

NetworkNature
Knowledge Brief 1



Network
Nature

Taking nature- based solutions up the policy ladder:

**from research
to policy action**

Objectives

This Knowledge Brief produced by NetworkNature aims to disentangle the complexities associated with the integration of research and policy with regards to nature-based solutions (NBS) implementation and mainstreaming. The brief provides an overview of the NBS knowledge gaps resulting from an analysis by NetworkNature of a large number of research publications, an online consultation and strategic dialogues with key stakeholders. This can support policymakers in better understanding the research needs which can strengthen the implementation of NBS.

In preparation of this knowledge brief, interviews with policy makers and policy think tanks have been a major contributing source. The interviews reinforced key barriers to policy implementation for NBS and created better insight in priorities for research on NBS.

The knowledge brief concludes with a list of recommendation for policymakers to address the identified gaps and barriers.

Who should read this?

In order to reflect the full potential of NBS from a societal, environmental and economic perspective, this knowledge brief is intended for policymakers who are working on areas linked to nature-based solutions, namely environmental, climate and agricultural policies, as well as health, finance and economic development.

State and progress of NBS policy integration at European level

In recent years, the integration of NBS in the EU policy framework has witnessed significant advancements. Such integration has contributed to placing NBS at the forefront of climate change adaptation strategies as well as a significant contributor to mitigation efforts, aside from providing co-benefits for human health and wellbeing and ensuring the protection of biodiversity across landscapes. As a core element of the European Green Deal - and in particular the EU Biodiversity Strategy, the EU Strategy on Adaptation to Climate Change, and the Farm-to-Fork Strategy - NBS have found their way into EU policy. Overall, NBS are either explicitly or implicitly (i.e. via use of other related terms¹) supported primarily by policies in the EU environmental and climate change legislative framework.

In the agricultural and rural development policy domain, certain provisions in the current Common Agricultural Policy (CAP), such as more diverse use of crops, agro-forestry, and minimum tillage, are considered supportive of NBS, even though not named as such. The new CAP is expected to take further steps towards achieving a green and sustainable system of agriculture in the EU, with additional provisions that can support NBS.

Further, the newly proposed [EU Nature Restoration Law](#) sets the scene to strengthen conservation and restoration efforts across Europe, by setting binding targets on pollinators, wetlands, rivers, forests, marine ecosystems, urban areas and peatlands. It represents the first continent-wide, comprehensive law of its kind. NBS are fundamental to restoring ecosystems to good condition and therefore ensure achievement of the set targets, while contributing to climate adaptation and mitigation. There appears to

be a general consensus among the policy and scientific community that the EU Nature Restoration Law can be of ground-breaking nature if fully implemented, as the binding targets are adopted and MS commit to the achievement of both EU biodiversity and climate change goals.

As cross-disciplinary solutions, NBS can realise their full potential only when the societal and economic

perspectives are taken into account, alongside the environmental domain. For this reason, further integration into related policies (e.g. economic development, health and finance) is crucial. The link to these policy areas may be less obvious and call for further research to clearly demonstrate the benefits and impacts of NBS (e.g. in terms of health benefits, job creation, business opportunities, etc.) and how they can contribute to their implementation.

Support and integration of NBS in EU policies²

EU policies, strategies and approaches	Level of NBS support	Type of integration
European Green Deal	Strong	Explicit
Biodiversity Strategy for 2030	Strong	Explicit
Bioeconomy Strategy	Medium	Explicit
Forest Strategy	Medium	Implicit
Green Infrastructure Strategy	Strong	Explicit
LULUCF Regulation	Medium	Implicit
Action Plan on the Sendai Framework	Strong	Explicit
Adaptation Strategy	Strong	Explicit
Common Agricultural Policy	Medium	Implicit
Farm-to-Fork Strategy	Medium	Explicit
Water Framework Directive	Medium	Implicit
Floods Directive	Strong	Implicit
Urban Agenda	Medium	Explicit

