

Small business resilience and climate change adaptation

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Background

Climate trends for South Africa from 1960 to 2010 are:

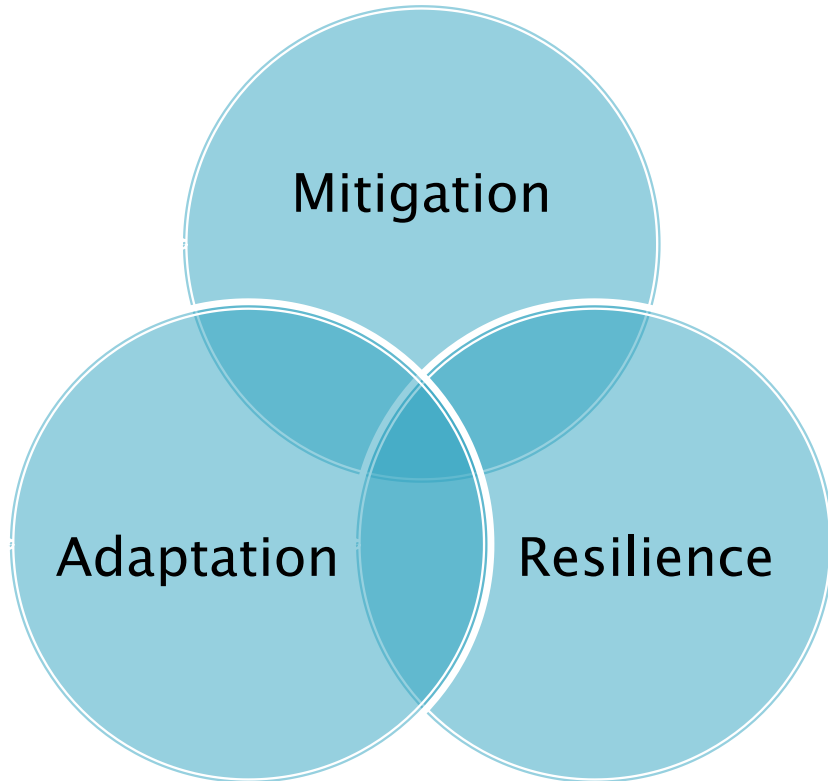
- ▶ Mean annual temperatures have increased by at least 1.5 times the observed global average of 0.65°;
- ▶ Maximum and minimum daily temperatures have been increasing annually, and in almost all seasons;
- ▶ There is a tendency towards an increase in the intensity and frequency of extreme rainfall events, including dry spell duration.

South Africa is highly vulnerable:

- ▶ One of the driest countries, and is expected to face serious water security issues going forward.
- ▶ With 2 798 km of coastline, South Africa is also vulnerable to sea-level rise.
- ▶ Relies on an economy which is heavily carbon- and energy-intensive further puts the country at risk of climate change response measures (i.e. the range of actions that countries undertake to address climate change), domestically and globally.

Background

The Three Pillars of Climate Change Response



- ▶ Mitigation, adaptation and resilience are inherently integrated.
- ▶ Mitigating climate change, i.e. reducing GHG emissions, is imperative to limit impacts and, in turn, reduce the future need to adapt.
- ▶ Adaptation is a core component of resilience. In many respect, adaptations solutions also contribute to decreasing GHG emissions.
- ▶ Efforts towards building a climate-resilient society, in addition, drive both mitigation and adaptation actions

Objectives and Approach

Two projects undertaken	Small Business Development in the Climate Change Adaptation Space in South Africa	All is not green: climate change adaptation and small business resilience in low- and middle-income countries
Objectives	<ul style="list-style-type: none"> Investigating the interplay between climate change adaptation and small business development in South Africa Exploring how small businesses can seize business opportunities arising from adaptation. 	<ul style="list-style-type: none"> Provide insight into the climate change risks faced by MSMEs, the current state of adaptation, and the potential role of these enterprises in advancing climate change adaptation in low- and middle-income countries.
Approach	Literature review; key informants; Case studies of small business in water, sanitation, and agric space	Literature review; Case studies from various Green Economy Coalition (GEC) countries
Focus	South Africa	Low and middle income countries
Funding support	Government of Flanders	Global Commission on Adaptation

