Climate Change Adaptation Need Not Be Expensive

Photo: Alastair Morrison, SIWI

With the protracted negotiations over greenhouse gas reductions making little headway, adaptation to the worst impacts of climate changes will become more and more essential.

Most of the anticipated impacts of climate change will be felt through water. Changing rainfall patterns cause floods and droughts and trigger landslides. Rising temperatures lead to sea level rise, more cyclones and more glacier outburst floods. Water-borne diseases and agriculture will be severely impacted by such changes, and progress towards many of the Millennium Development Goals (MDGs) will be jeopardised.

All communities will be impacted by these changes to some degree. But the greatest impacts of climate change will fall disproportionately upon poor communities who are least able to cope.

Climate change adaptation currently receives relatively little funding – little more than five percent of the total funds available for mitigation initiatives*. This lack of funding is frequently quoted as a reason for inaction.

But money isn't everything. Many of the most effective adaptation measures are free (see table page 11). Many others involve minimal costs, and are far cheaper than more conventional approaches to development.

Governance interventions are a key part of adaptation. Zoning restrictions, for example, can stop people and property being exposed unnecessarily to natural hazards. Inappropriate developments – those that block drainage runs, pollute watercourses and increase rainfall runoff and downstream flooding – must be stopped. In many Southeast Asian and Latin American countries, poor communities are forced to live in dangerous floodplains, on riverbanks and in ravines. This is not due to a lack of overall land availability – population densities are still relatively low – but because powerful elites own most of the safe and productive areas. Improved land tenure can do much to reduce the climate risks to the poorest and most vulnerable.

Such governance interventions need not entail any substantial capital expenditure to safeguard vulnerable and marginalised communities.

Traditional knowledge offers many solutions to climate risks. For example, most houses in Southeast Asia used to be raised on stilts, allowing floodwater to pass safely underneath. In Mongolia, strict hygiene customs ensured that nomads carefully protected their limited water sources. But today, rapid urbanisation and a desire for 'modernity' means that such knowledge is lost, and populations are more vulnerable than ever before.

Why do development practitioners prefer expensive adaptation options? Perhaps capacity building is needed – people are simply unaware that simpler, alternative solutions do exist. The need to disburse money rapidly, and show tangible project outputs, could be another reason. Risk assessments and building resilience into projects can be seen as causing 'intolerable delays'. Legitimate management fees and contractors' profit margins also increase as more and larger contracts are signed. Opportunities for other, less honourable gains increase too.

This is not to argue against the need for adequate climate adaptation funding. More funding would be beneficial, but only if it is invested correctly and integrated into national development plans. There are still many situations where hard engineering structures might be the only practical solution. Structures are often appropriate when combined with other measures to ensure sustainability. For example, if a flood levee is built, it must be of sound construction and properly maintained. Protected communities need to be aware of any residual risks, and the consequences of structural failure. As Hurricane Katrina showed, these last challenges are difficult to achieve, even in the most advanced societies.

Low cost adaptation measures are a 'low hanging fruit' that would bring many development benefits. Even under today's climate, with natural variations, good water governance brings tremendous benefits. If the worst scenarios of climate change come to pass, water adaptation measures will bring returns that far exceed any initial outlay.

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* Financing urgent adaptation, Global Humanitarian Forum, Geneva 2009, http://www.ghf-geneva.org/Portals/0/pdfs/Financing_urgent_adaptation.pdf

Effective Climate Adaptation Measures

Cost saving | No cost | Administrative or staff costs only | Minimal extra infrastructure cost

Climate related risk	"Conventional response"	Sustainable measure
Disease burden during droughts and floods	Water bodies allowed to become polluted. Extra water treatment needed and polluted water enters households	Appropriate sanitation
Floods, malaria, dengue	Concrete channels and pipes	Sustainable drainage (retention ponds, infiltration trenches, washlands and swales)
Landslides	Concrete retaining walls	Slope stabilisation (eg with vetiver grass)
Water shortages, water-borne diseases	Bottled water	Rainwater storage
Floods, storms surges sea level rise	Hard engineered defences (levees and walls)	Hazard warnings and escape routes or shelters
Droughts	Provision of more water supply infrastructure	Water demand management (use less water)
Floods, storm surges	Building walls square on to flood flows	Rotating buildings, so that a corner points into a flood, and water flows around the structure
Floods (and other risks, eg earthquakes)	Unsupervised and unregulated construction	Quality control in construction
Floods, storm surges, sea level rise, landslides	Uncontrolled urban development	Zoning restrictions
Droughts and floods	Competing resource demands and conflicts	Integrated Water Resources Management
Droughts	Regulations not enfoced and water sources unusable	Enforcement of pollution regulations
Droughts and floods	Poor populations obliged to live in high risk and marginal areas	Land rights
All risks	Emergency response after the event	Disaster risk reduction
All risks	Community dependent on one single, vulnerable source of income	Livelihood diversification
Drought	Drilling down to the current water level only	Wells and boreholes extended below the present water table
Floods	Buildings at ground level	Raising buildings on stilts or earth mounds

Photo: Alastair Morrison, SIWI

Traditional houses built on stilts or earth mounds (at minimal extra cost) – one example of effective climate adaptation measures.