1 e.g. Ecosystem-based approaches, green & blue infrastructure, sustainable management, ecosystem-based management

2 Table based on [EEA, 2021](#)

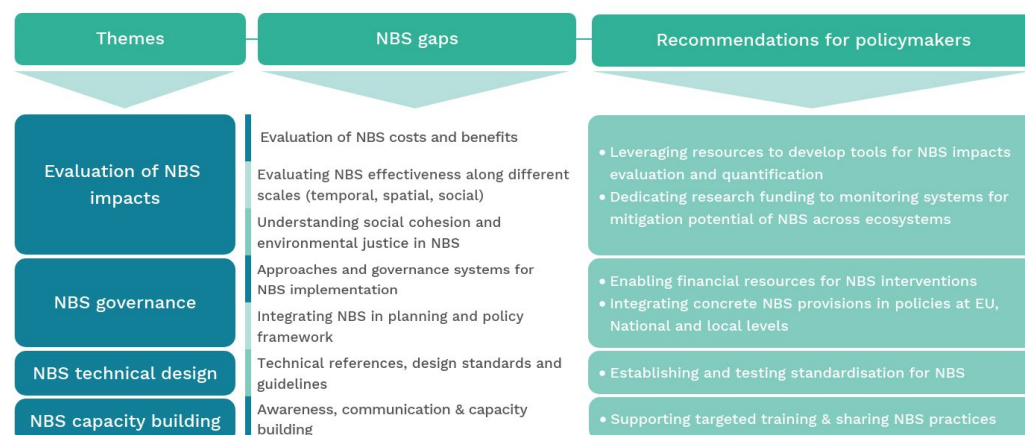
NBS knowledge gaps

In the context of the NetworkNature project, Biodiversa+ and IUCN analysed policy and practitioners' knowledge and knowledge-implementation needs for nature-based solutions³.

These gaps in relation to NBS were clustered into 7 main gap groups⁴, linked to four main themes: evaluation of NBS impacts, NBS governance, NBS technical design and NBS capacity building. The desk study, consultations and strategic dialogues carried out through NetworkNature have stressed the potential of addressing the identified gaps to contribute to better NBS implementation through policy support, integration and incentives.

The full list of knowledge gaps collected and analysed have been published on the NetworkNature website in the form of a [knowledge gap database for science, policy and practice](#).

Overview of NBS knowledge gaps for policy action



3 See [IUCN definition](#) and [EC definition](#)

4 grouping by ICLEI and IUCN

Barriers to NBS policy implementation

While the integration of NBS into EU policies is growing, and has certainly helped in putting NBS on the radar of decision-makers, until recently EU policies have offered limited direction for NBS implementation, especially due to their largely non-binding nature ([Davis et al., 2018](#)). More recent policy developments, such as the Biodiversity Strategy to 2030, the EU Adaptation Strategy, the European Climate Law and the EU Nature Restoration Law proposal, show hope for advancement in NBS implementation and ambition ([EEA, 2021](#)).

A number of important barriers to NBS policy implementation have been researched on and analysed by NetworkNature. These were reinforced by interviews carried out with policy makers and policy think tanks, contributing to a better understanding of the factors currently hindering the uptake of NBS and consequently providing insights into priorities for research.

The **use of multiple concepts** that fall under the nature-based solutions umbrella is found to be a source of confusion for both policymakers (especially at national level) and practitioners. The main risk associated with such confusion is the misuse of the term for actions that do not correspond to NBS. This is exacerbated by a **lack of standards, technical and operational skills, knowledge and financing** for NBS implementation, and may reduce the confidence of decision-makers as well as investors, undermining their support for NBS initiatives (learn more about the NBS Quality and Standards semester theme in NetworkNature [here](#)).

