Policy brief
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SWITCH-ON
Opening Europe to the world to achieve sustainability

SWITCH-ON explores and exploits the substantial and untapped potential of open data to improve water management. The innovative information products and services created in the project can lead to more efficient use of natural resources and facilitate environmental protection. This policy brief illustrates how SWITCH-ON supports globally-connected science, digital innovation, and the use of open data to help citizens, governments, and businesses in Europe and across the globe move towards a sustainable future.

SWITCH-ON: driving innovation to achieve the Sustainable Development Goals

By adopting the 2030 Agenda for Sustainable Development in 2015, the UN member countries set target for a socially, environmentally, and economically sustainable world by 2030. At the heart of this Agenda are the 17 **Sustainable Development Goals** (SDGs), which aim to eradicate poverty, hunger, injustice and inequality, whilst promoting economic growth, peace, and environmental sustainability.

Many of the EU's existing domestic policies are already well aligned with the SDGs. This is particularly true of the EU's environmental policies (including the Water Framework, the Marine Strategy Framework, the Birds and the Habitats Directives), but also extends to headline economic policies such as the Europe 2020 growth strategy, which targets climate and energy sustainability alongside inclusive job creation and poverty reduction. The region is also committed to supporting the rest of the world meet these targets, and has identified global collaboration in science and innovation as a practical way of strengthening existing ties and building new bridges to achieve this purpose.

The European research project SWITCH-ON has managed to demonstrate this link between Open Science[1], Open Innovation[2] and environmental sustainability by driving new forms of collaboration in hydrological research and producing innovative environmental management/awareness products and services. Indeed, eleven different experiments have been carried out using the SWITCH-ON **Virtual Water Science Laboratory** and five of the **fourteen environmental products and services** that received support on their road to market[3] have already found paying customers. This has increased the evidence base on how collaboration across nations and disciplines has the potential to drive business opportunities for new products and services that tackle global challenges.

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[1] SWITCH-ON's Virtual Water Science Laboratory, a collaborative online experiment platform and open data catalogue, is explored in Policy Brief No. 2, which also describes SWITCH-ON's Open Science approach.

[2] SWITCH-ON's agile and collaborative approach to research and product development are detailed in Policy Brief No. 3, which also explores SWITCH-ON's experience with Open Innovation.

[3] Using the Market Analysis Framework described in Policy Brief No. 1, SWITCH-ON provided individual support to innovators on creating user-centric products and services based on repurposed open data.

SWITCH-ON products and services support sustainable and productive agriculture, especially through irrigation support, minimising drought impact, and providing information on agricultural nitrogen runoff.

2 ZERO HUNGER

SWITCH-ON products and services provide information on reducing pollution, efficiently using water, integrating management and protecting water ecosystems.

6 CLEAN WATER AND SANITATION

SWITCH-ON products and services can help reduce the adverse environmental impact of cities, integrate resource planning, and reduce the risk and impact of flooding and drought in urban centers.

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

SWITCH-ON products and services support sustainable management of natural resources and hazardous waste, thereby increasing knowledge and awareness to enable lifestyles in harmony with nature.

From Europe to the world: Supporting achievement of the SDGs through implementation of EU environmental policy

As an FP7 research project funded by the EU, SWITCH-ON has addressed issues that are key in the European policy context, including hydrological science, digital infrastructure and economic competitiveness. However, the reach of the project's outputs is extending beyond the borders of the EU. Water flows into every corner of the globe's society and economy, and water has a correspondingly central role in the SDGs. Given SWITCH-ON's hydrological science focus, the project's outcomes support targets 1, 2, 6, 7, 9, 11, 12 and 13. SWITCH-ON products and services are also closely aligned to the SDGs. As shown in the table below, through their addressing of EU environmental policy objectives, the specific products and services also touch upon a wide range of SDGs.

