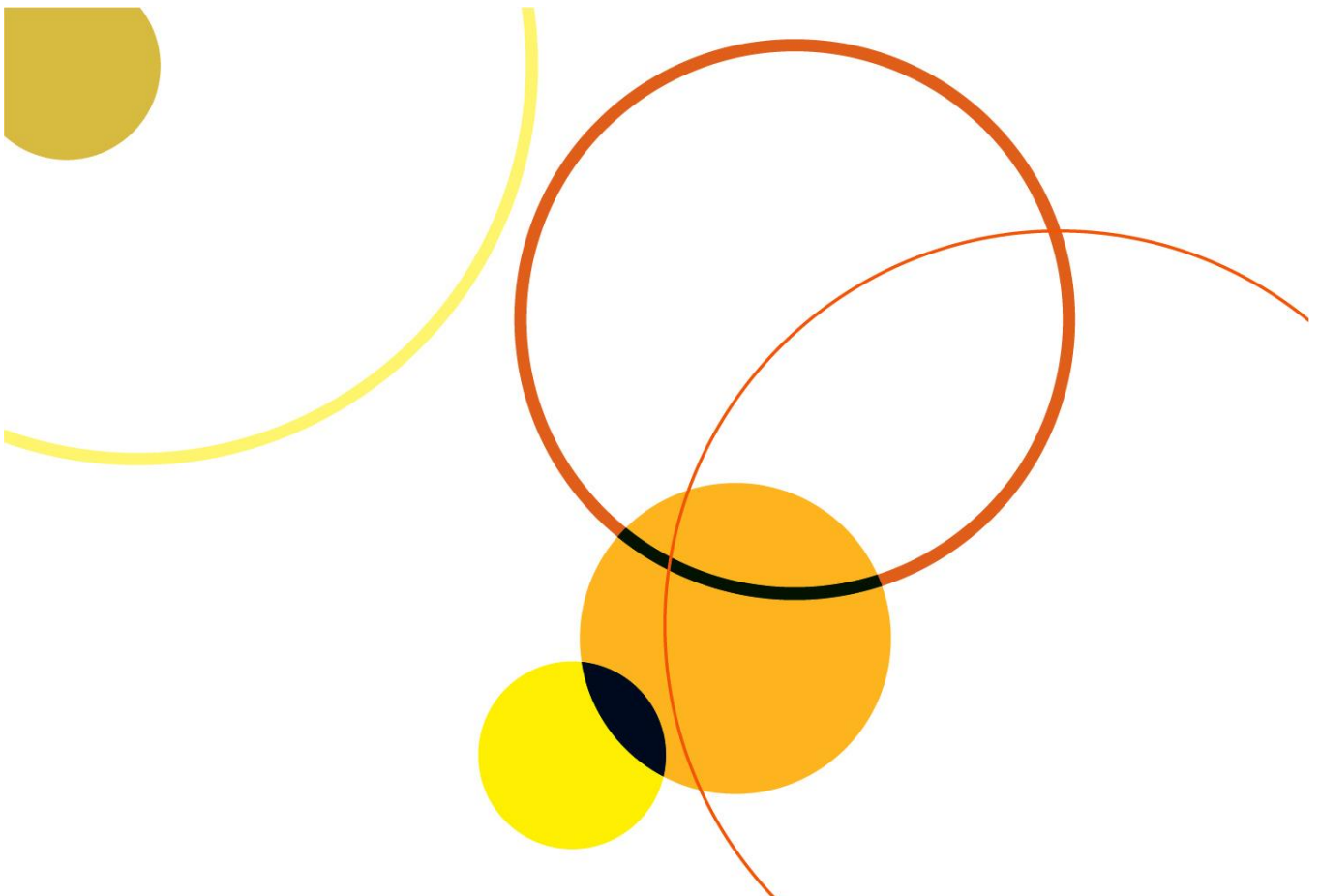


The comparative advantage of global public money for adaptation

Key findings summary prepared for DFID

Final Report
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The Adaptation Knowledge and Tools programme is a DFID-funded programme intended to maximise the effectiveness of UK and international investment in climate change adaptation and resilience. The knowledge and tools generated through this programme are expected to promote greater understanding of what constitutes best practice in adaptation, as well as better international cohesion and coordination around adaptation. Through these entry points the programme expects to increase the quality of international and UK adaptation programming and reduce its risk.

The views expressed in the report are entirely those of the author and do not necessarily represent DFID's own views or policies, or those of Evidence on Demand.

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Finding 1: The best estimate of the cost of adaptation in developing countries is between \$60-\$100 billion a year by 2030, although this is subject to considerable uncertainty

The best source of comprehensive information on near-term (to 2030) adaptation costs in developing countries is provided by the 2010 World Bank study on the Economics of Adaptation of Climate Change (EACC) supplemented by a UNFCCC study on Investment and Financial Flows. These collectively suggest that adaptation costs in developing countries may be between \$60-\$100 billion a year by 2030. The EACC study suggests that the highest absolute adaptation costs might be in the East Asia and Pacific region but, that as a proportion of current GDP, the greatest costs may be experienced in Sub-Saharan Africa. Although these studies represent a considerable improvement over earlier efforts at estimating global/developing country adaptation costs they are still subject to considerable uncertainty. Some of the unresolved challenges in costing adaptation concern how to incorporate some key sectors (such as tourism), factoring in challenges such as migration, and incorporating ‘softer’ adaptation measures where they are superior to ‘hard’ engineering approaches, for example, improving coastal planning rather than building sea-walls. These challenges may result in current estimates being either too high or too low.

