT OF LMICS IN FP10

Our cursory analysis of the limited data available on the involvement of LMICs in EU R&I programmes can be translated into recommended actions that would help the EU achieve its goal of engaging in successful science diplomacy and triggering innovation solutions on the ground, also in LMICs. In this respect, science diplomacy is not merely about allocating research funding; it should focus on knowledge transfer and strengthening the research capabilities of LMICs. And while the role of R&I FPs may not extend to achieving these objectives, establishing a stronger link with the Global Gateway research and education pillar would likely help the EU attain this important goal.

Moreover, the involvement of LMICs throughout the process must be thorough and fair, enabling LMIC researchers to share the lead in shaping research projects that address their communities' needs. The present moment is critical for reflecting on past experiences and shaping the future of EU R&I policy. This urgency is compounded by the European Commission's ongoing consultations for the next FP (FP10); in that context, issues of competitiveness and security seem to be way more under the spotlight than the pursuit of global public goods.

This is regrettable, since the world has recently faced unprecedented challenges. For instance, the COVID-19 pandemic exposed weaknesses in global solidarity and a lack of preparedness for global emergencies; conflicts in Ukraine and the Middle East threaten peaceful international collaboration and socioeconomic stability around the world; and the second Trump administration in the US has triggered an unprecedented disruption of foreign aid. Even the report of the Expert Group led by Manuel Heitor, released in October 2024, contains no mention of 'international development' and only mentions LMICs once (but refers to them as important markets for EU businesses)[11].

The following actions are among the possible reforms that could be implemented in FP10 to improve the involvement of LMICs.

[11] In the area of global health, the findings are more encouraging. One recent and important step in the direction towards 'research for development' is the establishment of the Directorate-General Health Emergency Preparedness and Response (HERA) within the European Commission, which has a mandate that encompasses international development and cooperation in the domain of global health. HERA demonstrates that, given the correct narrative or motivation, the EU can be mobilised to support international development through a mutually beneficial approach. In other domains, no equivalent counterpart to HERA has been established. In view of the urgency of addressing the EU's security and competitiveness concerns in these areas, as analysed at length in both the Heitor and Draghi reports, it is evident that the EU must strengthen international partnerships with both traditional allies and LMICs. Such partnerships should form part of a broader policy to address grand challenges through sustainable, mutually beneficial development, because European competitiveness should not be viewed as a completely separate issue.

Action 1. Set up a specific workstream within FP10 (or in the future Competitiveness Fund), governed by an ad hoc council with the presence and active participation of researchers from LMICs. Dell'Aquila et al. (2025) has already outlined the possible contours of such a reform, with the aim of separating IP rules and dual use provisions tailored to industrial competitiveness and defence within Europe, from the projects and funds devoted to achieving global public goods.

Action 2. Formulate a convincing narrative for international R&I partnerships. Despite efforts by academics in the fields of economic development and foreign policy, resources spent on support for research and innovation in LMICs are insufficient to make a difference. Nor do they generate obvious or quick returns to politicians in elections. Policymakers need to develop a narrative grounded in evidence that justifies spending more resources on research for international R&I partnerships. To demonstrate this, the EU should experiment with projects and governance frameworks to ensure that EU research funding is directed to the most urgent priorities in LMICs while generating the most benefit for the EU economy and society.

Action 3. Address the current lack of meaningful representation of LMICs in funded projects. LMIC presence cannot be just an afterthought. Bringing in the perspective of LMICs will not only facilitate broader and more comprehensive research brainstorming but will also better ensure that the research findings remain in the LMICs for their continuous economic and scientific development. In order to provide sufficient incentives for EU-funded projects to meaningfully integrate LMICs, the European Commission could encourage and reward project proposals that incorporate elements or key performance indicators that address the imbalance. Projects could be evaluated according to the proportion of LMIC authors involved in the research publications, the proportion of LMIC task leaders, the estimated value of technology transfer, the estimated value of capacity building, and the number of training sessions provided.

