POLICY BUSINESS FORUM

NBS Private sector upscaling and capacity building

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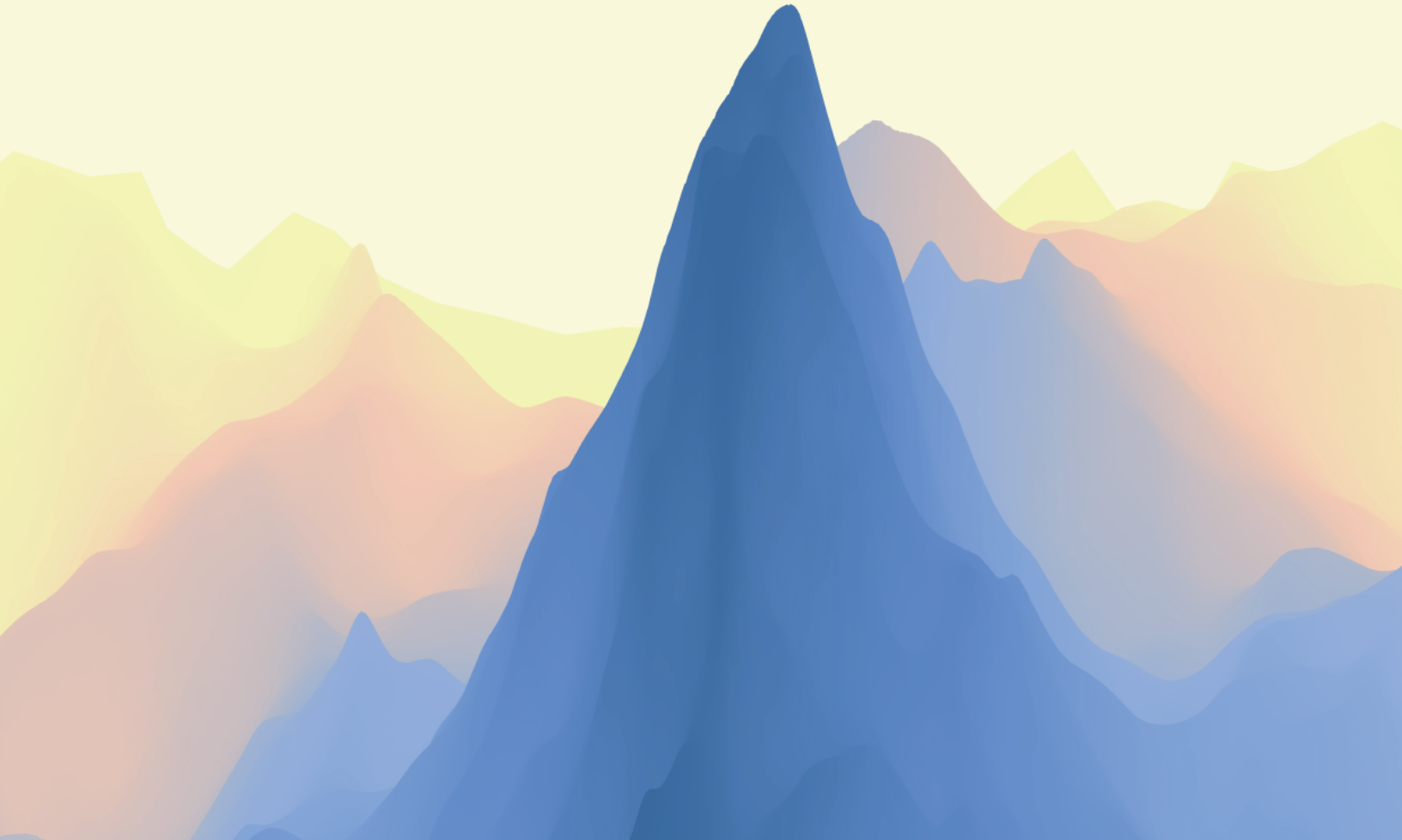

