



Water – Energy Nexus EU-GCC Clean Energy Network

The solar-Water nexus, Horizon 2020 international cooperation opportunities for people wellbeing

Luca Polizzi

Research Policy Officer, European Commission, DG RTD

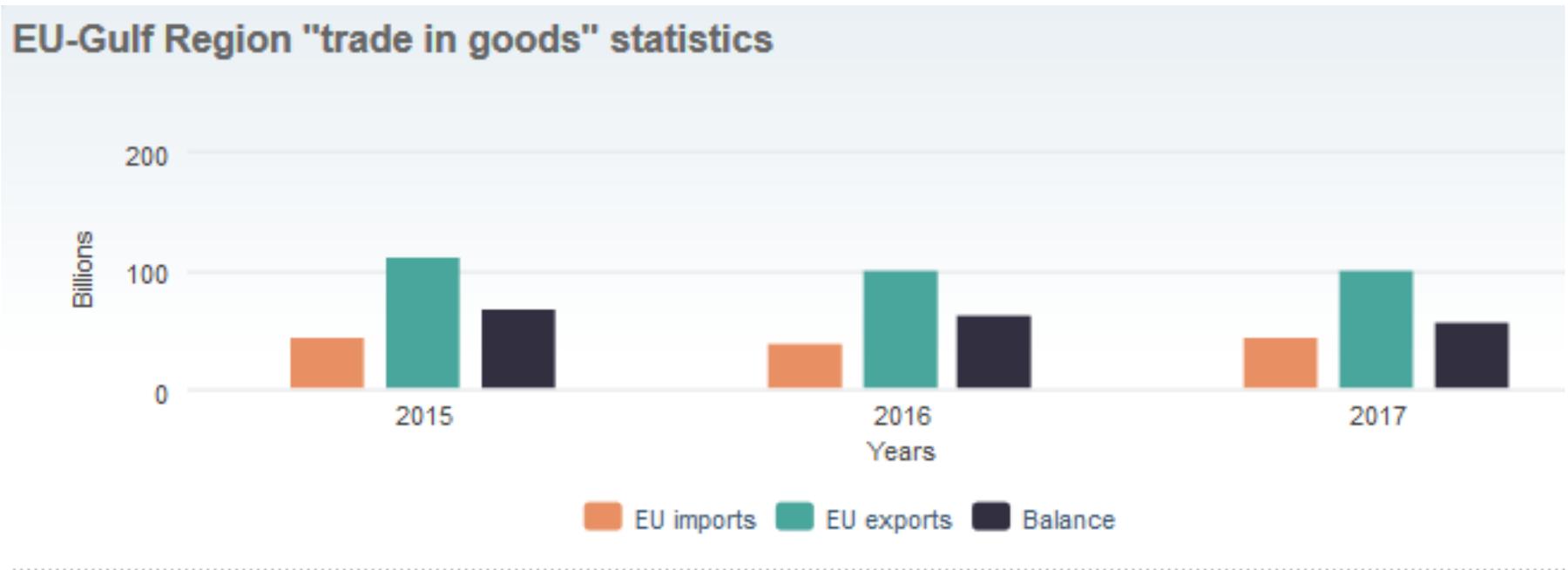
24-25 April 2019 Muscat, Oman

Cooperation Framework

The EU established bilateral relations with the GCC countries through the 1988 Cooperation Agreement:

- Strengthen stability in a region of strategic importance;
- Facilitate political and economic relations;
- Broaden economic and technical cooperation;
- Broaden cooperation on energy, industry, trade and services, agriculture, fisheries, investment, science, technology and environment.

A New Role for Scientific Cooperation while Trading Together



The EU was the first trading partner for the GCC in 2018 accounting for 14,6% of its total trade, followed by China (12.2%), Japan (8.5%) and India (8.4%)

Scientific Cooperation with the EU

FP7 / H2020 Summary Statistics

FP7 Signed Grants

10^{0,04%}
of FP7

FP7 Participations

23^{0,02%}
of FP7

FP7 EU Contribution

1,48M^{0,00%}
of FP7

H2020 Signed Grants

10^{0,04%}
of H2020

H2020 Participations

10^{0,01%}
of H2020

H2020 EU Contribution

0^{0,00%}
of H2020

Select Map Level

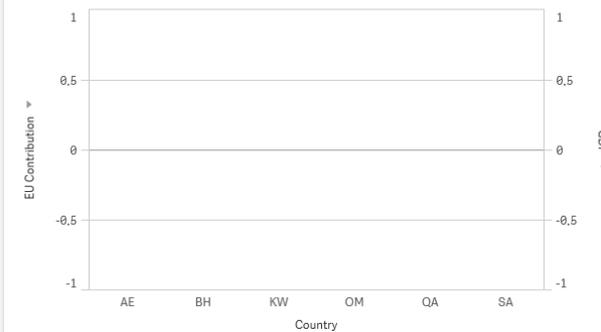
Country - AreaLayer

Participant NET EU Contribution by Country / Region

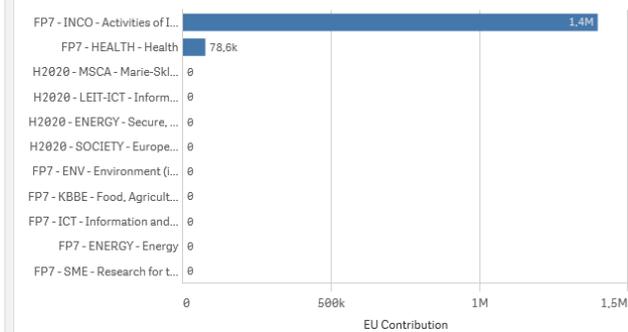


© Europegraphics © UN-FAO © TURKSTAT - The designations employed and the presentation of material on the map do not imply the expression of any opinion whatsoever on the part of the European Union concerning the legal

