BACKGROUND NOTE

Taking bets together to foster innovation

Achieving global sustainable development objectives implies a significant scaling up of research, development and commercialisation of innovative sustainable technologies and practices. However, the global nature of the public goods brought by these innovations stands in contrast to the often significant risks for individual companies or countries in investing heavily in certain technologies. The risks relate to the fact that these innovations bring global goods, but trade benefits may accrue to second or third movers in globalised markets. There is also a need to coordinate supply push and demand pull policies for specific technologies to create sustainable patterns of deployment that respond to global sustainability priorities in a timely and cost-effective manner. These challenges therefore call for greater international coordination on the bets that are to be taken and on ways to bring technologies to market and scale them up more quickly and efficiently.

1. CONTEXT

The double nature of sustainable innovation—generating market goods for the provision of a global public good in many circumstances—can conflict with the single nature of world markets. The diffusion and transfer of sustainable technologies and know-how through international trade has been impressive over the last decade. Yet it leaves open the question of the competition rules needed to generate breakthrough technologies in the coming years. Trade disputes over sustainable technologies are numerous, underlining the inherent tension between public policies that pursue sustainable innovation as industrial policy and a free and competitive world trading system. Moreover, while a consensus on the urgently needed technologies is growing, it has not yet been reached. Technological roadmaps remain patchy and their development scattered across a few front-runner countries. These challenges call for greater international coordination on the risks that need to be taken, and have already been taken in some places, and on ways to bring technologies to market(s) and scale them up more quickly and efficiently.

2. ISSUES/SOLUTIONS

One challenge for promoting innovative technologies for sustainability is that their development is often justified on the basis of national industrial policy objectives. This can create a misalignment of incentives between, on the one hand, the collective public interest of developing global value chains and economies of scale to drive down costs, and national goals which may favour having domestic but potentially smaller and less competitive industries on the other. For instance, the experience of developing solar PV technology has shown that, in a world of free trade and international competition, the industrial policy benefits in terms of manufacturing jobs and exports may accrue to "second movers" in the market, rather than to first movers like the EU or the US—even though the first movers received considerable profits at the edges of the supply chain. This has created political tensions and trade conflicts, particularly in a context where consumers and taxpayers are being asked to support the incremental costs of renewable energy technology deployment, under the justification of industrial policy.

Another important challenge is prioritising, financing and coordinating the development of specific technologies of global importance. For example, in the area of climate change mitigation, a number of critical "breakthrough" technologies—such as carbon capture and storage, electric vehicles, energy storage, low-carbon materials—will need to be further developed and deployed globally as a matter of urgency. Efforts to bring these technologies to market, however, are fragmented across regions and are not linked to specific sectoral roadmaps to achieve the <2°C climate target. They have also tended to suffer from valley of death financing problems, whereby neither governments nor the private sector have been willing to commit to adequate funds over sufficiently long time horizons to enable commercialisation.

Furthermore, there is a need to align supply side "push policies" for such innovations with demand side "pull policies" to make the development of these technologies more attractive to investors and to speed up commercialisation of these technologies at the global level. However this would require coordination at a number of levels, for instance: to ensure that different national technology standards do not create barriers to trade, to harmonise the timing of push and pull policies, and to ensure that policies that strengthen the demand side, such as carbon prices or regulations, do not create competitiveness concerns, etc.

Besides decarbonisation issues, there exists cases where bending the cost curve through massive diffusion at the global level due to trade remains unlikely.

Either because technology packages at stake are country or region-specific, or because the replication of success stories entails considerable transaction costs. The issue of scalability and replication, and accordingly of the business model of innovation, is particularly important in the agricultural sector. Such cases also remind us that traditional models of innovation based on private intellectual property rights, economies of scale in production, and free trade are not a panacea.

Such challenges call for international cooperation and coordination to be addressed properly. Some international initiatives to coordinate sustainable technology development have begun to emerge. For instance, the Global Alliance Vaccine Initiative (GAVI) is a good example of a coordinated push-*and*-pull policy framework. The Global Alliance on Climate Smart Agriculture (GACSA) is an example of an initiative that seeks to identify key priorities for action and to share knowledge on innovative and climate smart practices, but with an approach that can also be tailored to local needs. More recently, the Mission Innovation has sought to encourage 20 national governments to increase innovation pipeline funding, promote the investment of "patient" private capital in early stage innovation under the Energy Breakthrough Coalition to help overcome valley of death funding problems, and facilitate knowledge and data sharing to help bring promising technologies to market.

However, while such initiatives are encouraging, they do not necessarily address all of the issues raised above. The goal of this session will therefore be to address these questions in more depth.

3. OBJECTIVES OF THE SESSION/QUESTIONS

- How can national innovation policies for sustainable technologies that are justified on the basis of industrial/growth objectives be reconciled with competitive and free global markets?
- Is there a role for sectoral technology roadmaps in facilitating international coordination around key technologies that are seen as essential (e.g. CCS)?
- What is the role of innovative long-term financing vehicles for the avoidance of valley of death financing problems that prevent promising technologies from getting to market?
- Is there a need for closer international coordination to prioritise and coordinate "push" and "pull" policies for sustainable technologies? How could this be done?
- What is the role of inter-governmental dialogues in facilitating international cooperation on innovation? How should they be linked with non-governmental initiatives?
- Which nations should be cooperating more and how?
- Are new or additional international governmental fora needed to discuss and coordinate on sustainable innovation?

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