NBS Private sector upscaling and capacity building

Synthesis of the third Nature-based Solutions Policy Business Forum workshop

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The NBS Policy Business Forum

The PHUSICOS Policy Business Forum (PBF) engages Nature-based Solutions (NBS) experts and knowledgeable stakeholders at the international, European and national scales. The main aim of the PBF is to explore innovative ways to strengthen the science-policy-business nexus in order to exploit opportunities and overcome barriers in NBS implementation in the disaster risk reduction (DRR) sector. Participants in the forum deliberate on how to improve the use of existing policies/instruments/initiatives to better enable the adoption of NBS, and to propose new ideas for governance and policy structures that can lead to greater success with respect to the acceptance and implementation of NBS. PBF members are involved in the forum deliberations in various ways, including interviews, surveys, web meetings/e-consultations, and workshops. The forum is organised within the framework of the European Union (EU) funded project PHUSICOS Work Package 5 on "Governance innovation for the design and implementation of NBS". Differing from the previous two PHUSICOS workshops, this event was held in collaboration with NetworkNature, a project also funded by the EU and functioning as a resource for the NBSs community in creating opportunities for local, regional and international cooperation to maximize the impact and spread of NBS.

Rationale and objectives of the third PBF workshop

As potential providers of solutions to a broad range of societal challenges, NBS have in recent years become increasingly recognized as powerful instruments to be adopted within climate change adaptation and mitigation strategies. The use of NBS – here defined as actions taken "to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits." (UNEA, 2022) - have been included into the plans of at least 66% of Paris Agreement signatory countries to limit the effects of climate change. This wide range of locally adapted and resource-efficient systemic actions benefit biodiversity and support the delivery of an array of ecosystem services that, inter alia, assist the building of climate change resilient societies and the enhancement or recovery of natural processes in cities, landscapes and seascapes. However, to fully realize their potential and serve as an example for replication and scalability, it is paramount that the various actors involved in the NBS development processes have the necessary resources and capabilities at the right time.

The public sector has to date been characterized as the main NBS funder (UNEP, 2022), with a lesser participation of the private sector which, in some cases (though gradually increasing), also privileges their implementation if costs outweigh investment expenditures. Yet private businesses play a central role in other critical aspects of these solutions. Following a bidding process initiated by the project initiators or owners, a wide variety of private companies often provide their services in the role of contractors to support the various stages of NBS implementation, from the planning process, to the construction and

maintenance operations directly on the ground. Contractors comprise, e.g., consultancy and engineering firms, construction companies, landscape architects, material suppliers, and data collection firms, which employ a wealth of expertise, including, for instance, ecologists, hydrologists, foresters, computer scientists, gardeners, and many more. The expertise and know-how of contractors is therefore considered a necessary prerequisite for ensuring the quality and success of NBS. Moreover, insurance companies are increasingly interested in supporting NBS by de-risking private (and public) investments and providing cover to enable NBS.

The third and last PBF workshop of PHUSICOS had the ambition to better understand how to develop the capacities of private entrepreneurs closely involved in the implementation of NBS. It addressed topics such as the latent opportunities of firms offering NBS services across Europe to upscale their involvement in these strategies, which would entail, among other elements, greater collaboration between private, public and non-governmental entities, clear regulations and increased financial incentives (Conti et al., 2019). The forum also intended to further and deepen knowledge on the barriers and opportunities contractors experience for expanding their knowledge, the potential synergies between different types of expertise, and more. It welcomed 5 keynote speakers who provided an overview on: i) the success factors, enablers and barriers of nature-based enterprises (NBE) (Esmee Kooijman, Trinity College Dublin, Ireland); ii) means to ensure high quality NBS (Dorsa Sheikholeslami, International Union for the Conservation of Nature); iii) the experience of Geneva river renaturation projects (Nathalie Nyssen, Firmenich Geneva); iv) NBS as a landscape and public space strategy (Annelies De Nijs, Agenceter; and v) the role of insurance to protect natural assets and enable more nature-based solutions (Elaine O'Brien, Swiss Re).