Action 4. Earmark funds for research for development projects. Although collaborations with non-associated countries have been recognised as one of the indicators that measures the contributions of FP projects, international development is not listed as a priority that generates a stream of research projects. While international development deserves its own stream, future FPs should better identify topics that align the interests of both the EU and LMICs. Furthermore, future FPs could construct, in a reciprocal way, a bilateral feedback mechanism that ensures the research findings and innovations will benefit both sides.

Action 5. Address the uneven allocation of EU R&I funding across LMICs. While funding seems autocorrelated, i.e. those receiving more funding continue to receive more, the reasons behind the geographical allocation require deeper analysis. African countries are more involved in FPs compared with Asian and Latin American countries. The most obvious reason is the geographical proximity between Europe and Africa. Yet the closer relationship is also a result of the closer collaboration between the EU and the AU. The variation of allocation within Africa is also substantial. In some cases, the reason is topical. For example, Sierra Leone has long been affected by malaria and Ebola and therefore research funding has been poured into this area in collaboration with institutions in-country. Nevertheless, the EU should conduct a thorough analysis of the distribution of the funding and better understand the need to engage some particular LMICs.

Action 6. Provide the correct incentives through thorough evaluations and follow-ups. When assessing research impact, the Commission could establish clear guidelines for measurement, aligning with existing methodological frameworks such as Reed et al. (2021). Applicants should be required to define specific impact indicators against which their research will be evaluated upon project completion. For development-related projects, these indicators should extend beyond conventional academic metrics – such as publication counts and impact factors – to emphasise concrete and feasible connections to subsequent development efforts. While consortia should remain focused on research rather than implementation, they should propose and construct impact indicators that demonstrate, ex ante, the extent to which their research contributed to or was a necessary constituent of impact, as outlined by Reed et al. (2021).

Conclusions

This scoping paper examines the extent to which EU FPs (Horizon 2020 and Horizon Europe) have supported international research collaboration with, and development in, LMICs. While funding for LMIC partners has increased from Horizon 2020 to Horizon Europe, disparities in allocation persist. Further analysis reveals that EU FPs have lacked a dedicated agenda on 'research for development'.

As a supranational institution, the EU is indeed well-positioned to transcend national interests and implement projects that foster knowledge transfer and capacity building in LMICs. Future FPs should seize opportunities to promote science diplomacy and generate ideas for development by providing the right incentives for EU researchers within a well-structured governance framework. Ultimately, the EU and its researchers must critically reflect on the purpose of collaborating with LMICs, moving beyond a mindset that treats these regions merely as sites for data collection or case studies. Instead, fostering more balanced research partnerships would not only enrich EU research with fresh perspectives but also enhance the impact of science diplomacy.

The European Commission under President Ursula von der Leyen's first term was very much characterised by a focus on sustainability and the UN Sustainable Development Goals (SDGs). When she was a candidate for President of the European Commission, von der Leyen promised to 'refocus the European Semester into an instrument that integrates the UN Sustainable Development Goals' (von der Leyen, 2019). The European Commission's trade and sustainable development discourse shifted, with a clear trend towards environmental and climate protection observed during the first von der Leyen Commission (Bertram, 2023).

However, perhaps due to changing geopolitical dynamics and European voters' priorities, von der Leyen has since modified her strategy, focusing more on competitiveness and strategic autonomy. This alteration in narrative towards the EU's competitiveness was arguably triggered by the Draghi report (Draghi, 2024), among others. Von der Leyen in general echoes what Draghi proposes. 'Competitive' or 'competitiveness' appears 30 times in her *Political Guidelines 2024* while 'sustainable' or 'sustainability' appears only 11 times. While sustainability is still mentioned and emphasised, the latest Communication about *A Competitiveness Compass for the EU* (European Commission, 2025) indeed confirms the shift of focus towards EU competitiveness.

A change of this magnitude would definitely impact the direction of future Framework Programmes (FPs). The SDGs were created by the UN, and although they apply to all nations, they are closely connected to closing global development gaps. By contrast, the EU's competitiveness is an EU-centric narrative, which might even trigger associations

with protectionism and the relaxation of state aid control. In this geopolitically troubled world, the big question is how the EU should position itself in balancing EU interests and international development as a tool for advancing EU diplomatic goals or economic benefits. A more inward-looking approach could be inconsistent with the Policy Coherence for Sustainable Development (PCSD) enshrined in the Treaties of the European Union, as explained previously.