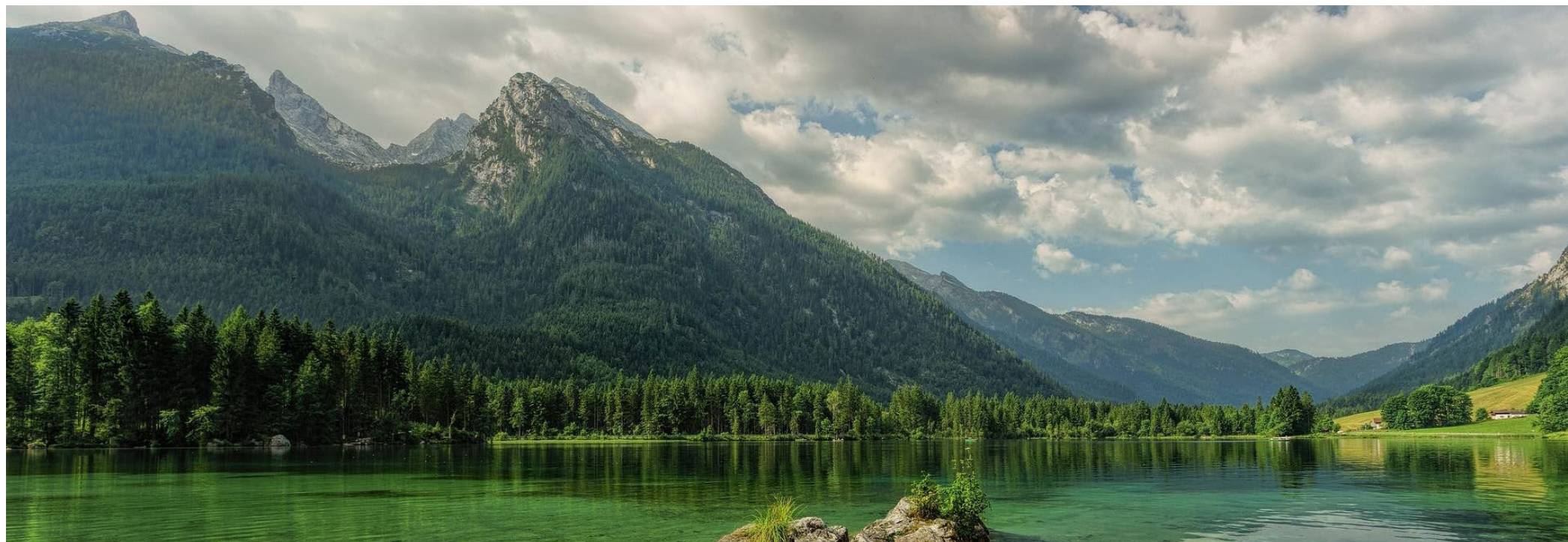
The multiple Horizon 2020 and ongoing Horizon Europe projects dedicated to NBS are significantly contributing to expanding the evidence base on NBS, on their benefits and impacts, and are proving particularly effective in setting examples of successful NBS implementation, which largely contributes to making the case for their wi iupscaling.

However, **estimating impacts, benefits and cost-effectiveness of NBS in quantitative terms** remains an important challenge. Uncertainty regarding the impacts – in terms of benefits, as well as costs – might make beneficiaries, from local authorities to land owners, farmers and foresters, hesitant to implement NBS. This is often the case with urban nature-based solutions applied in different countries and contexts (e.g. green infrastructure), for which a large qualitative evidence base is available (see [Urban Nature Atlas](#), and case studies in the [Oppla](#)

and [NetworkNature](#) platforms) for the associated benefits, while the quantification of economic, social and environmental benefits and costs remains limited, and varies across countries ([Biodiversity Information System for Europe, 2022](#)). The role and impacts of NBS are largely explored in the climate change adaptation domain which is often reflected in qualitative terms, while data on their mitigation potential and related quantifiable benefits remain difficult to obtain and assess, contributing to the current data gap.

