Climate Change Adaptation, Disaster Risk Reduction and Social Protection*

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- Comprehensive social protection that aims to prevent impoverishment - and protect, promote and transform livelihoods and social relations - provides significant opportunities to help people adapt to climate change.
- Social protection policies and programmes need to consider climate change in order to effectively address the multiple risk and vulnerabilities faced by the poor and excluded.
- Developing social protection approaches for climate change adaptation requires a rigorous evidence base and an improved understanding of social impacts and policy and implementation processes.

Poorer developing countries are especially vulnerable to climate change because of their geographic exposure, low incomes and greater reliance on climate sensitive sectors, particularly agriculture. People exposed to the most severe climate-related hazards are often those least able to cope with the associated impacts, due to their limited adaptive capacity. This in turn poses multiple threats to economic growth, wider poverty reduction, and the achievement of the Millennium Development Goals (ADB *et al.*, 2003*;* Stern *et al.*, 2006). Within this context, there is growing recognition of the potential role of social protection as a response to the multiple risks and short and long-term shocks and stresses associated with climate change. Stern (2008) argues that social protection could become one of the priority sectors for adaptation in developing countries. To date however, little is known about the linkages and value of social protection for adaptation in practice.

By exploring the relationship between climate change adaptation, disaster risk reduction (DRR) and social protection, the Institute of Development Studies (IDS) researchers have developed the concept of 'adaptive social protection'. Adaptive social protection involves examining the role of social protection in strengthening adaptation, for example, in developing more climate-resilient livelihoods. This paper outlines linkages between the three fields and assesses good practice within current social protection mechanisms. Recommendations for policy-makers are made including issues to be examined further, challenges to be met and gaps in knowledge to be filled.

* The opinions expressed and arguments employed in this paper are the sole responsibility of the authors, and do not necessarily reflect those of the OECD or the governments of its member countries.

Risk and vulnerability in the context of climate change

"Climate change will make it impossible for the world to achieve the Millennium Development Goals. Poverty is bound to increase. Food security is bound to get worse."

Professor Richard Odingo, vice-Chairman of the IPCC.

There is growing evidence that climate change is increasing the frequency and intensity of climate-related hazards, and hence the level and patterns of often inter-related risks, exacerbating levels of vulnerability for poor and excluded people. Poverty and social impacts, though generally not well-understood, are likely to be profound and will impact humans through a variety of direct (changes in climate variables) and indirect pathways (pests and diseases; degradation of natural resources; food price and employment risks; displacement; conflicts, negative spirals) (Heltberg *et al.,* 2008a).

For many poor rural people, reliance on subsistence agriculture means that the impact of climate shocks and stresses are likely to have negative implications for their food and livelihood security, human capital and welfare. Risks and uncertainties, often associated with seasonality, are typically embedded in agricultural practices and poor people often have considerable experience of coping and risk management strategies, which need to be built upon in developing more resilient livelihoods.

Climate change also has implications for the urban poor and for rural-urban change. Most informal urban settlements are built illegally and without formal planning. . Limited availability of water, high child and infant mortality rates and a very high disease burden (malaria, tuberculosis, diarrhea etc.) are common characteristics of such informal settlements (Satterthwaite *et al.,* 2007). Planning for climate change in such situations will be extremely difficult when governments have limited authority and capacity to address the risks posed by existing hazards (*ibid.*).

With climate change negatively impacting rural livelihoods, migration from rural to urban areas is increasingly likely to become the favoured adaptation strategy of the mobile, rural poor. This will further exacerbate the problem of people living in urban fringe hazardous environments with potential risks of social unrest. At the same time, the greater concentration of people creates opportunities for more effectively managing climate change risks *vis-à-vis* people living in remote rural locations. Furthermore, migration should not be viewed as a universally negative impact of climate change; it can serve a positive function. For both the poor and non-poor, migration can be an accumulative strategy (Scott, 2008). For example, rural agricultural labourers may choose voluntary internal migration from rural to urban areas in the aftermath of a shock in order to move from the agricultural to non-agricultural sector. However, migration is not an option for all, especially the chronically poor or specific vulnerable or excluded people, who may face discrimination and severely limited mobility.