2015 figures: Participant EU Contribution / Eurostat data by Country



Top Research Thematic Priorities



Top Participating Countries

Country	Framework Programme	EU Contributi...	Participations	Participati...
Totals		€ 1.479.670	33	
United Arab Emirates	FP7	€ 370.220	7	
Oman	FP7	€ 448.822	5	
Saudi Arabia	FP7	€ 139.635	5	
Saudi Arabia	H2020	€ 0	5	
Qatar	H2020	€ 0	3	
Bahrain	FP7	€ 89.783	2	

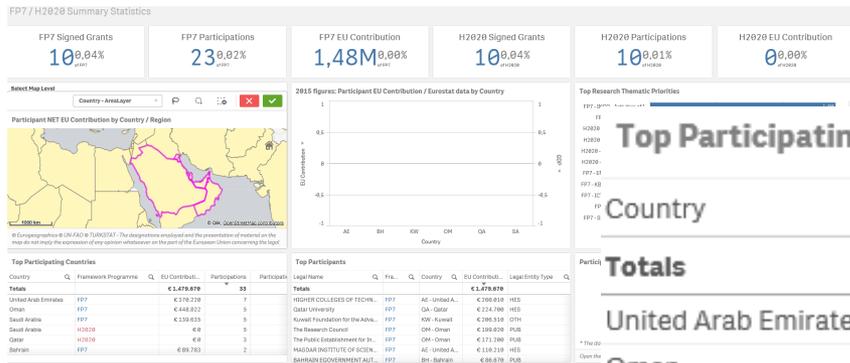
Top Participants

Legal Name	Fra...	Q	Country	Q	EU Contributi...	Legal Entity Type
Totals					€ 1.479.670	
HIGHER COLLEGES OF TECHN...	FP7		AE - United A...		€ 260.010	HES
Qatar University	FP7		QA - Qatar		€ 224.700	HES
Kuwait Foundation for the Adv...	FP7		KW - Kuwait		€ 206.510	OTH
The Research Council	FP7		OM - Oman		€ 199.020	PUB
The Public Establishment for In...	FP7		OM - Oman		€ 171.200	PUB
MASDAR INSTITUTE OF SCIEN...	FP7		AE - United A...		€ 110.210	HES
BAHRAIN EGOVERNMENT AUT...	FP7		BH - Bahrain		€ 86.670	PUB

Participant EU Contribution by Type of Action *



Scientific Cooperation with the EU



Top Participating Countries

Country	Framework Programme	EU Contributi...	Participations
Totals		€ 1.479.670	33
United Arab Emirates	FP7	€ 370.220	7
Oman	FP7	€ 448.822	5
Saudi Arabia	FP7	€ 139.635	5
Saudi Arabia	H2020	€ 0	5
Qatar	H2020	€ 0	3
Bahrain	FP7	€ 89.783	2

Top Participants

Legal Name	Fra...	Country	EU Contributi...	Legal Entity Type
Totals			€ 1.479.670	
HIGHER COLLEGES OF TECHN...	FP7	AE - United A...	€ 260.010	HES
Qatar University	FP7	QA - Qatar	€ 224.700	HES
Kuwait Foundation for the Adva...	FP7	KW - Kuwait	€ 206.510	OTH
The Research Council	FP7	OM - Oman	€ 199.020	PUB
The Public Establishment for In...	FP7	OM - Oman	€ 171.200	PUB
MASDAR INSTITUTE OF SCIEN...	FP7	AE - United A...	€ 110.210	HES
BAHRAIN EGOVERNMENT AUT...	FP7	BH - Bahrain	€ 86.670	PUB

GCC Research Performance

Overall research performance

Scholarly Output 

191,165 ▲

 [View list of publications](#)