The financial condition of the Member States is a key factor in the calculation. The current discussion on FP10 proposes a budget of EUR 220 billion[12]. Some voices argue that this as unrealistic, as it would mean more than doubling the current budget, which is partly funded by EU Member States and associated countries. As Member State governments keep an eye on contributions to and benefits from the EU in and out of the EU, a powerful narrative is needed to incentivise contributions to fund projects to tackle global challenges.

On the other side of the Atlantic, President Donald Trump and his high-profile supporter Elon Musk have been highly critical of spending tax money on foreign aid. They have even issued a stop-work order on all USAID projects for 90 days under the guise of an executive review of all aid spending, which has already all but resulted in a shut-down of the agency.[13] This may have a negative impact on Europeans' perceptions of the allocation of research budgets to international development projects.

To maintain the momentum in 'research for development' or 'research for global challenges', it is crucial to identify a compelling hook to simultaneously attract national attention to research, EU competitiveness, and international sustainable development. The EU should pursue competitiveness policy, and by extension the research agenda, through a more expansive view of competitiveness that incorporates sustainability, which extends beyond the narrow definition of competitiveness in the Draghi Report. A more comprehensive perspective would ensure that the EU's research agenda aligns with a broader vision, in line with the recommendations in the Heitor Report that connecting sustainability and competitiveness in EU policy will ensure that the EU can successfully transition to a sustainable economy (Grabbe et al., 2024). The response by the Commission in this regard is promising, as shown by the Competitiveness Compass. Yet it will depend on the Commission's political will to carry out the strategy with concrete actions.

On some issues it seems easier to come up with a commonly acceptable narrative. For example, research on health has invoked the idea of 'diseases know no borders' to

[12] See the 2024 report *Align, act, accelerate,* Publications Office of the EU.

[13] See 'Elon Musk said Donald Trump agreed USAID needs to be "shut down"', *CNN Politics.*

incentivise international collaboration. To some extent, this approach has yielded results. Beyond health-related topics, the motivating factors driving EU contributions are often less explicit and harder to discern.

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APPENDIX

Table A 1 – List of low- and low- middle-income economies/countries

	World Bank definition of low-income countries and low-middle-income countries	List of LMICs defined by the EU for the purpose of EU FP funding eligibility	Participated in Horizon 2020	Participated in Horizon Europe
Afghanistan	YES	YES	YES	YES
Algeria	NO	YES	YES	YES
Angola	YES	YES	YES	NO
Argentina	NO	YES	YES	YES
Azerbaijan	NO	YES	YES	YES
Bangladesh	YES	YES	YES	YES
Belarus	NO	YES	YES	NO
Belize	NO	YES	YES	NO
Benin	YES	YES	YES	YES
Bhutan	NO	YES	NO	NO
Bolivia	NO	YES	YES	NO
Botswana	NO	YES	YES	YES
Burkina Faso	YES	YES	YES	YES
Burundi	YES	YES	YES	YES
Cabo Verde	YES	YES	YES	YES
Cambodia	YES	YES	YES	YES
Cameroon	YES	YES	YES	YES
Central African Republic	YES	YES	NO	NO
Chad	YES	YES	YES	YES
Colombia	NO	YES	YES	YES
Comoros	YES	YES	NO	NO

Congo, Democratic Republic	YES	YES	YES	YES
Congo, Republic	YES	YES	YES	YES
Costa Rica	NO	YES	YES	YES
Côte d'Ivoire	YES	YES	YES	YES
Djibouti	YES	YES	YES	YES
Dominica	NO	YES	NO	NO
Dominican Republic	NO	YES	YES	NO
Ecuador	NO	YES	YES	YES
Egypt	YES	YES	YES	YES
El Salvador	NO	YES	NO	NO
Equatorial Guinea	NO	YES	NO	NO
Eritrea	YES	YES	NO	NO
Eswatini	YES	YES	YES	YES
Ethiopia	YES	YES	YES	YES
Fuji	NO	YES	NO	NO
Gabon	NO	YES	YES	YES
Gambia, The	YES	YES	NO	YES
Ghana	YES	YES	YES	YES
Grenada	NO	YES	YES	NO
Guinea	YES	YES	NO	YES
Guinea-Bissau	YES	YES	NO	NO
Guyana	NO	YES	NO	NO
Haiti	YES	YES	NO	YES
Honduras	YES	YES	YES	YES
India	YES	NO	YES	YES
Indonesia	NO	YES	YES	YES