In addition, attendees had the opportunity to discuss strategies to build capacities for private sector upscaling and to de-risk the private sector participation in two thematic sessions, which were guided by the following questions:

- What NBE capacities are lacking (e.g., on the part of NBS design and construction) that could enable the upscaling of NBS? How can these capacities be built, and by whom? What are the priorities?
- What are the main existing policies, mechanisms and/or resources that could help overcome capacity gaps to support NBS upscaling?
- What are the main risks associated with the design, construction, operation and maintenance of NBS? Who or what institutions can be held responsible for such risks?
- In the event of failure of NBS to protect material assets and human lives (e.g., in DRR interventions), who can be held responsible or even liable? Have insurers played a role (or can they play a role) in de-risking NBS performance?
- What policies, guidelines and regulations have been (or should be) put in place to alleviate NBS failure concerns?

The workshop was attended by 36 participants (out of 75 registered) from various entities, including non-governmental organizations, universities, international organizations and the private sector. In a previous survey, participants indicated interest in the forum for reasons that included the exchange of best practices, knowledge expansion, establishment of new collaborations and networks with other participants, as well as learning about the issues faced by the private sector, challenges with respect to upscaling NBS, and possible implementation strategies.

Below we present a synthesis of the workshop results. First, we describe three key strategies identified by the participants to build the capacity of contractor companies working with NBS. Next, we list some of the core elements needed to ensure that NBS are high-quality initiatives with the potential to be replicated or

upscaled. Finally, emerging ideas for de-risking NBS are presented. Potential policies or innovations are highlighted throughout the document in the form of textboxes.

It should be noted that the term "construction" is used throughout this document to refer to the stage at which NBS are realised on the ground. However, the use of the term here is not limited to those interventions involving the building of infrastructures (e.g., green walls or rain gardens), but extends to the wide range of solutions available, such as wetland restoration, afforestation, or crop diversification, among other.

Building the capacities of NBS contractors

During the presentations and the thematic discussions, forum participants agreed that one formidable challenge for the implementation and upscaling of NBS is related to the supply of expertise for their planning and construction. There is a noticeable knowledge divide between those designing NBS (e.g., landscape architects) and other NBS experts (such as NBS consultants), and those who carry out the execution of solutions in the field. Micro, small and medium enterprises are often responsible for NBS construction, however, many reportedly encounter challenges ranging from a lack of NBS knowledge, basic business and marketing skills, to a lack of practical experience in constructing NBS.

> “*In our case, in Greece, the problem is that construction companies have no experience with developing nature based solutions. They may have the necessary infrastructure tools to do that, but they don't have the skills and people who know how to design and plan a nature based solution*.” - [Juraj Jurak, Global Infrastructure Basel Foundation]

There is also a deficit in research and development for NBS. Many companies that engage in the NBS implementation process have a technical or environmental background, thus being less likely to possess the required knowledge and tools to adequately conduct research and development of their products and/or services upon their deployment. This adds to the already known difficulties of accurately assessing NBS impacts and effectiveness. To address these challenges, a variety of ideas arose from the participants. Three are briefly presented below.

Awareness creation/education

Participants agreed that an important, and often discussed topic for the upscaling of NBS is the need to raise awareness over their broad set of benefits (including business opportunities). It is critical that key stakeholders, including civil society, are well informed about the multiple benefits of NBS in comparison with their grey counterparts. However, it is equally important that both construction firms and Nature-Based Enterprises (NBEs) - defined as for-profit enterprises that use nature as a central element of their product or service offering (McQuaid et al., 2021) - are also equipped with the necessary tools before venturing into NBS implementation.

