POLICY BRIEF

WHY INVEST IN RESILIENCE?

October 2020

Key Findings

- Costs of extreme weather events (droughts and floods) in Malawi are rising and undermine development gains.
- Climate change means that the frequency and intensity of extreme weather events will continue into the future, with negative economic impacts accelerating after 2050
- Investing in resilience creates a triple dividend: avoided losses, development and co-benefits
- It is cost-effective: benefit-cost ratios for resilience investments can give returns from 3 to 1 to 50 to 1.
- Investing in resilience will allow Malawi to meet its development goals through sustaining and maintaining ecosystems for improved performance of key sectors, including agriculture, tourism, energy and wildlife.
- Investing in resilience has a positive contribution on building human resource capital for addressing 21st century challenges.

COSTS OF EXTREME WEATHER EVENTS IN MALAWI

Malawi has long experienced extreme weather events. In the 30 year period from 1979 to 2008, the country experienced more than 40 weather-related disasters, including dry spells, seasonal droughts, intense rainfall, riverine floods and flash floods, and their frequency is increasing[i].

The economic costs of extreme weather events are significant (see table). The 2015 floods resulted in a reduction in annual GDP growth of 0.6%[ii]. The major drought in the following year (2016) had a cumulative impact of 5.6% of GDP[iii]. The 2019 floods associated with cyclone Idai led to production losses costing 0.13% of GDP[iv]. In the last 5 years, three extreme weather events have led to disasters being declared in Malawi.

On average, it is estimated that Malawi loses approximately 1.7% of GDP every year due to the combined effects of droughts and floods[v]. This is over 5 times higher than the average for LDCs of 0.3%[vi]. Although a recent Climate Public Expenditure and Institutional Review (CPEIR) shows that climate spending (defined as contribution to adaptation or mitigation or both) as a percentage of total public expenditure has more than doubled from the period before 2013/14 to the period afterwards, it was still less than 4% in the 2017 financial year[vii].

Although it is difficult to define exactly what proportion of public expenditure should be on climate, for comparison the amount in Bangladesh in 2012 was 6-7%.

Costs of recent extreme weather events

Event	No. people affected	Cost of damages (USD$)	Cost of recovery plan (USD$)
2015 floods	2.8 million	335 million	494 million
2016 drought	6.5 million	366 million	500 million
2019 floods	975,000	220 million	371 million

Source: Post-Disaster Needs Assessments (ibid)

FUTURE CLIMATE RISK

Extreme weather events occur against a context of broader changes in climate. In recent years, temperatures have increased in Malawi and there is an overall drying trend, although there remains significant variability in rainfall amounts and seasonal patterns.

In the future, climate models predict that warming will continue and there will be a higher likelihood of extreme rainfall events, including both droughts and floods[viii].Initial indications are that rainfall in the north may increase, whilst in the south it is more likely to decrease.

Modelling the impacts of future climate change on the economy (taking into account agriculture, road infrastructure and hydropower generation) highlights that, although climate change is unlikely to slow overall economic growth in the coming two decades, the implications become significantly more severe after 2050[ix].
This will depend on the extent to which Paris Agreement mitigation targets are met.

Whilst GDP in Malawi could be reduced by 3% to the period 2046-50 under unconstrained emissions; there could be an increase in GDP of up to 2% if global mitigation policies are effective, including taking into account how the resulting reduction in global fossil fuel producer prices would provide a substantial terms of trade boost of structural fuel importers[x].