An [IEEP study commissioned by WWF](#) has shown that restoring degraded terrestrial habitats across the EU could take up to 300 million tonnes of CO₂ equivalent out of the atmosphere each year. However, limitations and gaps have been highlighted in terms of **availability and quality of information on carbon storage and sequestration potential of different habitats**. This information is more broadly available for certain ecosystems, such as forests and wetlands, while it is limited for other ecosystems, especially coastal and marine ([IEEP, 2022](#)).

As an attempt to better guide the evaluation and assessment of NBS impacts, a [Handbook for practitioners on evaluating impacts of nature-based solutions](#) and related [summary for policymakers](#) was published, drawing on the research and experience of multiple H2020 NBS projects. It outlines approaches for NBS monitoring and impact evaluation, which is essential to better understand (and quantify) their benefits and trade-offs. It has a clear urban focus, leaving space for advancement of research for other ecosystem types.



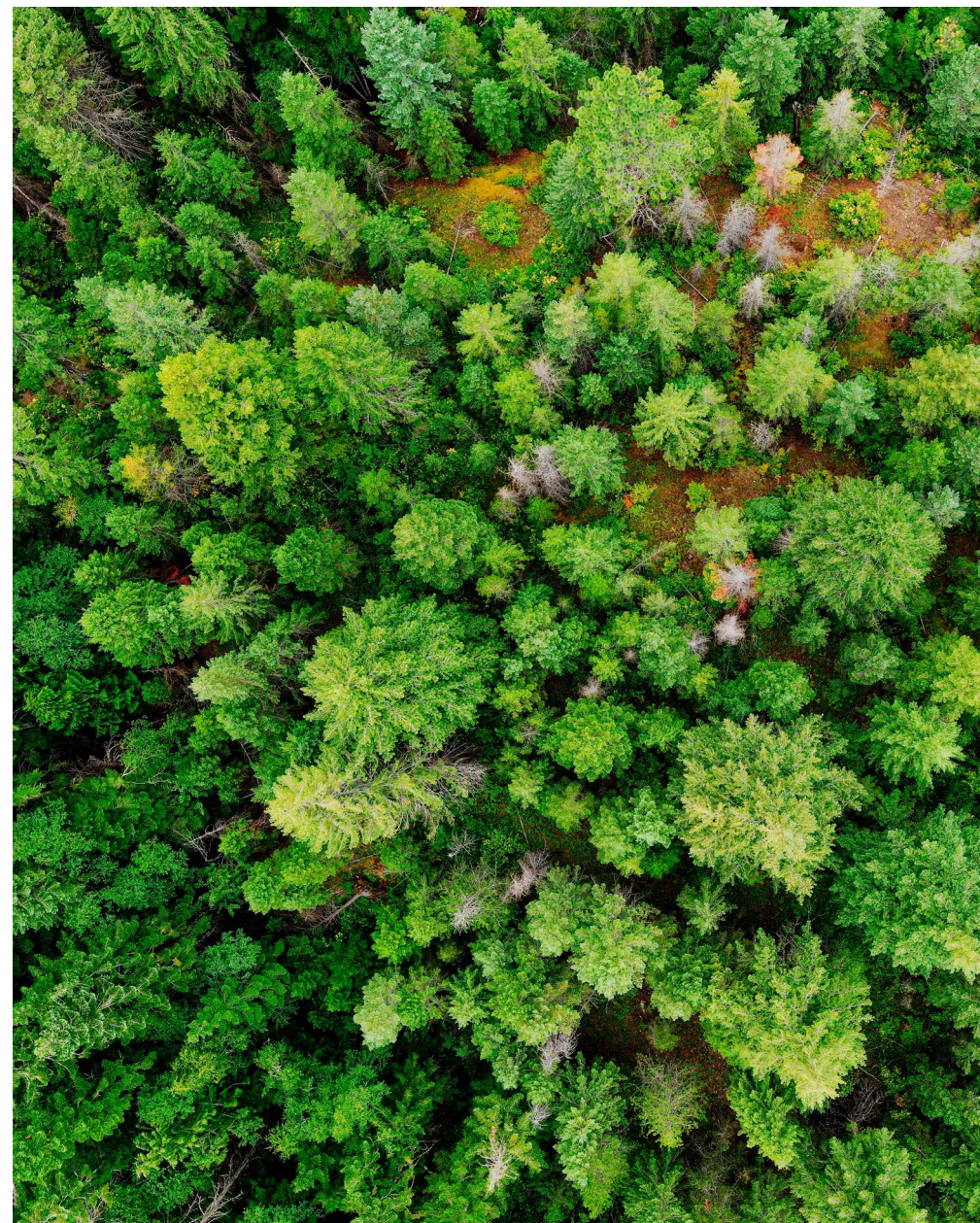
Beneficiaries are often unaware of the advantages of NBS practices, and a **failure to access such knowledge and shared experience** may contribute to considering NBS a non-viable option. Case studies and best practices of NBS implementation across contexts and ecosystems, highlighting the benefits, lessons learnt and transferability potential, are widely available and continuously growing, for instance through the [NetworkNature platform](#). Sharing such experiences is important to provide more evidence and demonstrate the delivery of NBS multifunctionality and co-benefits. However, such knowledge often fails to reach all relevant and influential stakeholders. For instance, landowners, farmers and foresters that operate in different circumstances (e.g. types of land, crops, climate) may not be aware of the different applications of NBS for their specific purposes and contexts. Similarly, cities and sub-national governments may lack the experience on how NBS can be further supported and incentivised in their policy and governance approaches. Efforts to make such experiences more widely available are already ongoing. For instance, the [INTERLACE Urban Governance Atlas](#), currently being developed within the Interlace project, provides an interactive online database