Poor people in Africa often face already high risks and use informal and often ineffective means to protect themselves against those risks, in the context of very low coverage of government and market-based instruments (Heltberg *et al.,* 2008b). With climate change likely to result in an increased magnitude and frequency of shocks, innovative approaches to social protection and DRR will be needed to bolster local resilience, support livelihood diversification strategies, and reinforce people's coping strategies.

The social dimensions of climate change – differentiated impacts:

The impacts of climate change will be overlaid onto existing vulnerabilities of both the rural and urban poor and excluded, such as vulnerability to seasonality, to poor health and to market fluctuations (*e.g.* food and fuel price volatility). Poor communities are not homogenous however, and it is important to understand the differentiated social impacts of climate change based on gender, age, disability, ethnicity, geographical location, livelihood, and migrant status (Tanner and Mitchell, 2008). Some specific examples include:

- **Gender: Water and climate change**
  Men and women have distinct roles in water use and management, leading to different needs and priorities. Climate change will increase the time taken to collect water in rural areas, a task mainly done by women and girls, due to travelling greater distances to find water. In urban areas, water collection is also an issue as women and girls may spend hours queuing for intermittent water supplies (Brody *et al.,* 2008).

- **The Elderly: Health and climate change**
  The elderly are likely to be particularly vulnerable especially where social protection is limited or non-existent. They are at high risk from climate-change related impacts like heat stress and malnutrition and in rural areas can face restricted access to healthcare, as they are often unable to travel long distances to the nearest health facility (Brody *et al.,* 2008).

- **Children: Drought and climate change**
  Children are at highest health risk from inadequate water supplies during drought, and also predicted changes in vector-borne diseases. They are also at highest risk of malnutrition, with long-term implications for overall development. Children may also be at risk of early entry into work and exploitation in order to cover lost income from agriculture (Bartlett, 2008).

Understanding the intra-household dynamics around how age and gender influence resource access and time expenditure, and anticipated impacts of shocks, is critical for addressing future adaptation needs. Table 7 below describes some the potential impacts of climate change on vulnerable groups, wider society, health, agriculture, water resources, and urban areas.

Table 7. Examples of possible impacts of climate change due to changes in extreme weather or climate events by sector

Phenomenon and direction of trend	Likelihood of trend based on projections for the 21st century using SRES scenarios	Agriculture, forestry and ecosystems	Water resources	Human health	Settlement and society
Over most land areas, warmer and fewer cold days and nights, warmer and more frequent hot days and nights	Virtually certain[3]	Increased yields in colder environmental; decreased yields in warmers environments; increased insect outbreaks	Effect on water resources relying on snowmelt; effects on some water supplies	Reduced human mortality from decreased cold exposure	Reduced energy demand for heating; increased demand for cooling; declining air quality in cities; effects on winter tourism

Phenomenon and direction of trend	Likelihood of trend based on projections for the 21st century using SRES scenarios	Agriculture, forestry and ecosystems	Water resources	Human health	Settlement and society
Warm spells/heat waves. Frequency increases over most land areas	Very likely	Reduced yields in warmer regions due to heat stress; increased danger of wildfire	Increased water demand; water quality problems, e.g. algal blooms	Increased risk of heat related mortality, especially for elderly, sick, very young and socially isolated	Reduction in quality of life for people in warm areas without appropriate housing; impacts on elderly, very young and poor
Heavy precipitation events. Frequency increases over most areas	Likely	Damage to crops; soil erosion; inability to cultivate land due to water logging of soils	Adverse effects on quality of surface and groundwater; contamination of water supply; water scarcity may be relieved	Increased risk of deaths, injuries and infectious, respiratory and skin diseases	Disruption of settlements, commerce, transport and societies due to flooding; pressures on urban and rural infrastructures; loss of property
Area affected by drought increases	Likely	Land degradation; lower yields/crop damage and failure; increased livestock deaths; increased danger of wildfire	More widespread water stress	Increased risk of food and water shortage; increased risk of malnutrition; increased risk of water- and food-borne diseases	Water shortages for settlements, industry and societies; reduced hydropower generation potentials; potential for population migration
Intense tropical cyclone activity increases	Likely	Damage to crops; uprooting of trees; damage to coral reefs	Power outages causing disruption of public water supply; water	Increased risk of deaths, injuries, water- and food-borne diseases; post traumatic stress disorder	Disruption by flood and high winds; withdrawal of risk coverage in vulnerable areas by private insurers; potential for population migrations; loss of property
Increased incidence of extreme high[4] sea level (excludes tsunamis)	Likely[5]	Stalinisation of irrigation water, estuaries and fresh water systems	Decreased fresh water availability due to salt water intrusion	Increased risk of deaths, injuries by drowning in floods; migration-related health effects	Costs of coastal production versus costs of land-use relocation; potential for movement of populations and infrastructure