Rationale for small businesses

- ▶ Small businesses play an important role in the economy through employment and providing products and services that society needs.
 - ▶ Small business are active in climate sensitive sectors and are significant employers.
 - ▶ Small business play important roles in both local and global value chains
 - ▶ BUT small business tend to have less capacity to respond climate change
 - ▶ The risks that small businesses face can translate into significant impacts on the economy and society, particularly for poor and marginalised groups.
- ▶ Climate change adaptation open opportunities for innovation, both at the policy and business levels.
 - ▶ Small businesses are particularly well-suited to seize such opportunities.
 - ▶ Small businesses tend to be more versatile and innovative
 - ▶ New and young firms tend to exploit technological or commercial opportunities neglected by more established companies and often bring new business models, such as social enterprises.

Rationale for adaptation

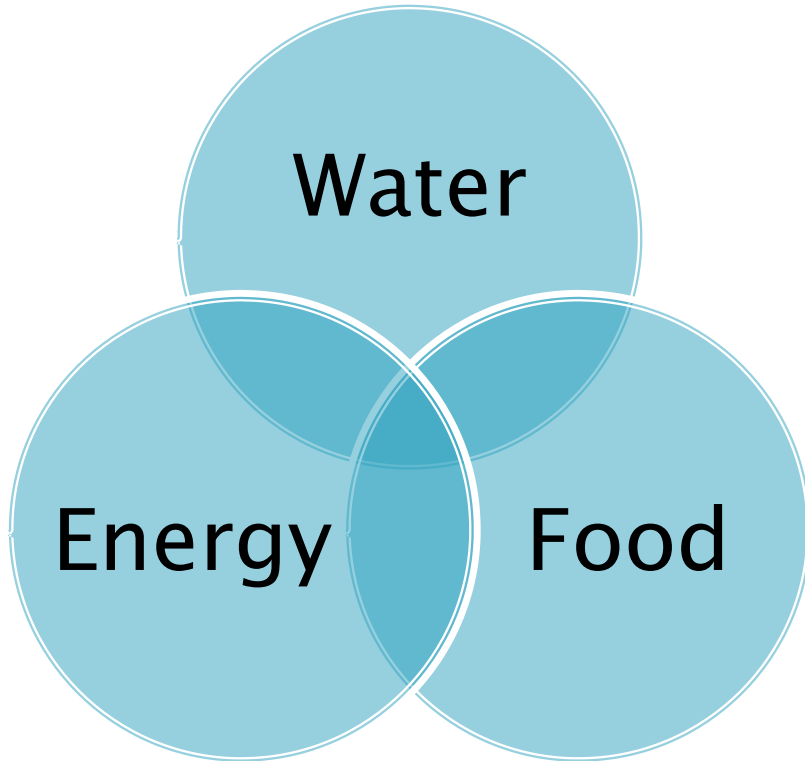
- ▶ Climate risks increase
 - the cost of producing goods and services;
 - increase the uncertainty and magnitude of supply chain disruptions;
 - reduce the quality of goods and services provided; and
 - disrupt the delivery of goods and services in a speedy and timely fashion (Wei and Chase 2018).
 - ▶ The close linkage between the risks in a complex and multi-stressor environment can cascade further into other socio-economic challenges such as unemployment, low incomes, food insecurity, crime, migration, and political instability.
- The potential for adaptation-driven needs (and investments) to generate socio-economic opportunities for small businesses remains largely unexplored and misunderstood
 - The focus to-date has been on mitigation-driven prospects, on the premise that mitigation-related interventions and investments are more financially viable and provide more imminent benefits.

Typology of risks faced by businesses in a value chain

Types of risk		Backward linkages (supply)	Firm/sector	Forward linkages (supply)
Acute	Physical risks	Price volatility and disruption in the availability of raw materials and inputs (energy, water, intermediate products)	Disruption of operations and negative impact on labour force (health)	Reduced demand by customers affected by extreme weather events
Chronic		Shortages in input supply as well as disruption to transport infrastructure (such as ports) due to sea-level rise	Negative impact on productivity (through workers' health and machinery functions) due to rising temperatures	Disruption of transport channels to customers as well as changes in customer demand due to evolving climate
Policy	Transition risks	Price volatility and disruption in the availability of raw materials and inputs (energy, water, intermediate products)	Higher cost of capital and/or operating costs, or product obsolescence due to public policy (such as carbon pricing)	Reduced demand by customers affected by extreme weather events
Technology		Disruption in supply chain due to technological change and innovation and competition accessing enhanced inputs	Product obsolescence or threat to business model due to technological change and innovation	Disruption of transport channels to customers as well as changes in customer demand due to evolving climate
Market		Negative impact on production process and supply chain as a result of suppliers facing unfavourable market trends	Reduced market demand due to product becoming unpopular or unsellable because of new market trends and/or product obsolescence	Reduced market demand due to changing customers' preferences
Reputation		Negative impact on production process and supply chain as a result of suppliers facing unfavourable reputation	Negative impact on productivity (through workers' health and machinery functions) due to rising temperatures	Reduced market demand due to customer, particularly industries, being negatively impacted by reputational damage