Iran, Islamic Republic	NO	YES	YES	YES
Iraq	NO	YES	YES	YES
Jamaica	NO	YES	YES	NO
Jordan	YES	YES	YES	YES
Kazakhstan	NO	YES	YES	YES
Kenya	YES	YES	YES	YES
Kiribati	YES	YES	NO	NO
Korea, Democratic People's Republic	YES	YES	NO	NO
Kyrgyz Republic	YES	YES	YES	YES
Laos	YES	YES	NO	NO
Lebanon	YES	YES	YES	YES
Lesotho	YES	YES	YES	YES
Liberia	YES	YES	YES	YES
Libya	NO	YES	YES	YES
Madagascar	YES	YES	YES	YES
Malawi	YES	YES	YES	YES
Malaysia	NO	YES	YES	YES
Maldives	NO	YES	YES	YES
Mali	YES	YES	YES	YES
Marshall Islands	NO	YES	YES	NO
Mauritania	YES	YES	YES	YES
Mauritius	NO	YES	YES	YES
Micronesia, Federated States	YES	YES	NO	NO
Mongolia	NO	YES	YES	NO
Morocco[14]	YES	YES	YES	YES

[14] Morocco has applied for eligibility for the entire Horizon Europe programme; negotiations are ongoing.

Mozambique	YES	YES	YES	YES
Myanmar	YES	YES	YES	NO
Namibia	NO	YES	YES	YES
Nepal	YES	YES	YES	NO
Nicaragua	YES	YES	YES	YES
Niger	YES	YES	YES	YES
Nigeria	YES	YES	YES	YES
Pakistan	YES	YES	YES	YES
Palestine	YES	YES	YES	YES
Papua New Guinea	YES	YES	NO	YES
Paraguay	NO	YES	YES	NO
Peru	NO	YES	YES	YES
Philippines	YES	YES	YES	YES
Rwanda	YES	YES	YES	YES
Samoa	YES	YES	NO	NO
São Tomé and Principe	YES	YES	NO	NO
Senegal	YES	YES	YES	YES
Sierra Leone	YES	YES	YES	YES
Solomon Islands	YES	YES	NO	NO
Somalia	YES	YES	NO	NO
South Africa	NO	YES	YES	YES
South Sudan	YES	YES	NO	NO
Sri Lanka	YES	YES	YES	YES
St. Lucia	NO	YES	NO	NO
St. Vincent and the Grenadines	NO	YES	NO	NO
Sudan	YES	YES	YES	YES

Suriname	NO	YES	YES	YES
Syrian Arab Republic	YES	YES	NO	NO
Tajikistan	YES	YES	YES	NO
Tanzania	YES	YES	YES	YES
Thailand	NO	YES	YES	YES
Timor-Leste	YES	YES	NO	NO
Togo	YES	YES	YES	YES
Tonga	NO	YES	NO	NO
Turkmenistan	NO	YES	YES	NO
Tunisia[15]	YES	NO	YES	YES
Tuvalu	NO	YES	NO	NO
Uganda	YES	YES	YES	YES
Uzbekistan	YES	YES	YES	YES
Vanuatu	YES	YES	NO	NO
Venezuela	NO	YES	NO	YES
Vietnam	YES	YES	YES	YES
Yemen Republic	YES	YES	YES	NO
Zambia	YES	YES	YES	YES
Zimbabwe	YES	YES	YES	YES

Source: Horizon Dashboard – Country Profile, European Commission.

[15] Tunisia is officially an associated country.

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