Nathalie Nyssen illustrated the salience of the knowledge barrier for private sector initiatives by describing how the implementation of the river renaturation project in Geneva (Switzerland) was mainly possible thanks to the initiative of the federal government, stressing that education for private sector actors to better understand, identify and prioritize similar developments may encourage their future consideration. In the words of Karen Sudmeier from the University of Cologne, a promising approach in this regard, given that private actors are often too busy to undertake long-term training activities, is:

> *"Actually, they are [private sector actors] really busy, they need "ready to use" information. Some of this should come from the private sector itself, but I think that quick online courses, or webinars, actually are the best [way] to reach out to them."* - [Karen Sudmeier, University of Cologne, Germany]

Awareness and education for contractors

- Design and provide knowledge materials for contractors (e.g., webinars, online courses).

- Employing current NBS projects (e.g. PHUSICOS) as catalysts helping to create and increase awareness among stakeholders.

Facilitating training can serve to enrich contractor skills, for example, to better identify feasible projects and practical solutions. It can also serve to be more competitive during bidding processes against larger companies not necessarily specialized in NBS but with greater bidding experience. Training is equally decisive for companies providing solution maintenance. In this topic, Nathalie Nyssen provided the example she observed while working for a sustainable development project at the University of Geneva (Switzerland) where green roofs where installed:

> *"What I saw there is the lack of skills, especially to maintain the spaces. Some companies are very focused and know how to build green roofs or how to do the renaturation projects. However, you need long term maintenance and sometimes, to privilege cost effectiveness, you give that part to another company to reduce costs and they might completely destroy the space after a couple of years. We had some cases like this in Switzerland."* - [Nathalie Nyssen, Firmenich]

At the same time, current projects, such as PHUSICOS's demonstration sites or the Geneva River renaturation project, can also be leveraged as catalysts to create and increase the visibility of successful NBS and inspire future actions. Finally, another emerging theme was the need to change the attitudes and thinking of all involved parties (public authorities in particular) to encourage them to look at NBS solutions from a more holistic perspective, where different sectors can work together to find common solutions. On many occasions, as stressed by the participants, the skills and methods to implement NBS are available, but there is a lack of willingness to leverage them and translate them into action as confidence in the performance of NBS initiatives is still lacking. Stakeholders' readiness is therefore, together with the launching of pilot projects and experimentation, a key element.

Establishing communities of practice / enhancing collaboration

Collaboration was one of the enablers highlighted during the forum as a unique enabler for increasing the capacity of contractors and boosting NBS success. The collaboration of NBS contractors with the public, academia and civil society is fundamental for these actors to better understand the operation and use of such initiatives, stimulating discussion around them with a view towards their introduction or eventual scaling up. However, intersectoral and cross-sectoral collaboration are, as pointed out by the participants, an essential organizational innovation that needs to be boosted. Collaboration with other companies working with NBS was seen by the workshop's attendees as a promising strategy for inexperienced or small enterprises, as cooperation with larger, more experienced firms can help develop or increase their skills for implementing NBS solutions, creating a multiplier effect.

“*I have seen that small companies who are growing and doing NBS are doing business with larger companies and they're changing their minds. I think they have capacities. In Brazil, some landscape architects and construction engineers get together and they are servicing. They're going to larger construction companies and together they are implementing some projects. It is almost like a demonstration, but it is a business that is leading to more projects, more visibility and more businesses*.”- [Cecilia Polacow Herzog, University of Lisbon]

“*What they [nature based enterprises] would see as an enabler is kind of having connections with peers and learning from others and from best practices, but also kind of support measures such as capacity building and training.* ”- [Esmee Kooijman, Trinity College Dublin]

Enhancing collaboration

- Creation of knowledge hubs for private sector companies working on NBS.
- Enhancing the active participation of local actors and communities.
- Incentivize the creation of industry associations.

Because of the multi-disciplinary and local character of most NBS, designing solutions together with local communities, who are well aware of local realities, can be essential. Their inclusion through polycentric governance and participatory processes cannot only facilitate the NBS implementation and success by increasing the likelihood that priority needs are addressed, but can also ensure their sustainability and assist in reducing perceived dis-benefits. According to the NetworkNature Knowledge Brief 2 (2022) presented by Dorsa Sheikholeslami, one concern is an unfair distribution of NBS benefits resulting from the lack of or limited social considerations during NBS planning and implementation. Such is the case of gentrification problems observed as result of urban greening projects, in which a rise in property prices causes an influx of affluent people into the area, displacing lower-income inhabitants (Bockarjova et al., 2020).