Source: Authors, based on (Engel, Enkvist, and Henderson 2015; IPCC 2014; WEF 2018; Wei and Chase 2018)

The Food–Energy–Water Nexus Market



- ▶ **Energy**
 - The potential in renewable energy
 - Improving energy efficiency in air conditioning
- ▶ **Water**
 - Expanding and improving efficiency in irrigation
 - Non–revenue water (NRW)
 - Improved water efficiency in the sanitation sector – next generation sanitation (NGS)
- ▶ **Food**
 - Climate smart agriculture
 - Organic agriculture

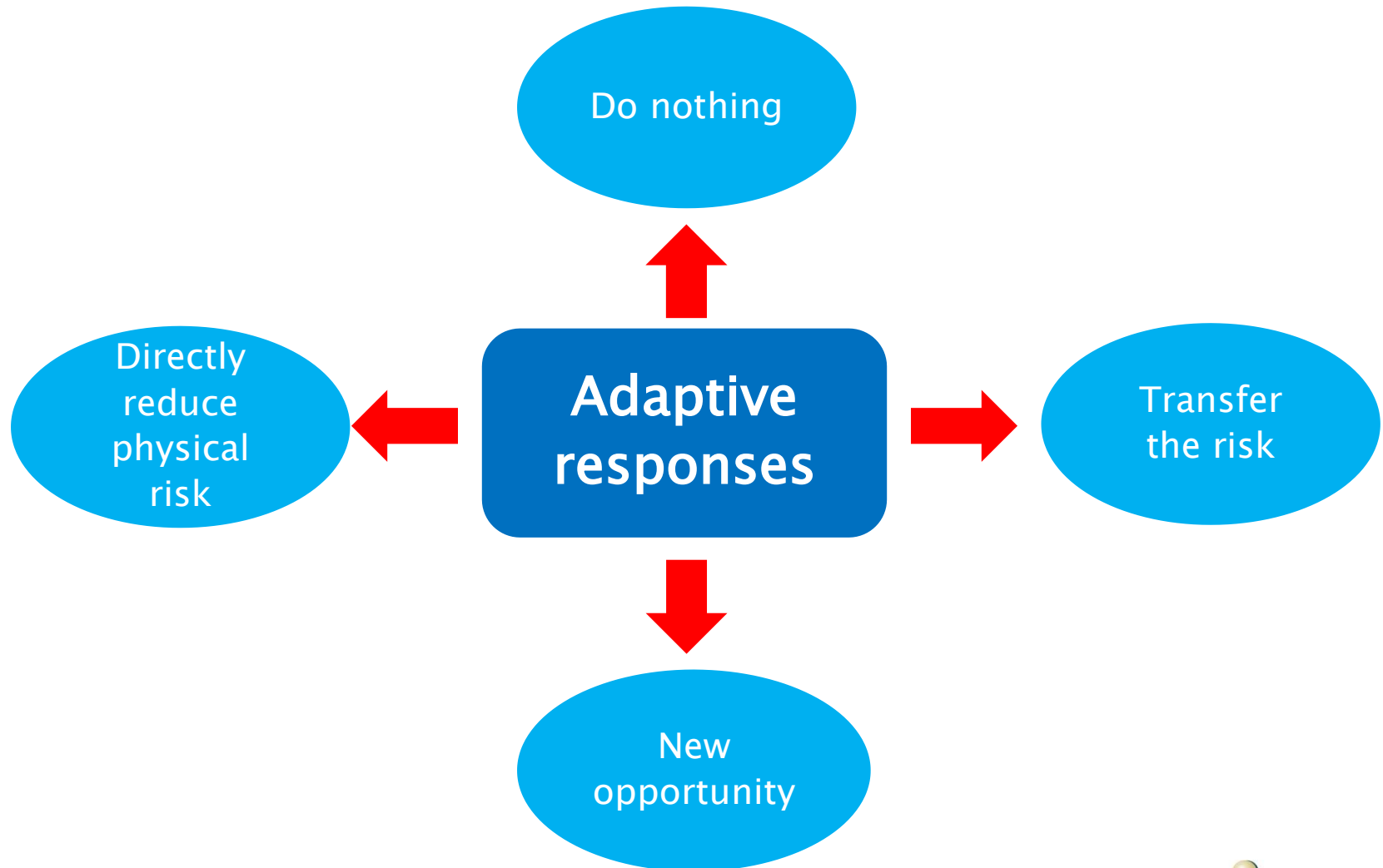
From markets to business models

- ▶ Markets for adaptation-related solutions are large, diverse and growing
- ▶ Such markets are also complex and heterogeneous, driven by varying dynamics.