Citation Count 

1,452,234

Authors

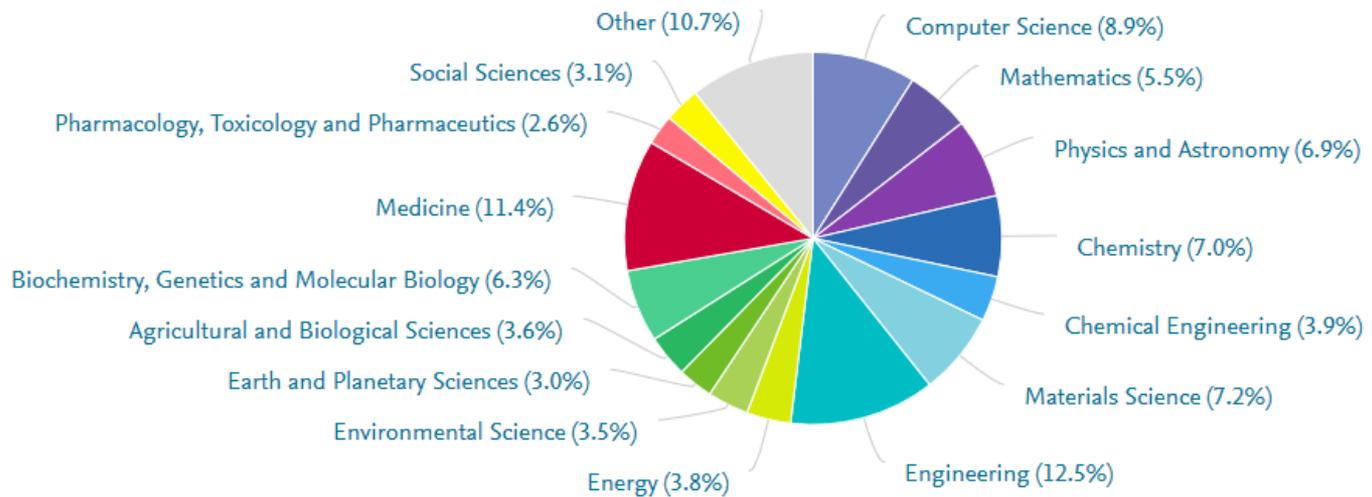
108,347 ▲

Field-Weighted Citation Impact 

1.34

Citations per Publication 

7.6



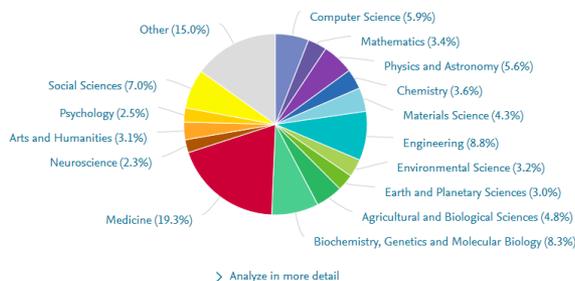
> [Analyze in more detail](#)

(SciVal 2013-2018)

Research Performance Benchmarking

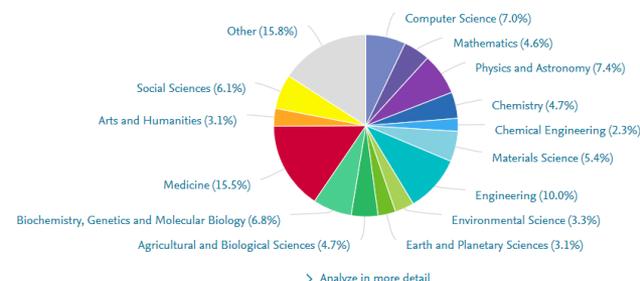
North America

Overall research performance



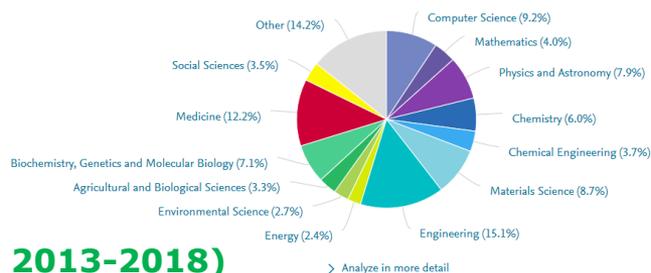
Europe

Overall research performance



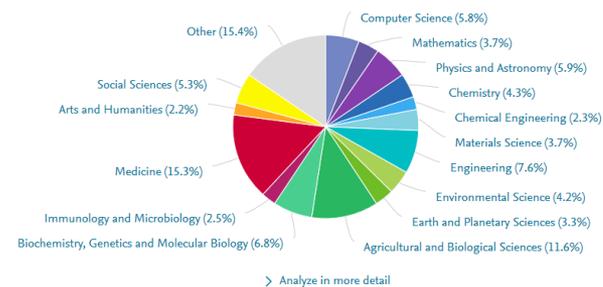
4 Asian Tigers

Overall research performance



South America

Overall research performance



GCC Research Performance (top 20 institutions)

Institution	Publications ↓	Authors	Citation Impact	Citations	Citations per Publication
1.  King Saud University	28,787 ▲	11,631 ▲	1.27	214,288	7.4
2.  King Abdulaziz University	27,848 ▲	7,734 ▲	2.11	410,230	14.7
3.  King Abdullah University of Science and Technology	11,789 ▲	4,030 ▲	2.00	161,655	13.7
4.  King Fahd University of Petroleum and Minerals	8,581 ▲	2,802 ▲	1.28	65,545	7.6
5.  Qatar University	7,547 ▲	2,523 ▲	1.55	54,065	7.2
6.  Khalifa University of Science and Technology	7,245 ▲	2,538 ▲	1.35	52,709	7.3
7.  Sultan Qaboos University	5,526 ▲	2,877 ▲	0.98	29,063	5.3
8.  United Arab Emirates University	4,919 ▲	2,429 ▲	1.49	40,451	8.2
9.  Kuwait University	4,427 ▼	2,166 ▲	0.97	25,664	5.8
10.  King Khalid University	3,661 ▲	2,398 ▲	1.21	19,507	5.3
11.  Alfaisal University	3,601 ▲	3,097 ▲	1.75	36,829	10.2
12.  Texas A and M University at Qatar	3,516 ▲	694 ▲	2.21	36,638	10.4
13.  Taibah University	3,441 ▲	1,541 ▲	0.94	15,674	4.6
14.  Imam Abdulrahman Bin Faisal University	3,161 ▲	2,034 ▲	0.96	10,953	3.5
15.  Taif University	3,085 ▲	1,439 ▲	0.74	13,451	4.4
16.  Umm Al Qura University	3,059 ▲	1,626 ▲	0.82	13,852	4.5
17.  Hamad bin Khalifa University	2,896 ▲	741 ▲	2.16	26,724	9.2 
18.  University of Sharjah	2,443 ▲	1,044 ▲	1.08	10,576	4.3
19.  King Abdulaziz City for Science and Technology	2,410 ▲	1,123 ▲	1.24	17,420	7.2
20.  NYU Abu Dhabi	2,361 ▲	894 ▲	1.75	19,412	8.2

