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NAIROBI—In the runup to the recent United Nations meeting on climate change in Lima, Peru, much of the world's attention focused on how strongly countries would commit to a framework for cutting greenhouse-gas emissions. Governments' commitment to such a framework, after all, is vital to ensure that the agreement, to be signed in Paris in December, will keep global temperatures from rising more than 2° Celsius above preindustrial levels.

The good news is that the Lima "Call for Climate Action" made sufficient progress to enable preparations for a comprehensive climate deal in Paris. But it also left many questions unresolved—a shortcoming that was reflected in discussions on adaptation. Though the new emphasis on this important topic is welcome, how to deliver the funding, technology, and knowledge that countries, communities and ecosystems need to adjust to climate change requires further articulation.

Even if we limit the rise in global temperatures, climate change is here to stay. Communities are already facing more extreme and frequent droughts, floods and other weather events. These consequences will only intensify.

Yet the UN Environment Programme's first adaptation report, released in Lima, showed that the world remains wholly unprepared to cover the costs of adaptation. And those costs will be far higher than was previously thought. According to the report, even if the temperature target is met, the cost of adaptation will reach 2-3 times the previously anticipated \$70-\$100 billion per year by 2050 (an increase of as much as fivefold is possible, though less likely).

If global temperatures exceed the two-degree ceiling significantly, adaptation costs could reach double the worst-case figures, placing a crippling burden on the world economy. If world leaders need another compelling reason to reach a deal in Paris that keeps global temperatures below the target, this is it.

The burden of adjustment will be borne by everyone. But it will be heaviest for developing countries, least-developed countries, and Small Island Developing States. Though international funding will be available, costs will fall largely on these countries, with their governments forced to divert scarce resources from development projects to adaptation initiatives.

To be sure, the world is making some progress toward addressing adaptation needs. Adaptation funding from public sources reached \$23-\$26 billion in 2012-2013. According to a recent assessment by the UN Framework Convention on Climate Change, global financial flows for mitigation and adaptation measures amounted to \$340-\$650 billion in 2011-2012.

Furthermore, pledges at the Lima conference by Australia, Austria, Belgium, Colombia, Norway and Peru bring the Green Climate Fund to nearly \$10.2 billion. And the impact of climate change is increasingly, though still inadequately, being factored into national and local budgets.

But much more financing will be needed to prevent a funding gap after 2020. The Green Climate Fund, for example, is supposed to reach \$100 billion per year—10 times higher than it is now—in

the next five years.

Commitments on adaptation in the Paris agreement would go a long way toward closing this gap. The international auctioning of emissions allowances and allowances in domestic emissions-trading schemes, a carbon tax, revenues from international transport, a surcharge on electricity transmission, and financial transaction taxes could generate as much as \$220 billion per year in additional revenues.

Of course, funding is not the only component of a successful adaptation strategy. As the adaptation report emphasizes, closing gaps in technology and knowledge is also crucial.

Many technologies that could help countries adapt to the consequences of climate change already exist. For example, by planting scientifically engineered crops that grow faster, farmers can harvest them before, say, cyclone season, which will become increasingly violent as global temperatures rise. But there remain significant barriers to adoption—barriers that governments should dismantle through a combination of incentives, regulatory reform, and institutional upgrading.

The benefits of such action would extend beyond increased climate resilience. Accelerating harvests would mean higher, more reliable production with less labor—a formula for stronger, more stable livelihoods. Policymakers should thus pursue integrated solutions that combine climate-change adaptation and mitigation with broader societal concerns, including development.

Knowledge would offer similarly monumental benefits. Science magazine recently published research suggesting that universal education, by giving populations the appropriate intellectual tools and skills they need, is the single most efficient mechanism for adapting to climate change and reducing fatalities associated with extreme weather events.

International support on adaptation—incorporating financing, technology, and knowledge—could go a long way toward the advancing countries' sustainable-development aspirations. World leaders should recognize this—and establish adaptation as an integral part of the global climate-change agreement to be reached in Paris.

Some argue that the global economy cannot afford adaptation. But, as the latest evidence shows, delaying action will mean higher costs later. If we truly want to build a sustainable, prosperous and equitable future, we cannot afford to wait. Project Syndicate

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