- ▶ Tapping into these markets requires tailor-made business models and strategies.
- ▶ Different market segments and associated business models that small businesses can employ to bring their adaptation-related solutions to market exist.

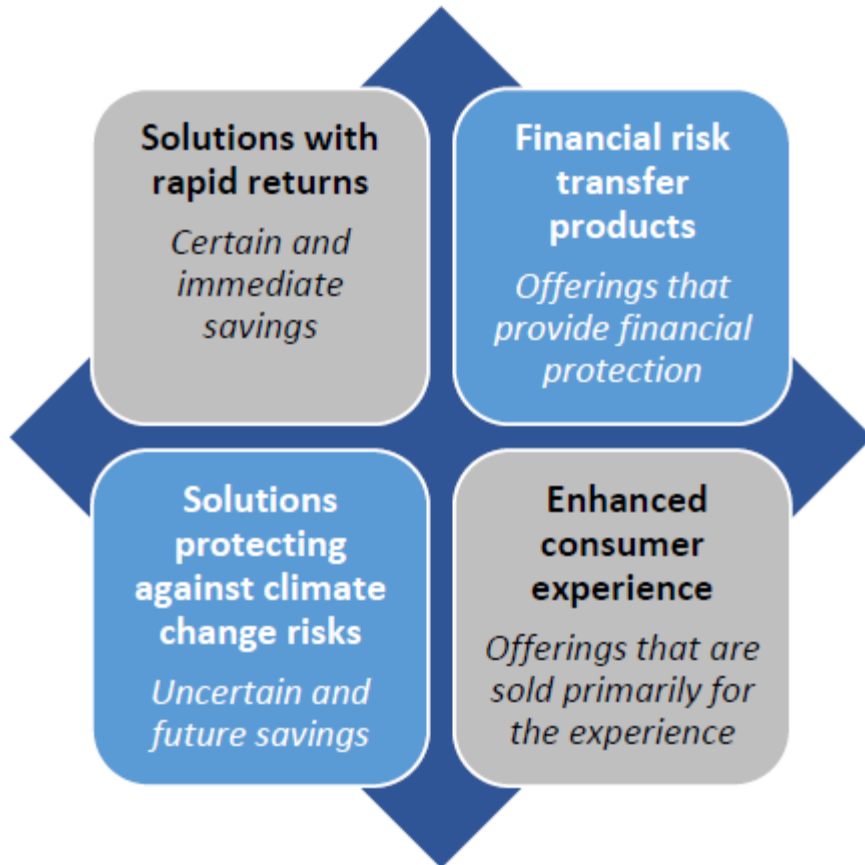
From markets to business models

- ▶ Small businesses and entrepreneurs face unique circumstances when compared to larger businesses
- ▶ Face the daunting task of bringing a quality product, service or technology to market, often where markets are new and undeveloped – with limited resources
- ▶ Business models for small businesses have to take into account their constraints for these businesses to reach consumers and for adaptation to occur