GCC Research Performance (FWCI)

Institution	Publications	Authors	Citation Impact ↓	Citations	Citations per Publication
1.  Arabian Gulf University	522 ▼	385 ▼	7.15	16,991	32.5
2.  Ministry of Health Oman	551 ▲	505 ▲	5.55	14,268	25.9
3.  Al Marfaq Hospital	106 ▲	117 ▼	4.76	2,684	25.3
4.  Weill Cornell Medical College in Qatar	1,483 ▲	703 ▲	3.25	24,213	16.3
5.  University of Hail	1,171 ▲	709 ▲	2.82	14,045	12.0
6.  Dubai Medical College	86 ▲	38 ▲	2.43	728	8.5
7.  Hamad Medical Corporation	2,108 ▲	2,063 ▲	2.31	23,846	11.3
8.  Texas A and M University at Qatar	3,516 ▲	694 ▲	2.21	36,638	10.4
9.  Hamad bin Khalifa University	2,896 ▲	741 ▲	2.16	26,724	9.2
10.  Aspetar Orthopaedic and Sports Medicine Hospital	730 ▲	188 ▲	2.11	7,648	10.5
11.  King Abdulaziz University	27,848 ▲	7,734 ▲	2.11	410,230	14.7
12.  King Abdullah University of Science and Technology	11,789 ▲	4,030 ▲	2.00	161,655	13.7
13.  Sidra Medical and Research Center	753 ▲	265 ▲	1.97	9,397	12.5
14.  Ministry of National Guard – Health Affairs	1,856 ▲	2,030 ▲	1.94	22,022	11.9
15.  Aspire Academy	204 ▼	64 ▲	1.82	2,691	13.2
16.  NYU Abu Dhabi	2,361 ▲	894 ▲	1.75	19,412	8.2
17.  Alfaisal University	3,601 ▲	3,097 ▲	1.75	36,829	10.2
18.  Qatar Science & Technology Park	206 ▼	92 ▲	1.69	1,720	8.3
19.  Kuwait Institute for Scientific Research	810 ▲	630 ▲	1.57	5,682	7.0
20.  Qatar University	7,547 ▲	2,523 ▲	1.55	54,065	7.2

(SciVal 2013-2018)

GCC Research Performance

Performance indicators

Outputs in Top Citation Percentiles ⚙️

+ Add to Reporting

Publications in top 10% most cited worldwide

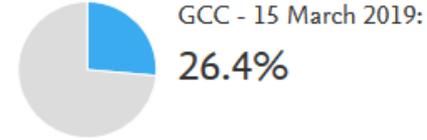


> Analyze in more detail

Publications in Top Journal Percentiles ⚙️

+ Add to Reporting

Publications in top 10% journals by CiteScore Percentile

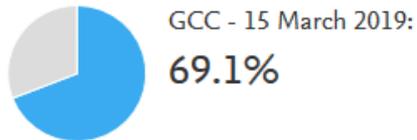


> Analyze in more detail

International Collaboration ⚙️

+ Add to Reporting

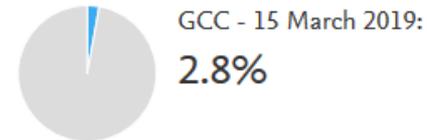
Publications co-authored with Institutions in other countries