Table: The SWITCH-ON product and services and their links to EU policy and the Sustainable Development Goals

SWITCH-ON Product/Service	Description	EU policy addressed	SDGs addressed
FFRM – Flash Flood Risk Map	Identifies flash flood prone areas and associated potential damages	Floods Directive, INSPIRE Directive	1 NO POVERTY, 11 SUSTAINABLE CITIES AND COMMUNITIES, 13 CLIMATE ACTION
Riverinfo.eu	Visualises and delivers river flow data for any point in Europe	Water Framework Directive	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Forecast Broker	Stores operational data in a structured way to allow for water flow forecasting	Water Framework Directive	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

(FLOODS)

Category	Tool	Description	Directives	SDGs
DROUGHTS	**SHIFT**	Forecasts irrigation water availability for irrigation and demand by crops	Water Framework Directive, EU Climate Change Adaptation Strategy	2 ZERO HUNGER, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	APRIL	Optimises regional irrigation supply by providing seasonal discharge forecasts	Water Framework Directive	2 ZERO HUNGER, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
WATER QUALITY	**wPRISMA**	Online map of surface water quality and pollutants	Environmental Quality Standards Directive, INSPIRE Directive, Marine Strategy Framework Directive	6 CLEAN WATER AND SANITATION, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	wPOLIS	Interactive map tool to calculate Emission Limit Values of water pollutants to meet environmental targets	Water Framework Directive, Marine Strategy Framework Directive	6 CLEAN WATER AND SANITATION, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	DIW ADIS	Maps detailed spatial and temporal information on water temperature	Water Framework Directive	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
	NUTPRINT	Visualizes the source and route of nutrients in European coastal waters from anywhere within Europe	Nitrates Directive, Marine Strategy Framework Directive	6 CLEAN WATER AND SANITATION, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	Eutrophication.eu	Visualizes nutrient loads in European water bodies	Nitrates Directive, Marine Strategy Framework Directive	6 CLEAN WATER AND SANITATION, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
CHANGE	**UNCOVER**	Integrated catchment management tool for analyzing tradeoffs and risk	Water Framework Directive , Floods Directive	1 NO POVERTY, 11 SUSTAINABLE CITIES AND COMMUNITIES, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, 13 CLIMATE ACTION
	HyCAW	Shows changes in temporal and total water availability due to hydrologic and climate change	Water Framework Directive, Europe 2020 Growth Strategy	6 CLEAN WATER AND SANITATION, 13 CLIMATE ACTION
CUSTOMISED	**SafeTrip**	Informs travellers and tourists about weather and natural hazards during their trip	EU Climate Change Adaptation Strategy	11 SUSTAINABLE CITIES AND COMMUNITIES, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	SHPA	Optimises site selection for small hydropower plants	Water Framework Directive, EU CLimate and Energy Package	7 AFFORDABLE AND CLEAN ENERGY

SWITCH-ON: Opening the EU to the world

The SWITCH-ON project's products and services demonstrate how collaboration in science and innovation can deliver economic and social benefits and link Europe to the world. Through SWITCH-ON's collaborative experiment platform, the Virtual Water Science Laboratory, the SWITCH-ON partners cultivated international research partnerships and cooperation on hydrological research. The resulting science and innovation ultimately generated business opportunities in Europe and in new and emerging markets – whilst at the same time delivering social benefits in the form of improved environmental management and citizen engagement. In this way, SWITCH-ON mirrored and supported Europe's interconnected and international response to the Sustainable Development Goals. By furthering science, advancing international cooperation, and developing business opportunities, SWITCH-ON increased EU links to the world, supported EU economic outcomes, and illustrated how international cooperation, improved environment, and economic growth can go hand in hand for the good of the world.

Further information

SWITCH-ON Website | **www.water-switch-on.eu**

This policy brief also draws on the following reports:

European Commission (2016) Open innovation, open science, open to the world. Available: **https://ec.europa.eu/research/openvision/index.cfm**

European Commission (2016) Proposal for a new European Consensus on Development. Available: **https://ec.europa.eu/europeaid/sites/devco/files/communication-proposal-new-consensus-development-20161122_en.pdf**

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