Collaboration can equally help to highlight synergies and influence the type of technical initiatives that are launched, providing greater cross-functionality. Harnessing the potential of collaboration, however, requires the development of a common language and objectives. In this case, some existing processes can be adapted to support effective communication, such as the creation of river basin management committees, community-based forest management groups, regular municipal meetings (e.g. about green spaces in the municipality), and the creation of sectoral knowledge hubs and industry alliances or associations.

Development of facilities for the private sector

Along with awareness creation and the establishment of collaboration across scales and sectors, the creation of support facilities and platforms for NBS contractors was highlighted. Initiatives like the establishment of Project Preparation Facilities (PPFs) can be particularly beneficial for (but not only) small companies as they often require additional assistance and tools to, for example, successfully apply for tenders and access funding. During her presentation, Esmee Kooijman outlined the examples of the Nature-

based Accelerator program in the city of Glasgow (Scotland) and the nature-based solutions exemplar programme in Poznan, Poland, as two good success stories. In the latter example, the initiative also includes the development of an entrepreneurship program that integrates education for decision-makers and training on best practices for NBE and NBS contractors.

Development of enterprise support programs

- Development of local/regional accelerator programmes.
- Provision of technical support (e.g., through technical training materials).

Ensuring high quality NBS

Designing appropriate NBS standards and regulations

While in recent years there is increasing recognition of the value and benefits of NBS, the lack of and need for clear standards and guidelines is also repeatedly cited. During the first thematic session of the forum on developing the capacities for private sector upscaling, Gerd Lupp (Technical University of Munich, Germany) commented on this issue by noting that compared to grey solutions, where the standards are clearly defined, it is more difficult for companies to foresee and prepare for all the challenges that NBS often bring, and to calculate and generate revenue. Meanwhile, Vincent Farrelly, founder of the AquaRoot Technologies company explained how the lack of NBS criteria (along with other factors) affects the procurement process for NBE:

> "*It's getting a very, very tight tender, very well defined, and managing expectations of the customer. There are things you can do that are sustainable and there are things you can't, and if you want to get to sustainability, it can be extremely expensive and the performance criteria may be lacking compared to a non-sustainable item. Green roofs are a classic one. The materials are not yet made that can replicate the performance of petroleum-based products.*" - [Vincent Farrelly, AquaRoot Technologies]

Standards define the prerequisites necessary to assure a level of quality or performance and can serve as a basis for assessing compliance or quality. Standards for NBS can therefore guide those responsible for their execution in the field by setting out the necessary specifications, conditions and procedures to be followed, providing a common language and greater certainty to both suppliers and demanders. Well-designed and procured NBS may as well be rapidly scaled up by building on the experience and frameworks already available.

The IUCN Global Standard for NBS (2020), presented by Dorsa Sheikholeslami at the forum, is one of the most prominent frameworks agreed at the international level. The standard is promising in that it serves to distinguish NBS projects from other similar initiatives and provides a simple tool to improve the quality of NBS. It includes eight criteria and 28 indicators for designing (new) and evaluating (existing/past) solutions. Yet, due to the wide range of actions that are covered under the NBS umbrella, the design of standards for specific types of NBS as appropriate is deemed necessary. Similarly, the identification and use of already available guidelines and standards that might be applicable, e.g., forest restoration guidelines, guidelines for the implementation of ecological disaster risk reduction measures, etc., can also be valuable. In all cases, tools must be accompanied by capacity building and be measurable, assessable and monitored.

Designing clear NBS standards and regulations

- Development of national policies and/or standards on NBS.
- Design of Standards for specific types of NBS when appropriate.
- Building capacities and awareness around available guidelines and standards that could support specific NBS.