Academic-Corporate Collaboration ⚙️

+ Add to Reporting

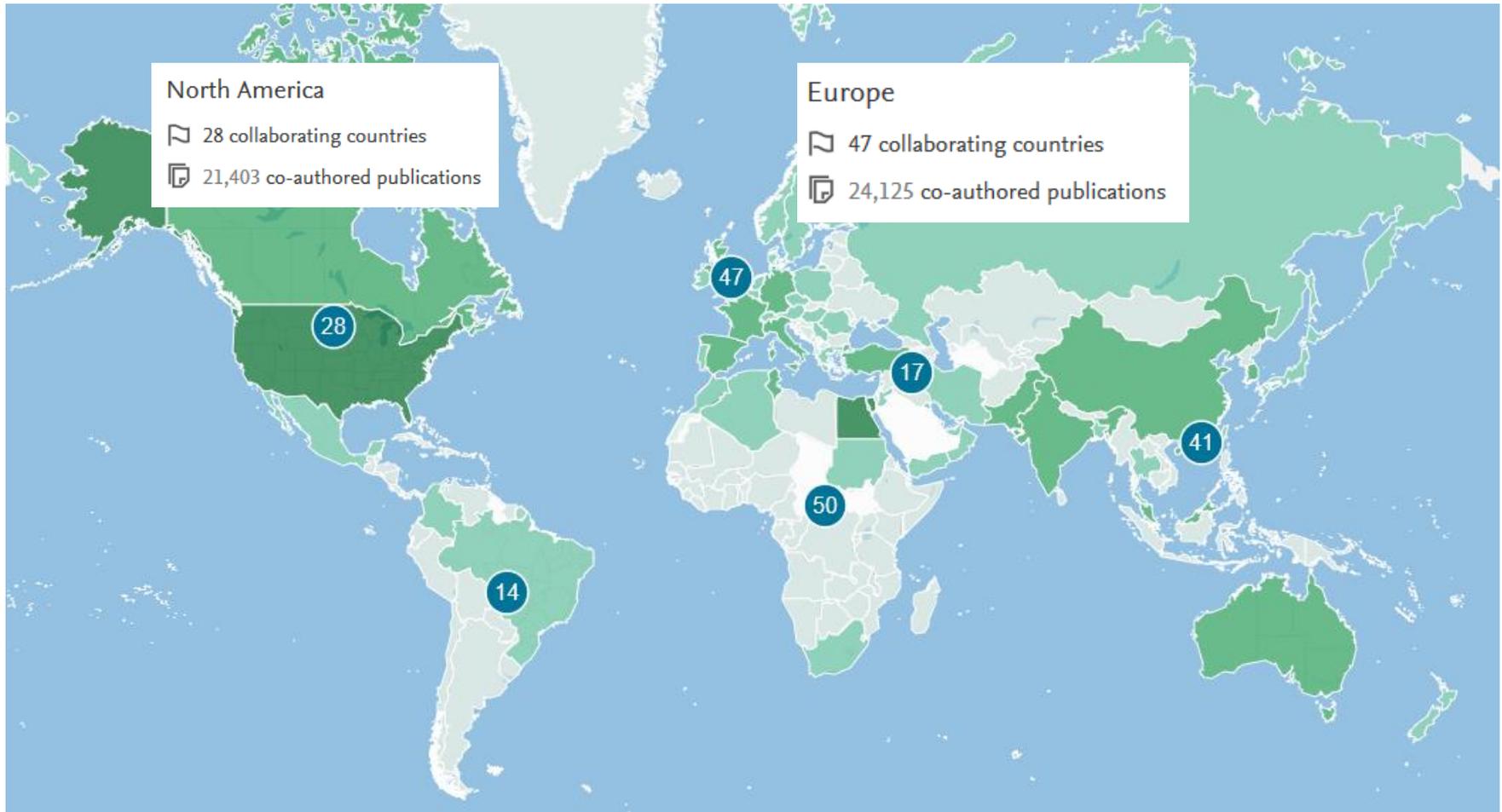
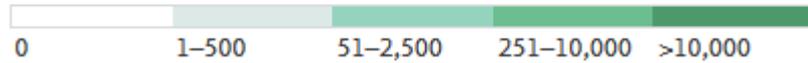