Source: Sabates-Wheeler *et al.*, 2008

The benefits of a combined approach to climate change adaptation, disaster risk reduction and social protection

The increase in covariate (environmental and health) risks due to ongoing and future climate changes - and the demonstrated adverse impacts of such risks - make it important to scale up interventions to reduce household vulnerability (Heltberg *et al.*, 2008a). As outlined in Table 8, rural and urban livelihoods are already affected by shocks that are threatening their sustainability, with negative implications for the poor and excluded. People's livelihood strategies in many areas may change significantly over the next 20 to 30 years. Increasing levels of physical and economic vulnerability could result in increasing numbers of households, who are dependent on agricultural livelihoods, becoming highly vulnerable to even small shocks (Cipryk, 2008). This questions the assumptions upon which many social protection policies are based and highlights the importance of ensuring that social protection approaches are relevant to the needs of the population, particularly the poorest and excluded, at threat from climate change. Social protection policy needs to learn from and incorporate DRR and adaptation approaches to ensure programmes continue to effectively support livelihoods and protect the poor and excluded from shocks and risks in the face of climate change.

Social protection has much to offer in helping the poorest reduce their exposure to current (DRR) and future (adaptation) climate shocks. Table 8 highlights potential adaptation benefits of different strands of social protection.

Table 8. Promoting adaptation through social protection

SP category	SP instruments	Adaptation and DRR benefits
Protective (coping strategies)	- social service provision - social transfers (food/cash), including safety nets - social pension schemes - public works programmes	- protection of those most vulnerable to climate risks, with low levels of adaptive capacity
Preventive (coping strategies)	- social transfers - livelihood diversification - weather-indexed crop insurance - social insurance	- prevents damaging coping strategies as a result of risks to weather-dependent livelihoods
Promotive (building adaptive capacity)	- social transfers - access to credit - asset transfers or protection - starter packs (drought/flood-resistant) - access to common property resources - public works programmes	- promotes resilience through livelihood diversification and security to withstand climate related shocks - promotes opportunities arising from climate change
Transformative (building adaptive capacity)	- promotion of minority rights - anti-discrimination campaigns - social funds - proactively challenging discriminatory behaviour	- transforms social relations to combat discrimination underlying social and political vulnerability

Social protection, DRR and climate change adaptation have much in common in terms of measures and broad objectives. They all seek to take integrated, multi-sectoral approaches to mitigate risks faced by poor people. They tackle the impact of, and seek to make individuals, communities and societies more resilient and less vulnerable to shocks and stresses. They are also all in relatively formative stages of development and testing, rather than established components of development and poverty reduction, particularly in low-income countries.

Social protection describes all initiatives that transfer income or assets to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised. Its overall objectives are to extend the benefits of economic growth and reduce the economic or social vulnerability of poor, vulnerable and marginalised people. (IDS 2006; Devereux and Sabates-Wheeler 2004).

Disaster Risk Reduction (DRR) describes the development and application of policies, strategies and practices that minimise vulnerabilities, hazards and unfolding disaster impacts throughout a society in the broad context of sustainable development.

Climate Change Adaptation is about reducing the risks posed by climate change to people's lives and livelihoods' (DFID, 2006).

As with DRR and adaptation, social protection has witnessed a rapid rise up the development policy agenda. Growing experience, together with improved evidence, suggests that it can contribute to poverty reduction and help move people into productive livelihoods. Many social protection instruments have contributed to reducing vulnerability related to climate variations and extremes and their impact on livelihoods described in the previous section. Table 9 highlights key features of these three approaches, demonstrating some overlap.