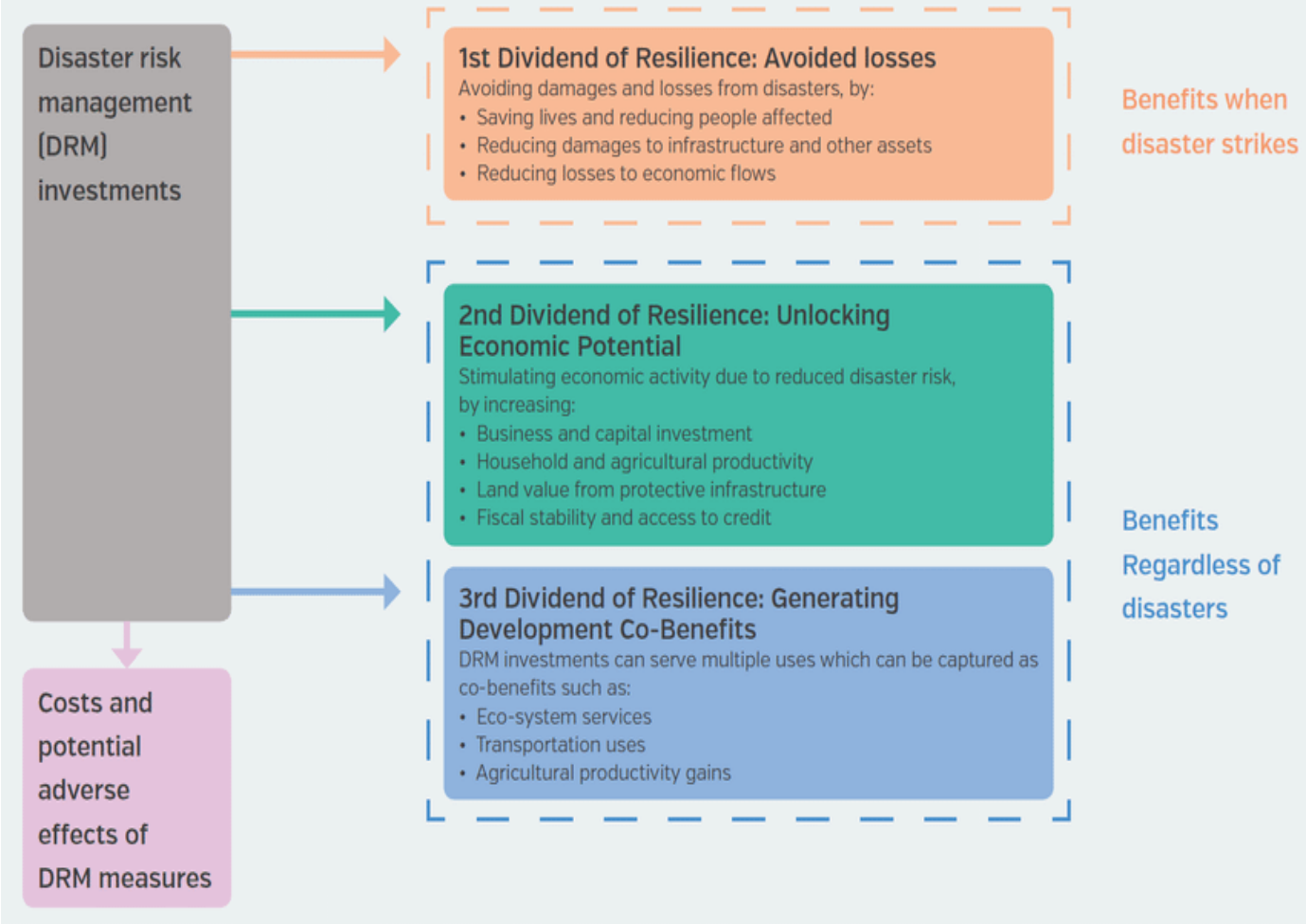
TRIPLE DIVIDEND OF RESILIENCE INVESTMENTS

Extreme weather events have already had significant implications for Malawi's economy, and the risk is projected to increase in the future. Taking a resilience perspective to Disaster Risk Reduction and climate change adaptation can yield a triple dividend of resilience. Resilience investments are cost effective as they yield a triple dividend.

- The *first dividend of resilience* is avoided losses through the saving of lives, reduction of damage to infrastructure and reduction in economic losses.
- The *second dividend of resilience* is the development potential that is unlocked when underlying risk is reduced, for example by encouraging households to save and build assets, by promoting entrepreneurship and stimulating firms to invest and innovate. This occurs independent of any disaster.
- The *third dividend of resilience* is the co-benefits that result from disaster risk management investments that contribute to development gains. This also occurs independent of any disaster.

Taking this resilience perspective in the design of Disaster Risk Reduction and climate change adaptation can ensure that they yield returns through the second and triple dividend of resilience, as well as simply the first. "Put simply, not investing in DRM is a missed opportunity for social, economic and environmental progress"[xi].

THE "TRIPLE DIVIDEND" OF RESILIENCE[XII]



Investing in resilience reduces losses and damages in the case of a disaster. However, it can also yield development benefits regardless of disasters. Typically, standard disaster risk management investment appraisals fail to account for the 2nd and 3rd Dividends of Resilience.

COST-EFFECTIVENESS OF RESILIENCE INVESTMENTS

An increasing number of studies document the cost-effectiveness of resilience investments, typically based on cost-benefit analysis and benefit-cost ratio (although both are subject to known methodological limitations).

A recent review shows that economic returns associated with resilience investments are largely positive, with benefit-cost ratios exceeding 3:1 and occasionally as high as 50:1, depending on the sector (e.g. disaster risk reduction, social protection and livelihoods, resilient infrastructure and public goods, and climate-smart agriculture)[xiv].

Social protection and livelihoods

A recent evaluation of early response and resilience building in Kenya, Ethiopia and Somalia, found that every US$1 spent on safety net (proactive transfers to meet deficits before coping strategies have to be employed) or resilience programming (to proactively increase incomes) results in net benefits of between US$2.3 and US$3.3 aggregated across the three countries (and, put another way, means that every dollar spent in building resilience saves $3 in reduced need for humanitarian aid and avoided losses)[xv]. Investing in resilience to drought has the potential to generate net savings of approximately US$ 287 million per year over a 15-year period, making it significantly more cost effective than providing ongoing humanitarian assistance.