Publications with both academic and corporate affiliations



(SciVal 2013-2018)

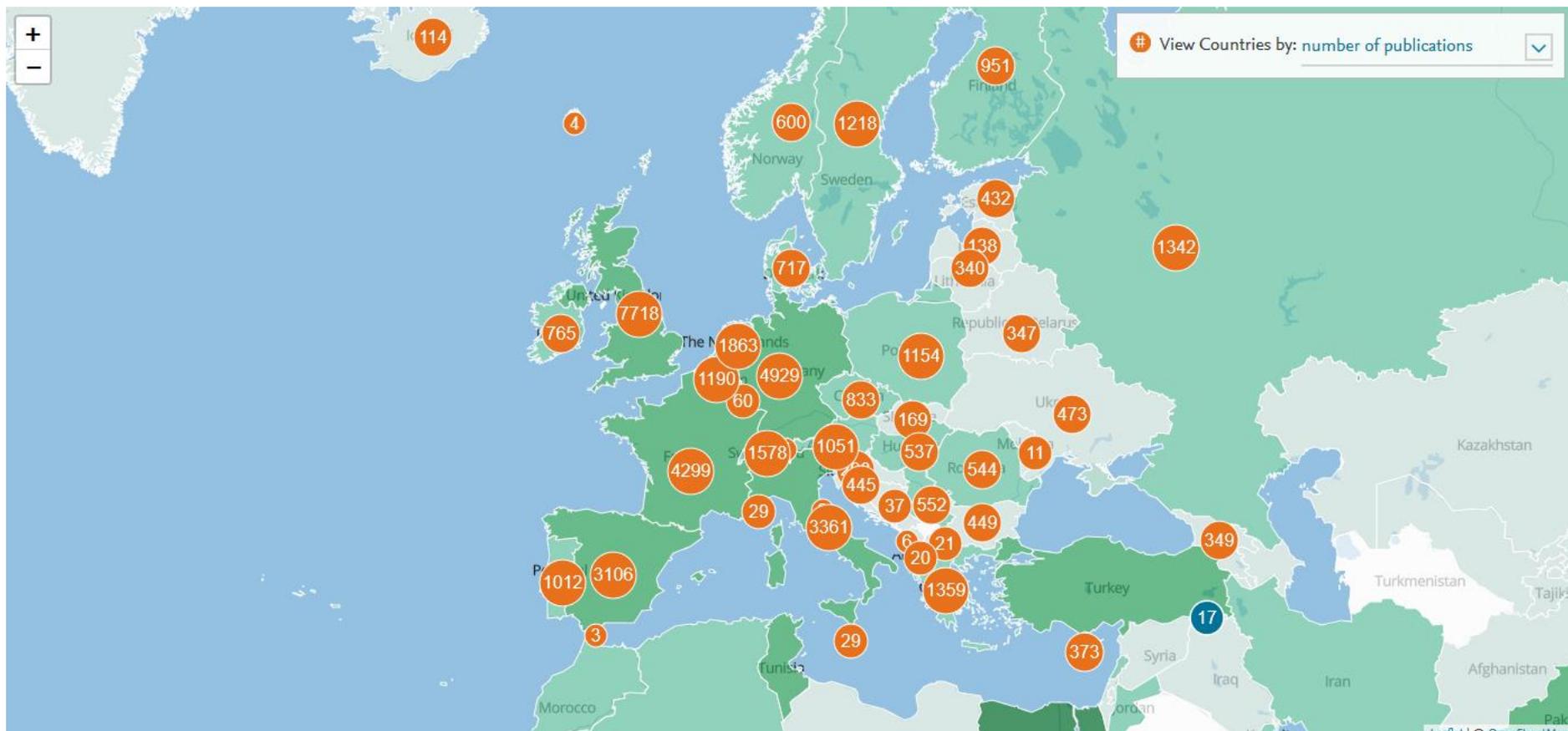
GCC Scientific Cooperation with the World