of good practice policy instruments to foster NBS in cities. An example of a relevant instrument shared through the platform are the [funding guidelines of the city of Chemnitz \(Germany\) for the granting of a subsidy for facade greening](#). This financial instrument can foster the installation of green facades in the urban area, which may provide an inspiration for other cities and sub-national governments aiming to increase urban greening.

Translating knowledge and science into practice remains challenging for both governments and the scientific community, who struggle to shift from evidence to practical applications ([Mendonça, et al. 2021](#)).

As regards benefits and co-benefits, these might accrue to different groups and therefore making the business case for NBS remains challenging.

Accessing funding sources for NBS is often identified as the main challenge for public authorities interested in NBS implementation. While public funding is often made available, it is still not sufficient to ensure implementation of NBS at scale. Private sector funding is more difficult to secure, especially considering that many NBS benefits and co-benefits are public goods.



Addressing the NBS gaps and barriers: Recommendations for policy-makers

The analysis of the barriers to NBS policy implementation and the research carried out to identify the main NBS knowledge gaps shed light on important opportunities to move the NBS agenda forward. In particular, policy-makers play an important role in enabling the conditions to overcome the issues currently preventing or slowing down NBS uptake and upscale.

NetworkNature aims to provide clear recommendations for policy-makers, taking into account the main challenges and barriers identified so far, to ensure a wider and successful uptake of NBS across different sectors, policy areas, and engaging multiple influential stakeholders.

1 Leveraging resources to develop tools to estimate impacts, benefits and cost-effectiveness of NBS in quantitative terms across ecosystems

Developing and improving tools for policymakers (e.g. handbooks and guidelines) to assess and quantify NBS impacts can help scale up the implementation of NBS. While progress towards such a goal has been achieved to some extent, more resources are to be dedicated to this effort, and to ensure these tools cover all ecosystem types.

2 Dedicating research funding to increasing knowledge and monitoring systems of mitigation potential of NBS across ecosystem types

Improved analysis and quantification of the mitigation potential of NBS interventions across all ecosystem types are needed to strengthen the role of such practices in current policies and strategies and ensure policy implementation.