Resilient infrastructure and public goods

A recent World Bank report highlights a US$4 return for every dollar invested in resilience for infrastructure (power, water and sanitation, transport, and telecommunications[xvi].

Resilient infrastructure, for example bridges that can withstand bigger or more frequent floods, contributes to the second and third dividend of resilience because it enables people to travel for economic opportunities, children to reach schools, and parents to reach clinics that improves their wellbeing outside of extreme weather events, and costs only 3% of overall investment needs whilst quadrupling economic returns.

In Angola, Tanzani and Zambia, where floods are a major risk, a UNDRR report assessed that the construction of multipurpose dams has benefit-cost ratios of 1.42-1.44[xvii].

> When used to manage downstream flow, dams reduce direct losses due to flooding (which saves between US$6-7 million per year and protects between 20,000-45,0000 people).

However, they also contribute to the second and third dividend of resilience through enhanced savings and investment contributing to economic growth; and additional power generation and better access to water. Combined, the total growth effects of the investment amount to between 7.6-8.5% of GDP.

Climate-smart agriculture

Climate-smart agriculture typically has high benefit-cost ratios, because the costs are low for significant productivity and environmental benefits and the allied opportunity for additional sources of revenue[xviii]. A cost-benefit analysis was undertaken on drought-focused climate-smart agriculture interventions in 53 villages in Mzimba district.

Interventions included alternative crop types and seed varieties, training in soil water conservation and contingency planning and, US$24 of net benefits were realised from every dollar of investment[xix]. In addition to the first dividend of overcoming food insecurity, second and third dividends arose from better incomes enabling saving and investment in healthy diets and education; and improvements to soil fertility.

At aggregate national level, the use of drought-tolerant and early-maturing varieties can significantly reduce the annual costs of drought (table).

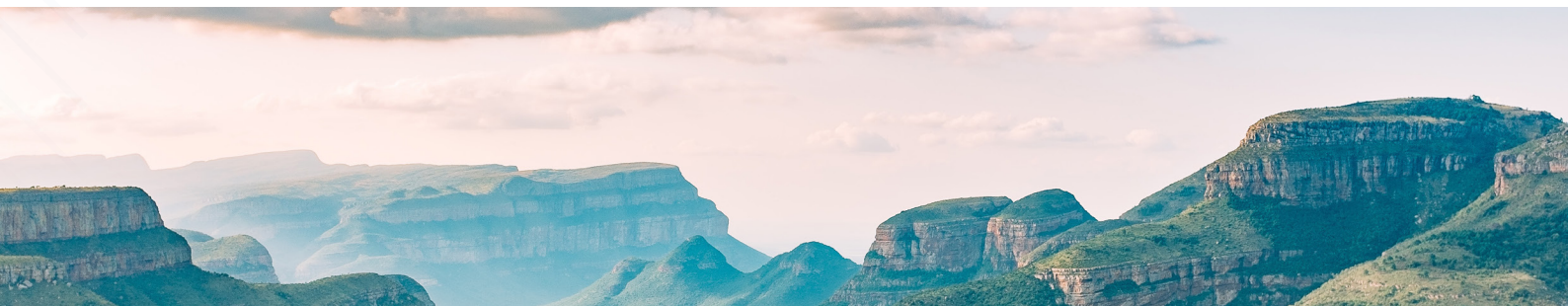
Since introducing improved crop varieties can also enhance yield in non-drought situations – thereby providing a second dividend, the benefit-cost ratio varies from 1.90-2.48 (depending on whether it is drought-tolerant or early-maturing and the country). Combined, the total growth effects of the investment amount to between 2.2-10% of GDP.

Potential annual cost savings to the drought impacts on maize of using drought-tolerant and early-maturing varieties[xx]

Country	Annual cost of drought to maize (USD$)	Annual cost of drought to maize when drought-tolerant varieties are used (USD$)	Annual cost of drought to maize when early-maturing varieties are used (USD$)
Angola	12.7 million	1.1 million	3.9 million
Tanzania	24.7 million	2.9 million	19.3 million
Zambia	8.5 million	0.7 million	0.5 million

RECOMMENDATIONS FOR RESILIENCE INVESTMENT IN MALAWI

- Operationalise the National Resilience Strategy, including by clarifying coordination with the National Climate Change Management Policy and National Disaster Management Policy.
- Operationalise and capitalise the Climate Change Management Fund and a budget line for proactive Disaster Risk Reduction activities, to be designed with recognition of the opportunities for the second and third dividends of resilience.
- Scale up disaster risk financing and social protection mechanisms to create the safety net necessary to encourage more active investment at individual and collective levels.
- Ensure that Vision 2063 integrates climate risk and exploits opportunities for the triple dividends of resilience.
- Ensure that the one million jobs created are green jobs that contribute to environmental restoration whilst providing decent income generating opportunities to Malawians.



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