Table 9. Key Characteristics of social protection, adaptation and disaster risk reduction

	Social protection	Adaptation	DRR
Core disciplinary grounding	Development and welfare economics	Social development and physical sciences	Physical sciences
Dominant focus	Implementation of measures to manage risk	Enabling processes of adaptation	Prevention of disaster events
Main shocks and stresses addressed	Multiple	Climate-related	All natural hazard-related, including climate
International coordination	Informal, OECD task group	UNFCCC – Nairobi Work Programme	UN-ISDR Hyogo Framework for Action
Main Funding	Ad hoc multilateral and bilateral	Coordinated international funds: Global Environment Facility, UNFCCC/Kyoto Protocol funds. Ad hoc bilateral	Coordinated international funding: ISDR, GFDRR Ad hoc civil sponsored and bilateral

The social protection policy agenda focuses on the poorest and most vulnerable in society and the transfer of resources (especially cash) to households to smooth consumption or support income. Social protection can target different groups such as the income poor, children, disabled and elderly. In DRR, efforts within relief and recovery are designed to smooth the social impact of shocks, with far less emphasis on preventative approaches that tackle disasters from a holistic perspective. In adaptation, attention to building on existing coping practices is also focused on smoothing shocks as a first step.

Linkages in practice: Investigating the evidence base

Country experiences of a diverse range of social protection instruments - weather-indexed crop insurance, employment guarantee schemes, asset transfers and cash transfers - reveal how measures can enhance the resilience of vulnerable communities. These point to ways in which the design of social protection measures could be strengthened taking into account current and potential future climate related shocks.

Cash transfers

Predictable cash transfers can play an important role in mitigating the vulnerability of the chronic poor who will increasingly be exposed to climate related shocks and stresses. Kenya's National Social Protection Framework delivers cash transfers through two separate initiatives targeting different vulnerable groups. The Vice President's Orphans and Vulnerable Children Cash Transfers Programme is a conditional transfer dependent on children's attendance in schools and health care facilities. This is particularly important for ensuring vulnerable children are not withdrawn from school or unable to access healthcare as a consequence of a climate induced livelihood shock. The Hunger Safety Net Programme aims to improve not just food security and nutrition but also access to health and education by moving away from emergency relief responses to a predictable, guaranteed and sustained resources transfer. This is an example of how social protection can support adaptation and disaster risk reduction as it aims to reduce the need for emergency relief in times of drought and/or crop failure (Devereux and Coll-Black, 2007).

Ethiopia's Productive Safety Net Programme (PSNP) is a cash (and food) transfer programme aimed at alleviating household vulnerability to seasonal food insecurity consumption across the hunger period. It provides seasonal employment on public works in exchange for cash or food transfers to help protect household assets and smooth a shift away from emergency food aid toward a more predictable and targeted safety net. So far, the programme has successfully prevented the use of damaging coping strategies during periods of increased stress. There is also some evidence that cash transfers can build assets or provide households with contingency finance for mitigating climate-related risks. But the timing has to be right, both in terms of coinciding with the hungry season and also making sure the amount of transfer takes adequate account of purchasing power, which can vary over the course of a year. The Government of Ethiopia is aiming to graduate all participants from the programme after five years. However, in a changing climate, social protection measures must reduce risk and reduce poverty proactively over *extended* timeframes, particularly in ecological and social environments subjected to high states of flux (Tanner and Mitchell, 2007).

Weather-indexed crop insurance

In recent years there has been a shift away from insuring against poor crop yields toward insuring directly against bad weather. A contract is written against an index establishing a relationship between lack of rainfall and crop failure, verified by long historical records of both rainfall and yields. Farmers collect an immediate payout if the index reaches a certain measure or "trigger," regardless of actual losses, so farmers still have an incentive to make productive management decisions. This removes moral hazard and adverse selection problems inherent in crop insurance (Hellmuth *et al.*, 2007; Hess and Syroka 2005). When well designed, they may also permit farmers to enhance adaptive capacity through greater risk- taking experimentation in agriculture practices not possible in crop-insurance schemes.