Co-authored publications per country/region:



(SciVal 2013-2018)

GCC Scientific Cooperation with Europe



(SciVal 2013-2018)

Knowledge production & Innovation: the Global Innovation Index

Region group rankings (top 3)

Northern America

USA
Canada

1

South East Asia, East Asia, and Oceania

Singapore
Republic of Korea
Japan

3

Europe

Switzerland
Netherlands
Sweden

2

Central and Southern Asia

India
Iran
Kazakhstan

6

4

7

Latin America and the Caribbean

Chile
Costa Rica
Mexico

5

Sub Saharan Africa

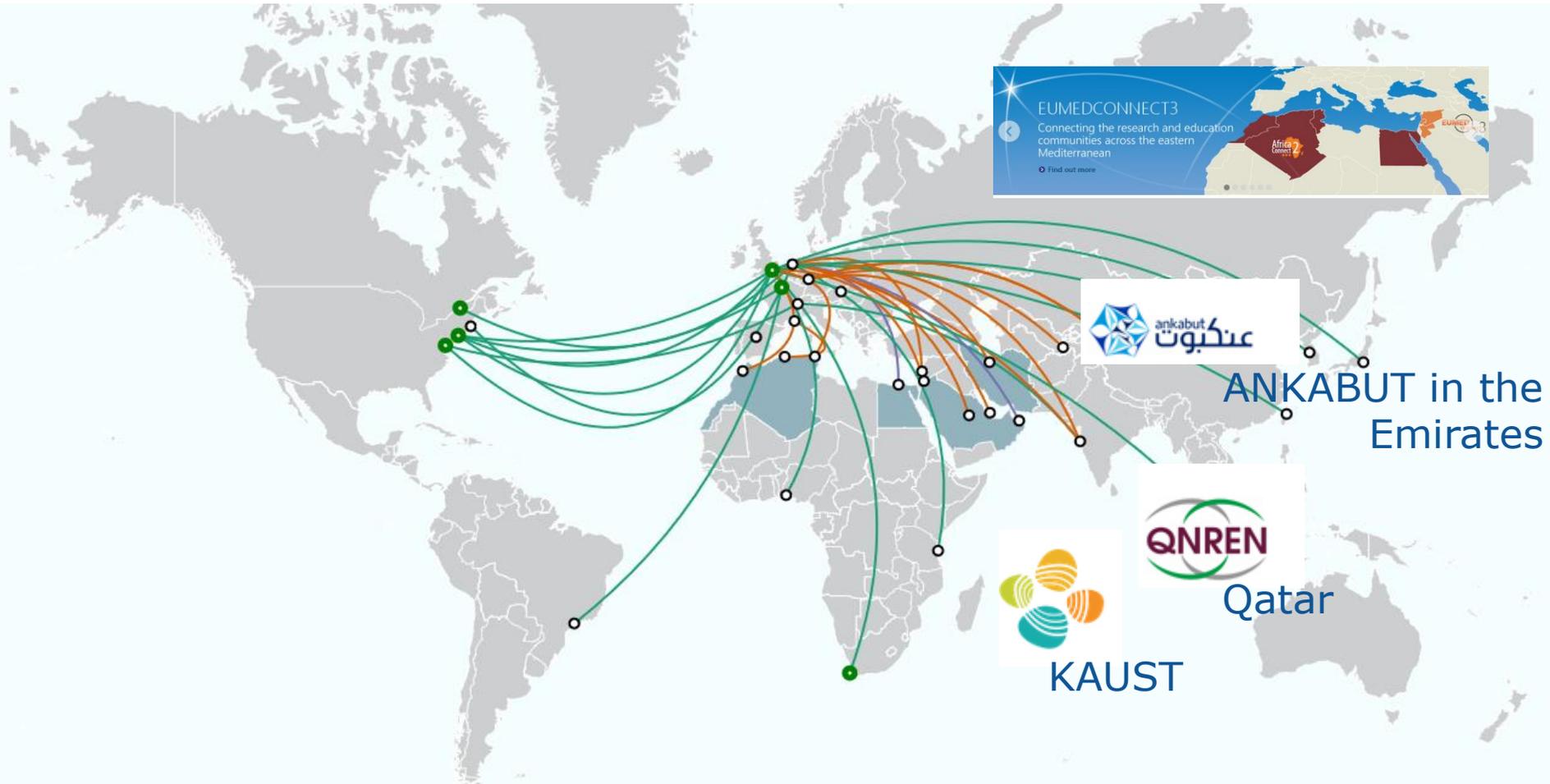
South Africa
Mauritius
Kenya

Northern Africa and Western Asia

Israel
Cyprus
UAE

 **GII 2018**

Framework Conditions for Research Cooperation: e.g. High connectivity - GEANT



Participation in EU Framework Programmes beyond the monetary value and does impact people wellbeing

Research benefits

- Involving and training the best
- Producing knowledge and generating scientific breakthroughs
- Strengthening research infrastructures
- Creating Scientific Collaboration Networks

Innovation benefits

- Economic impact
- Produces IPR, Innovation, and Competitiveness
- Supports, networks and funds research and innovation by business and SMEs
- Generates jobs, growth and investments
- Ease Trade relationships!!

Research and Innovation Energy research priorities

1. Deliver on the Paris Agreement through Mission Innovation (MI) commitments
2. Strengthen Euratom International Dimension

International cooperation (INCO) in Horizon 2020 energy related calls is good:

- At least one non EU/AC participant
- Targeted actions: Biofuels in LA, Solar Power with GCC Countries
- Renewables plug and plays off-grid solutions in Africa
- Hydropower in Central Asia

DG Research and Innovation Energy research priorities

MI is the umbrella for INCO in the area of clean energy

Horizon 2020 calls (e.g.):

- Developing the next generation of renewable energy technologies
- Converting Sunlight to storable chemical energy
- Demonstration of plug and play solutions for renewable off-grid electricity
- Research on advanced tools and technological development
- Low carbon industrial production using CCUS

GCC – EU Research Cooperation Opportunity in the Field of Energy

HORIZON 2020 – ‘Energy’ Work Programme

Topic:

‘LC-SC3-RES-20-2020: Efficient combination of Concentrated Solar Power (CSP) and desalination (with particular focus on the GCC)’

Main considerations

- Significant potential for CSP deployment in the GCC region
- Recent analyses show that desalination processes driven by thermal energy (such as the energy from a CSP plant) can be more suitable for the salinity conditions in the GCC region (vis-à-vis mainstream reverse osmosis)



Main aspects of RES-20-2020

- The projects are expected to reach TRL 6
- Topic encourages participation of one or more organizations from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates

Key information

- EU Contribution: **between Euro 6 and 10 million**
- Publication: **7 May 2020**
- Deadline for proposals' submission: **27 August 2020**

Impact

- Substantial reduction of CO2 emissions from desalination
- Strengthened international cooperation and regional cooperation
- Synergies with other international/national initiatives addressing the crucial nexus between energy and water systems
- Improve sustainability and costs reductions
- Support integrated approaches and foster evidence based solutions for future policy-making

Regional cooperation mechanisms

- Networking and matchmaking:
 - EU Delegations in KSA and UAE, and soon in Kuwait (2019)
 - EU-GCC Clean Energy Network
 - EU-GCC Dialogue on Economic Diversification

Incentives to support researcher communities' cooperation under Horizon 2020

- Co-funding in place: Kuwait and Qatar
- Co-funding future discussions: UAE and Oman
- Co-ordinated mechanisms: Qatar
- Others open for discussion?