Bottom-up country studies provide an alternative perspective on adaptation costs. These studies can be extremely useful in identifying priority adaptation actions. However, the diversity of methods and assumptions deployed in different studies make them difficult to use when considering global allocation issues. In particular, these studies tend to adopt different approaches to the distinction between development and adaptation. This is important because it determines whether measures that decrease vulnerability to current climate variability (as opposed to future climate change) should be included in the costing estimates.

A further approach to adaptation costing is provided by Adaptation Integrated Assessment Models (AD-IAMs). In principle, these have the advantage of incorporating linkages between mitigation and adaptation, and can also provide a longer-term perspective on adaptation costs. They tend to show that an absence of mitigation effort could double global adaptation costs (with regional variation) but that the bulk of these additional costs would be realised after 2050. However, these models rely on assumptions – especially on the economic impact of significant temperature rises – which are very difficult to test.

Finding 2: Current flows of adaptation finance are significantly lower than future needs; there is a need to progressively scale up flows of adaptation investment from all sources (public, private, domestic and international) in the near term

Compared to the estimate of \$60-\$100 billion of adaptation costs by 2030, the best current estimate of annual adaptation investment in developing countries is \$20-\$24 billion. Although annual adaptation flows are increasing – and private sector adaptation investment is hard to track – it is clear that there will be a need for significant increases in adaptation investment in the near term. Reflecting current practices, the resources



underpinning these activities will need to come from both the public and private sector and from both domestic and international sources.

Finding 3: Uncertainty over climate impacts is not a reason for inaction on adaptation today; but does demand that adaptation decisions are made strategically

A key challenge when scaling up resources for adaptation today is how to accommodate current uncertainty over climate impacts at a local/regional level. For example, in Ethiopia, some climate models suggest that rainfall may increase by 30 per cent on today's levels by the 2050s; others suggest that it may fall by as much as 25 per cent. This makes it important to try and avoid maladaptation: adaptation that proves to be inappropriate when greater understanding of climate impacts is acquired.

In the face of this challenge, the adaptation activities that should be prioritised are those that:

- provide **early benefits/ win-win** activities – desirable regardless of the future climate scenario
- **avoid lock-in** of development or infrastructure path that would be costly to reverse in the future
- have a **long lead-time**.

While the implications of these criteria differ by country, some general insights can be drawn. For example, many aspects of new infrastructure decisions will be locked-in for fifty or more years; additional 'safety-margins' in their design will be appropriate. Similarly, increasing preparedness for extreme weather events by improving climate information, better protection measures (for example, storm shelters) and improved access to insurance are all likely to be win-win activities that will be robust to a range of future climate scenarios. Research and development into new strains of crops will take many years to deliver and so should also be prioritised. By contrast, other activities, such as investments in coastal defence measures, only need to be undertaken to protect communities that are currently vulnerable to coastal flooding.

Finding 4: There are complementary roles for the public and private sector in supporting adaptation activities; standard economic analysis can be used to help delineate the appropriate role for each

The role for the public sector in adaptation should follow well-accepted principles of public economics. In this sense, adaptation is the same as other public activities. This provides three reasons for intervention.

- To provide **public goods** such as coastal defences and climate information. This role is most often fulfilled through direct public provision. The state also needs to 'climate-proof' the public goods it already provides, such as transport infrastructure.
- To respond to **market and policy/institutional failures** that may inhibit adaptation. This might include barriers in accessing finance that might, for example, restrict the adoption of new farming practices such as crop diversification; responding to spillovers (externalities) such as when up-river water abstraction



can have a negative impact on down-river communities, or addressing existing policy weaknesses such as water subsidies. The appropriate public sector responses include raising awareness and encouraging action through taxes, subsidies (including subsidy reform) and regulation. Sometimes direct public provision may be needed.

- **To protect the vulnerable** from climate events. This might include, for example, cash transfers following disasters, improved provision of safety nets or geographically extended immunisation programmes.

There are likely to be more extensive market and institutional barriers to adaptation, and more vulnerable people, in developing countries (and least developed countries, in particular) than in developed countries.

Finding 5: Given limited resources for international climate finance for adaptation, resources may be optimally focussed in countries with high adaptation costs and where adaptation actors have limited access to finance. The limited evidence suggests that adaptation finance is not being prioritised in this way.

The international community has an important role to play in providing resources for adaptation consistent with the principles for public sector involvement outlined above. An appropriate means of allocating these adaptation resources, that takes into account both equity and efficiency considerations, is required. This suggests two factors may be particularly important:

- **expected adaptation costs:** countries that face greater damages from climate change and hence greater adaptation costs (expressed as a percentage of the relevant economic activity in that country) will have a greater need of – and ethical claim on – international adaptation resources
- **access to finance:** to maximise the efficiency of limited international public resources for adaptation, these resources may need to be directed to those ‘adaptation actors’ that have few or no alternative sources of finance (or can only access this finance at prohibitively high costs).

Analysis of these two factors suggests that, for adaptation in the aggregate, international public resources should be prioritised in Sub-Saharan Africa, South Asia as well as some Small Island Developing States (SIDS). However, there are important differences across different adaptation themes: the support that some SIDS need is mostly in relation to coastal adaptation; while the analysis highlights needs in some Latin American countries more distinctly in relation to water adaptation.

A comparison between the priorities suggested by this analysis and current flows of international support for adaptation suggests that currently resources are not flowing to possible priority countries and regions. Rather, to the extent that there is a pattern, they tend to be flowing disproportionately towards countries with moderate access to finance and moderate adaptation costs. Resources are not tending to flow towards countries with the lowest adaptation costs and best access to finance. It may be appropriate to take this finding into account when considering aspects of the design of the future international climate finance architecture, for example, by using minimum allocation floors to direct international adaptation resources to those where the need for resources is greatest.



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