Asset transfers

Selling productive assets such as livestock is a common coping strategy among the rural poor during times of climatic stress or shock. Inability to access such assets traps the poor in a persistent cycle of chronic poverty (Chronic Poverty Research Centre 2005; World Bank 2001). A sustainable strategy for disaster reduction must therefore focus on activities to help the vulnerable build assets (UN-ISDR 2004; Wisner *et al.*, 2004; Vasta, 2004) that incorporate climate screening in order to ensure that such assets are able to support resilience in a changing climate (Tanner *et al.*, 2007).

Social protection measures can contribute to asset accumulation, for example through unconditional and conditional cash transfers, micro-credit as well as the direct provision of livestock or poultry through asset transfer programmes. The Reducing Vulnerability to Climate Change (RVCC) project in Bangladesh has explicitly mainstreamed climate change throughout its design and implementation. One adaptation strategy identified by the programme is the need to promote alternative livelihoods. The project encouraged the uptake of assets such as duck-rearing to enhance income and achieve greater resilience in the face of climate change (Mallik, 2006).

Employment guarantee schemes

Finding work in the urban areas is particularly challenging for excluded people who may face discrimination from employees or lack supportive social networks in their destination community. There are also few opportunities for off farm employment in rural areas. A legislative guarantee of employment can help build the resilience of these people to the impacts of climate change. The National Rural Employment Guarantee Act (NREGA) of India, beginning in February 2006 in two hundred of the poorest rural districts, guarantees 100 days of employment a year to the rural poor. Wages are fixed at the State minimum wage. These public works programmes, such as strengthening embankments and de-silting irrigation may be used as a physical response for building household and community resilience against climate change impacts. The scheme currently issues job cards on a household rather than individual basis and this may not be sufficient to support the chronically poor and may also prevent vulnerable household members from benefiting from the scheme. Employment guarantee schemes can have gender equity objectives, and target women and female headed households; however, critics have questioned the implications for women's workloads. Where the work involves heavy manual labour, this can exclude highly vulnerable people such as the elderly and disabled. (Devereux *et al.*, 2007). Other forms of social protection would be

needed for the labour-constrained poor and further evaluation of the impact of employment guarantee schemes on vulnerable and excluded people is required (Scott, 2008). There is also evidence that employment guarantee schemes may not be efficient relative to cash transfers (Devereux *et al.*, 2007).

Social pensions

Social Pensions can be understood as non-contributory cash transfers from the State to elderly people, in which entitlements are not based on a lengthy record of contributions to a pension plan. These include cash transfers for poor old people, pensions and old age grants (Barrientos, 2004).The social pension is seen as constituting an additional stream of income and is often redistributed to the recipient's extended family, and thus used in wider contexts (Devereux, 2001).Devereux presents evidence on the wider development impacts of the social pension including the contribution to development of trade and marketing infrastructure, uses in productive purposes such as education, business and agricultural assets and as a vital source of household food security by stabilising income and consumption in the face of shocks. In this way, it provides buffers against livelihood shocks, such as the impacts of climate change.

Based on examples given above, the Table 10 summarizes the benefits and challenges of social protection for adaptation and DRR.

Table 10. Benefits and challenges of social protection for adaptation and DRR

Social protection measure	Benefits for adaptation and DRR	Challenges
Cash transfers	- Targeting of most vulnerable to climate shocks - Smoothing consumption allowing adaptive risk-taking and investment - Flexibility enhanced to cope with climate shocks	- Ensuring adequate size and predictability of transfers - Long term focus to reduce risk over extended timeframes - Demonstrating economic case for cash transfers related to climate shocks - Use of socio-ecological vulnerability indices for targeting
Weather-based crop insurance	- Rapid payouts possible - Guards against the adverse selection and moral hazard - Frees up assets for investment in adaptive capacity - Easily linked to trends and projections for climate change - Supports adaptive flexibility and risk taking	- Targeting marginal farmers - Tackling differentiated gender impacts - Affordable premiums for poor - Subsidising capital costs - integrating climate change projections into financial risk assessment - Guarantee mechanisms for re-insurance