For instance, the recently proposed EU Nature Restoration Law includes legally binding targets for different ecosystems, and will require commitments from all EU Member States. Improving monitoring and data availability are required to persuade MS that the required restoration actions are beneficial to them, and that the associated long-term benefits outweigh the immediate and upfront costs.

3 Supporting targeted training and sharing of NBS best practices with key stakeholders

Sharing success stories and practical experiences of NBS implementation in different circumstances can help increase the inclusion of NBS into national plans, policies and strategies, as well as make NBS a viable option for land owners, farmers and foresters, providing evidence on what types of NBS can work in specific contexts (e.g. tree species, crop types, land use patterns).

More effective approaches to cross-sectoral and interdisciplinary knowledge sharing, such as targeted training, should be supported by decision-makers and facilitated by relevant networks, sub-national authorities and associations (e.g. farmers associations, city consortia) to engage the stakeholders that are reluctant to shift to NBS practices. In particular, scientific insights about NBS need to be made accessible for practitioners in order to show NBS as a viable option. Practical, on the ground knowledge and experience is required to make beneficiaries confident to implement NBS practices.

Policies play a crucial role in translating knowledge on NBS into practice, by providing clear and targeted messages and encouraging action. This is to be coupled with effective communication of successful NBS results.

4 Enabling financing resources for NBS interventions

Expanding the knowledge on the multidimensional benefits of NBS is crucial to incentivise public sector investment in NBS ([UNEP, 2021](#)), while private sector investment remains less responsive to such evidence and knowledge.

In addition to ensuring adequate public funding is made available to NBS, this situation calls for more research on innovative financing models and for the development of a systemic review of blended (public-private) funding approaches, in order to strengthen the business and investment case for nature and increase provisioning of funds.

Further, policy instruments (e.g. regulatory interventions) should be explored to facilitate and incentivise private investment in NBS.

5 Establishing and testing standardisation for NBS

Standardisation plays a key role in ensuring the trust, quality and coherence of NBS applications, but warrants the support of policy-makers, as well as those actors applying the standards, including businesses, users and financing partners.

Standards can address cross-sectoral solutions by providing common tools and approaches to key actors, and significantly contributing to strengthening the emerging NBS market. The [IUCN Global NBS Standard](#) and the [European CEN/CENELEC standardisation activities \(ISO\)](#) provide crucial entry points for standards to support the uptake of NBS across sectors while achieving global climate objectives.

Efforts to understand how these activities can be integrated into NBS standardisation procedures are needed to create impact and be applied to and tested in different sectors, and across ecosystems.

In the context of habitats restoration, more standardised methods are also needed to assess the condition of habitats beyond those covered by the

by the Nature Directives, so as to be able to determine the baseline, identify which ones need to be restored, and assess the improvement that restoration brings.

6 Integrating concrete NBS provisions in policies at EU, national and local level

A clear overview of how NBS can contribute to achieve future policy goals, across different policy areas, is required to foster further integration and mainstreaming of NBS.

For instance, in the agricultural context, the implementation of the CAP largely depends on EU Member States' discretion. So far, agroforestry appears widely overlooked in the process of CAP strategic plans ([Beste, 2021](#)), and for the 2014-2021 period only 6 Member States⁵ have chosen to use their funding to support peatland restoration⁶, showing that, despite the policy being considered to support NBS to some extent (medium level), implementation of NBS is still lagging behind. MS should better integrate NBS provisions in their plans, in order to ensure they are fit for purpose to achieve the European Green Deal.

At the local level, mainstreaming NBS in strategies and planning requires the support of decision-makers across departments and with the collaboration of local stakeholders. National governments play a crucial role in setting the right conditions and regulatory frameworks to support such mainstreaming at the sub-national level, e.g. by introducing national NBS strategies to foster their implementation locally. Better alignment between EU and national-level policies supporting NBS is required to ensure support for NBS mainstreaming at the local level.

5 BE, DE, DK, IT, HU and SE

6 Information on Rural Development Programmes by country can be accessed [here](#) and in the National Governments websites.