Finally, standards can also serve as the starting point for NBS to be integrated into regulations (e.g. land use plans, building codes, etc.), ensuring not only the consideration of these solutions but also supporting their long-term sustainability. A shift towards the inclusion of NBS would however require further work and evidence to assist the transition. Currently, distinguishing the applicable (often contradictory or clashing) regulations for NBS is cited as a challenge in project execution:

"*In terms of barriers, actually NBS cover many topics, so, it's sometimes difficult to see which law is applicable, if it is the biodiversity, water protection, the natural hazard risk prevention, etc. So, the coordination can be difficult.*" - [Nathalie Nyssen, Firmenich]

Private sector financing

The financing of NBS was extensively discussed during the event as a necessity to employ NBS contractors. First of all, participants stressed the need to boost the engagement of the private sector, as the vast majority of NBS solutions are currently publicly funded. According to Esmee Kooijman, lack of funding for NBS is one of the most frequent barriers faced by NBEs, noting that approximately 86% of NBS are funded by the public sector (UNEP, 2021). This is also in line with PHUSICOS D5.2 findings (Martin et al., forthcoming). According to attendees, major barriers to private financing include the lack of information and uncertainty concerning the operation and effectiveness of these solutions, as well as a general lack of awareness. It was agreed, though, that private companies are very likely to be willing to deploy (or fund) NBS in cases where they can outweigh investment costs and achieve a certain level of profit. Unfortunately, due to the 'public goods' nature of many, if not most NBS, it is difficult to make a business case for many investments.

In cases where there is a profitable revenue stream, private companies could fully finance NBS initiatives by obtaining loans from private or public banks such as the European Investment Bank (EIB), which is reportedly currently looking for bankable projects. Additionally, participants commented on the possibility of leveraging NBS through offset markets (e.g. carbon, biodiversity), which allow companies to meet, for example, their carbon reduction targets by investing in "green" initiatives aimed at carbon reduction or elimination.

Other NBS financing options mentioned with the power to directly help NBS contractors to grow and acquire skills are through accelerator projects (e.g., World Resources Institute (WRI) accelerators), the continued implementation of European financial instruments such as Horizon Europe, and research and development programmes. As noted by participants, small and medium enterprises with the possibility to access funding can serve as lobbyists or advocates of NBS after gaining experience and linking NBS to attractive business opportunities. To this end, feasible timeframes and, as described above, support for contractors to enhance their project planning and proposal design capabilities are required.

Katrin Hüsken, working for BUND Deutschland e.V. and Friends of the Earth Germany, pointed out that many of the funding mechanisms are country-specific, citing that in Germany:

> "*We're trying to find ways to implement NBS, or ways where we could add on the solutions to other funding mechanisms. Because in the new funding period, a lot of R&D is going to be funded. There's going to be funding for private-public partnerships or partnerships between universities and the private sector.*" - [Katrin Hüsken, BUND Deutschland e.V. / Friends of the Earth Germany]

Exploration of innovative financing and business models

- Integrating NBS solutions into other funding areas (e.g., research and development).
- Fostering NBS through public-private partnerships.
- Support and participation via NBS accelerator projects.
- Leveraging NBS through offset markets (e.g., carbon, biodiversity).

Additionally, discussions also touched upon the need to adjust the funding cycle of NBS projects. Because NBS interventions operate differently than grey alternatives, in most cases they require a longer time frame to mature and deliver benefits. Restoration projects, for example, are found to require between 10 and 15 years and considerable maintenance efforts before they can produce a long-lasting impact. It is thus essential to consider the monitoring and maintenance requirements and clearly define the corresponding budget early on in the process, as lack of maintenance may negatively impact the performance of NBS, affecting the perception and acceptance of the measures for future projects.