Social protection measure	Benefits for adaptation and DRR	Challenges
Employment guarantee scheme	- Provides potential off-farm employment in rural areas - Public works can used as a physical response for building resilience against climate change impacts - Provides a guaranteed income to combat seasonal variation	- One job card per household may not be sufficient to support vulnerable and marginalised individuals - Can negatively impact on agricultural real wages - Lack of awareness means low enrolment rates -Inefficient compared to direct cash transfers
Asset transfers	- Ability to target most vulnerable people - Easily integrated in livelihoods programmes	- Ensuring local appropriateness of assets - Integrating changing nature environmental stresses in asset selection
Social Pensions	- Addressing the dualism of old people being unable to provide for themselves, and high levels of unemployment and very low incomes limiting the ability of the poor to care for their elderly - Targeting most vulnerable to climate change shocks. - Providing a guaranteed household income.	- Cost inefficiencies (arising from inclusion errors) - 'Perverse redistribution of income', as rich people outliving the poor people - High transaction costs

Lessons and Challenges

For social protection programmes to successfully support adaptation and DRR, a number of lessons and challenges need to be recognised and addressed during design and implementation.

Longer term perspectives on social protection

More recent social protection policies and programmes refer to the need for *'long-term'* interventions. Considering adaptation and DRR in the context of social protection provides a strong incentive for developing longer term perspectives.

People-centred and social aspects

Social protection interventions need to fully address issues of social vulnerability including marginalisation and exclusion, and be based on the realities of the poor. Recent disasters and adaptation discourse and practice is now giving increased focus to community-based adaptation, and the development of tools and methods to assess human vulnerability.

Institutional capacity and co-ordination

Ministries responsible for the three different fields are commonly poorly resourced and marginalised, which constrains effective cross-sectoral linkages. Political ownership is important for building a coherent agenda among the fields. For each, it is important to link policy and actions with wider poverty reduction frameworks and growth strategies.

Instrumentalism vs. rights based approaches

From an instrumentalist perspective, social protection is often viewed as a means for efficient delivery of the MDGs. Similarly, DRR and adaptation are advocated as cost-effective means of preventing future negative impacts on development investments. From a rights-based or activist perspective, related equity and justice debates have been at the heart of advocacy on adaptation and social protection (the ideal of a 'universal social minimum). A key implication is likely increased engagement with rights and equity based arguments around climate change injustice.

Targeting

Ensuring that the poor and vulnerable benefit from adaptive social protection mechanisms requires effective targeting (when provision is not universal). Climate change may contribute to making targeting more complex due to an increase in seasonal migration or permanent migration, making locating beneficiaries more difficult. Climate change impacts will also affect both the poor and non-poor, and may contribute to pushing the non-poor into poverty. Therefore, means-testing adaptive social protection may not be the most effective way to target those at risk of climate change impacts, Targeting may need to be focused on vulnerable life cycle periods, *e.g.* social pensions, or be broad-based, such as employment guarantee schemes, to ensure that access is available to those who need it.

Uncertainty

There are challenges in trying to establish the impacts of climate change with any degree of confidence. For policy-makers it is difficult politically to back plans for an unknown future. Therefore, it may be challenging to get policy-makers to accept the need to adjust social protection mechanisms to cope with hard to predict and unforeseen livelihood risks.

Adaptive social protection

By placing social protection in the context of the impacts of natural phenomena, particularly climate, we establish a framework for social protection measures to strengthen poor people's resilience to disaster risks that acknowledge the changing and unpredictable nature of climate-related impacts. This concept of *adaptive social protection* is characterised by a number of features that include:

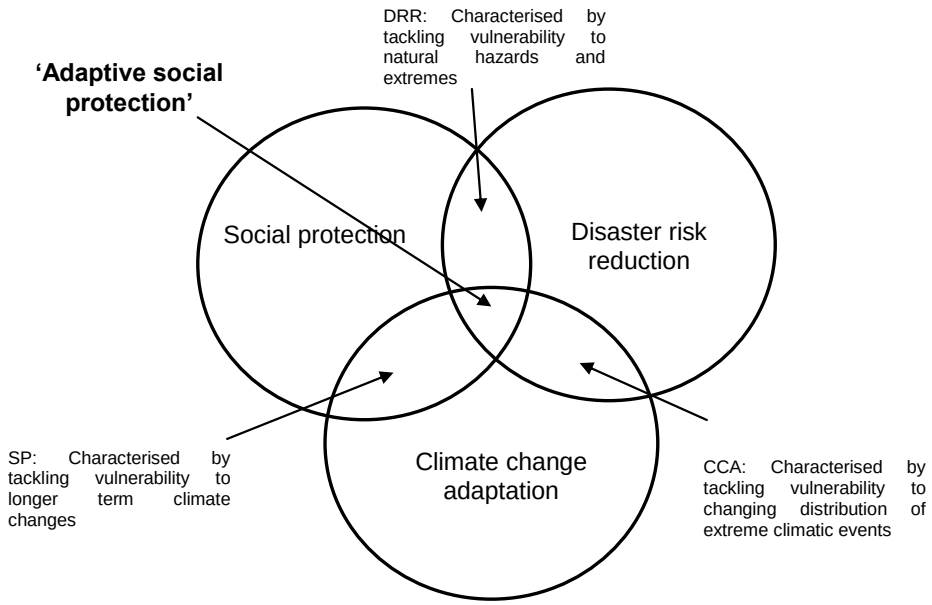
- An emphasis on transforming productive livelihoods as well as protecting, and adapting to changing climate conditions rather than simply reinforcing coping mechanisms.
- Grounding in an understanding of the structural root causes of poverty for particular people, permitting more effective targeting of vulnerability to multiple shocks and stresses.
- Incorporation of rights-based rationale for action, stressing equity and justice dimensions of chronic poverty and climate change adaptation in addition to instrumentalist rationale based primarily on economic efficiency.

- An enhanced role for research from both the natural and social sciences to inform the development and targeting of social protection policies and measures in the context of the burden of both geophysical hazards and changing climate-related hazards.
- A longer term perspective for social protection policies that takes into account the changing nature of shocks and stresses.

Adaptive Social Protection suggests ways in which social protection programmes themselves can be made more robust in the face of current and future shocks. This includes:

- *Climate proofing social protection* through a long-term vision in the context of more reliable and accurate predictions and consideration of vulnerability.
- *Policy and programmatic options* for social protection for climate change adaptation.
- *A preventative and holistic* poverty approach for DRR.

Adaptive Social Protection



Recommendations: Towards implementing adaptive social protection

Social protection holds significant promise for protecting poor and excluded people against current (DRR) and future (adaptation) weather extremes and tackling increasing levels of risk and vulnerability. There are still considerable gaps in knowledge on both the evidence base and complexity of policy processes. This calls for international coherence between policy-makers and practitioners to address the following priorities:

Evidence

There is a need to further develop an evidence base on how to effectively combine social protection measures to mitigate vulnerability to climate change in different contexts. This could include:

- Capturing further lessons from existing case studies to support learning in other countries
- Combining the long-term study of poverty impacts and social responses to climate change with trends and projections for future climate hazards.
- Building evidence on the economic costs and benefits of different social protection measures for climate change adaptation.
- Generating evidence of the cost effectiveness of social protection measures relative to alternative interventions.

Policy and practice

- Taking a longer term perspective for social protection initiatives that takes into account the changing nature of shocks and stresses
- Developing Climate Risk Assessments for use in conjunction with social protection programme design and implementation.
- Developing practical guidance on the design and implementation of appropriate adaptation methods, taking into account the views of affected groups, particularly women, children and the elderly.
- Supporting civil society to help the poor build voice to demand access to social protection instruments.
- Reviewing existing adaptation funding guidelines and criteria to identify opportunities to integrate appropriate social protection responses.
- Strengthening synergies and linkages between academics and practitioners from across the three disciplines to strengthen understanding, co-ordination and good practice.
- Designing monitoring and evaluation systems to capture further evidence and feedback on the effectiveness of an adaptive social protection approach.

Notes

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2 Climate Change and Development Centre, Institute of Development Studies, University of Sussex, Brighton.

3 Warming of the most extreme days and nights each year.

4 Extreme high seas level depends on average sea level and on regional weather systems. It is defined as the highest 1% of hourly values of observed sea level at a station for a given reference period.

5 In all scenarios the projected global average sea level at 2100 is higher than in the reference period. The effect of changes in regional weather systems on sea level extremes has not been assessed.

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