Looking at the Future

2021-2027



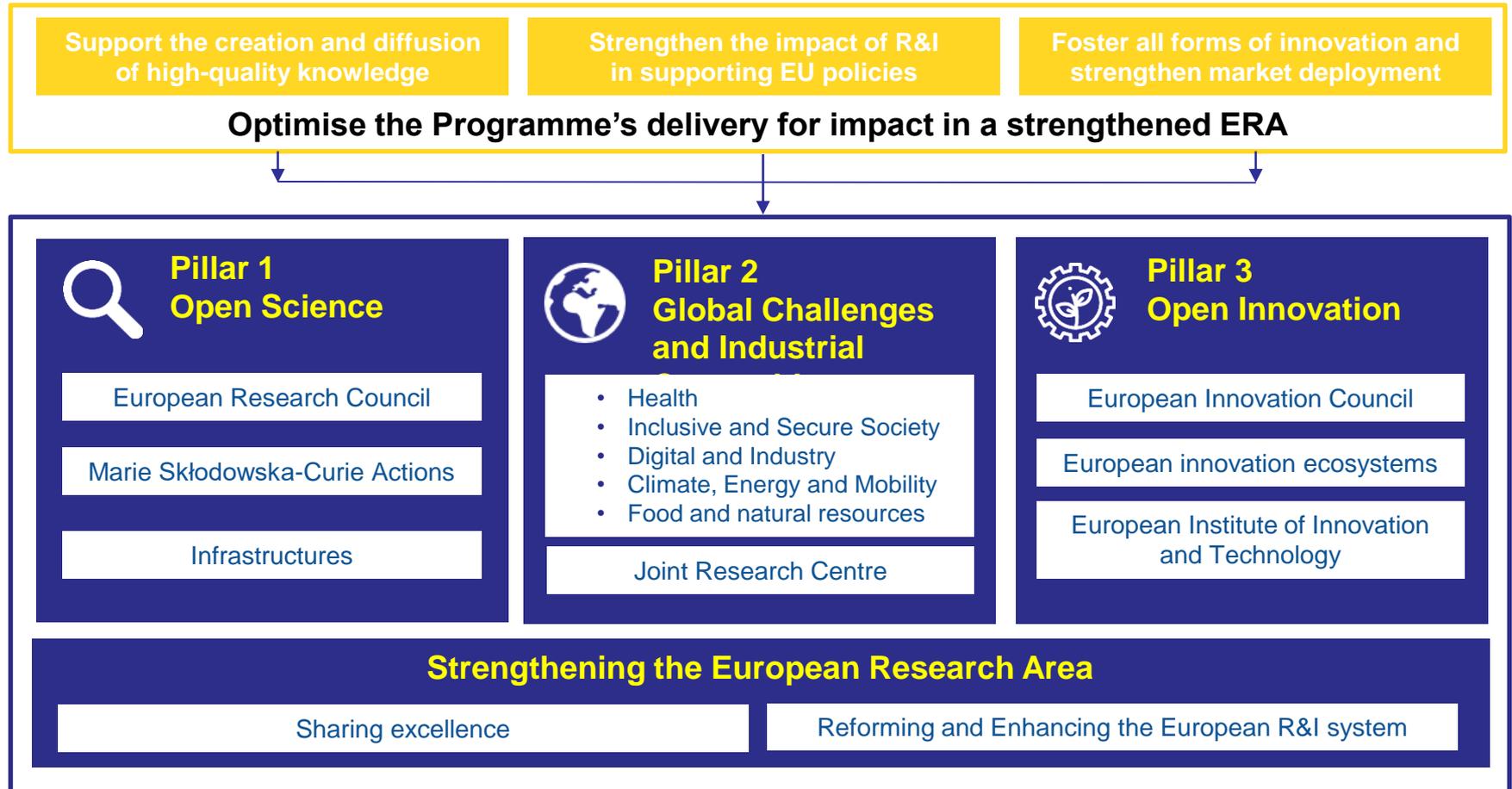
Horizon Europe – changing and evolving proposal

HE is the Commission proposal for a research and innovation funding programme for seven years (2021-2027) – Euro 100 Bn

-  to strengthen the EU's scientific and technological bases
-  to boost Europe's innovation capacity, competitiveness and jobs
-  to deliver on citizens' priorities and sustain EU socio-economic model and values

Horizon Europe

Specific objectives of the Programme



Key Novelties

[See Impact Assessment]





International Cooperation

International Cooperation

Will ensure effective tackling of global societal challenges; access to the world's best talents, expertise and resources; enhanced supply and demand of innovative solutions

Extended openness to association

- Third countries with good capacity in science, technology and innovation
- Taking into account objective of driving economic growth in Europe through innovation
- General opening for international participation
- Intensified targeted actions (flagship initiatives, joint calls, etc.)



International Cooperation

International Cooperation

Article 12 of the regulation sets 4 categories for openness to the world

1. EFTA (Iceland, Liechtenstein, Norway and Switzerland), and EEA Countries (EU + EFTA – Switzerland) – Extension of EU single market (Switzerland is considered a third country)
2. Acceding countries (last one was Croatia), candidate countries (Albania, the Republic of North Macedonia, Montenegro, Serbia and Turkey) and potential candidates (Bosnia and Herzegovina and Kosovo)
3. Countries covered by the European Neighbourhood Policy (MENA Algeria, Morocco, Egypt, Israel, Jordan, Lebanon, Libya, State of Palestine, Syria, Tunisia, and EaP Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine).
4. Third countries BUT criteria are in place



International Cooperation

International Cooperation

Article 12 of the regulation sets 4 categories for openness to the world

Third countries openness criteria:

- Good science, technology and innovation capacity
- Rules-based open market economy (IPR and democratic institutions)
- Promotion of policies for economic and social wellbeing of citizens

Umbrella agreement covering participation to Union programmes, provided:

- Fair balance contribution and benefits
- Conditions for participation in the programmes (including financial contribution calculation to individual programme and admin costs)
- No decisional power on the programme
- Rights of the Union safeguarded for sound financial mtg and protection of EU financial interests



How to contribute to the prioritisation?

Get involved

1. June 2019 wider consultation open to all
2. European Research and Innovation Days (24-26 September 2019)
3. EXPO2020 Dubai EU events

Follow us and keep up to date via

[@Moedas](#) [@EUScienceInnov](#) [@EU_H2020](#) [@HorizonMagEU](#)

<https://www.facebook.com/EUScienceInnov/>

<https://www.facebook.com/cmoedas/>

<http://ec.europa.eu/horizon-europe>

<http://ec.europa.eu/research/eic>

http://ec.europa.eu/budget/mff/index_en.cfm





Thank you!

[#HorizonEU](#)

<http://ec.europa.eu/horizon-europe>

luca.polizzi@ec.europa.eu