De-Risking NBS

Insurance and reinsurance are instruments that have the potential to protect and enable NBS. Insurance is traditionally seen as a mechanism to compensate and absorb the shocks and costs of the unexpected, and this function can also be applied to absorbing the costs of replenishing nature after its destruction. Insurance can also help to spread NBS risks including their construction (e.g., risks of delays and budget overruns) and performance (e.g., liability), making projects more attractive to both private and public investors. In her presentation, Elaine O'Brien from Swiss Re, described three Swiss Re applications of insurance in support of nature-positive initiatives: 1) protecting businesses' natural assets, inputs and eco-system revenues (e.g., by insuring economically valuable forest wood in fire susceptible areas); 2) protecting investors against NBS project damage and delays (e.g., Swiss Re provided cover for the construction of a large natural protection dike on the Netherlands) ; and 3) insuring governments against the costs of NBS restoration and post-disaster cleanup (e.g., most uniquely, Swiss Re provided cover to municipalities in Mexico to repair hurricane damage to coral reefs).

At the forum, special emphasis was placed on the need to insure design- and construction-related risks, as well as the risks associated with liability over the performance of the solutions. First, according to Elaine, engineering cover would come into play during the construction process to protect projects from delays and disruptions. But in these cases, challenges arise due to the difficulties in assessing NBS robustness, an assessment that is done differently from grey initiatives, where infrastructure, materials and their properties are better understood. Typically, probabilistic risk assessments rely on historical data, which is becoming less relevant given rapid changes in the hazard, exposure and vulnerability due, e.g., to climate

change. Specific to NBS, there is little historical operating experience and data. This is slowly changing, however, as more NBS knowledge and experience is gained. It is expected that companies will increase their NBS operations and risk-taking as they gain experience and as insurance products become more available.

De-Risking NBS

- Employing insurance or reinsurance products for resilient investment.

- Further incentivizing insurance companies to insure NBS liability risks linked to performance.

- Risk-sharing initiatives from government (e.g., offering reinsurance to primary insurers or acting as primary insurers).

Emphasis was also given to the potential of insurance to cover NBS performance. For example, if a municipality invests in a wetland and tree borders as an alternative to concrete levies, can it be held liable if private properties are flooded? This, of course, is a concern of both public and private investors especially given the dearth of information on NBS performance (Amy Oen, Norwegian Geotechnical Institute). Liability insurance products are problematic to design (and, to date, few exist) given the difficulty of performing risk assessments. Also, the lack of design standards that might limit liability is a concern. Only engineering contractors with extensive experience and good track records might be eligible for liability coverage.

On other de-risking options, participants stressed the potential role of governments as 'insurers of last resort' given the reluctance of insurers to cover 'unknown' risks and the reluctance of investors to undertake risky NBS. Government institutions could assume a layer of the risks by offering reinsurance to primary insurers or by taking the role of primary insurer:

> "*I think there could be a real possibility here that the government offers some kind of insurance to the insurers. We can have what they call a level that they insure up to, and then the government comes in after that. This would give the security to municipalities and businesses to take on riskier projects.*" - [JoAnne Linnerooth-Bayer, IIASA]

Equally, community based insurance alternatives modeled after the US National Flood Insurance Program's Community Rating system where the residents of a community are given a discount on their insurance premiums if the community invests in flood protection is an interesting alternative. Communities would put pressure on their politicians and authorities to take action.

Finally, at present, insurance companies do not usually invest directly in NBS projects but rather charge a premium for their services and spread the payments. Here, participants believe that the direct involvement of businesses could be incentivized by a shift in mind-set and the support of financial mechanisms recognizing the real value of nature. Insurers can play a positive role here. For instance, a potential, not discussed at the Forum but extensively discussed in insurance policy circles, is for insurers to divest from nature-negative assets in their extensive investment portfolios.

PBF next steps

1. **Circulate the synthesis to all participants**, the PHUSICOS Consortium, and interested parties to solicit levels of interest in continuing to be engaged in the discussion. Reconvene the Policy Business Forum to address some of the specific issues that arose and some new ones, with a focus on NBS financing.
2. **Commitment to become a 'champion' for NBS in the DRR sector in 2023 and beyond**. This would involve being part of an active NBS community linked to the PHUSICOS project, which is also active on social media (Twitter, etc.). In addition, there are opportunities to link to ongoing initiatives such as the EU projects taskforce on NBS governance.

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