Adaptive responses to climate change

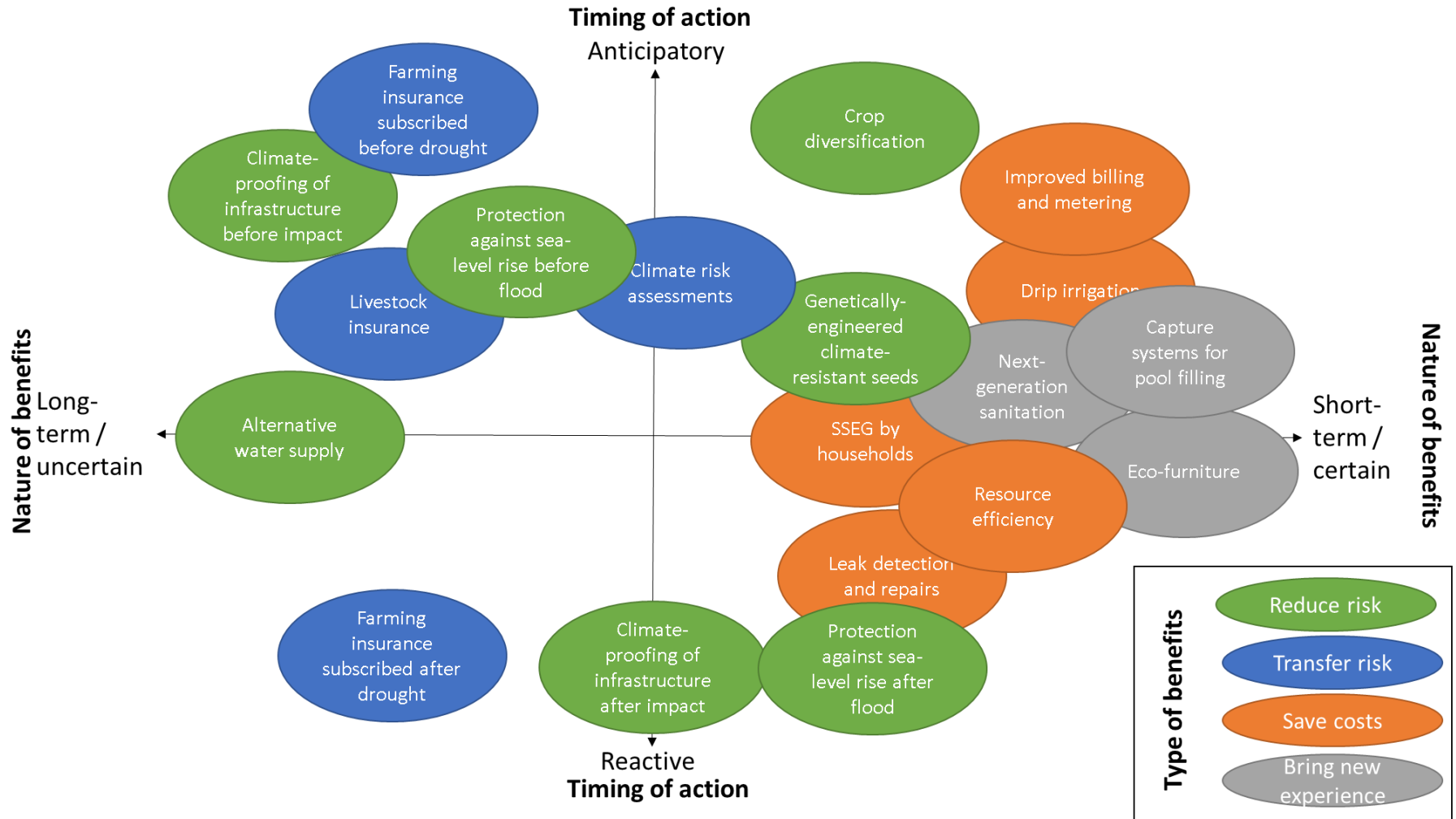


Business model classification



- *Solutions with rapid returns* refer to those – certain and immediate benefits
- *Solutions protecting against climate change risks* – uncertain savings that require costs to be incurred currently
- *Financial risk transfer products* – provide financial protection and build climate resilience
- *Enhanced consumer experience* – provide a superior experience to consumers
- Each business model type has key characteristics that have to be considered
 - *Voluntary vs. involuntary*
 - *Savings vs. cost*

From needs to markets



Policy implications

- ▶ Small businesses remain largely left behind due to structural obstacles hindering their development.
- ▶ Their potential is mainly unharnessed, and they are prevented from flourishing, increasing growth, enhancing employment, and innovating in the country
- ▶ Also a missed opportunity in driving forward the adaptation of South Africa to climate change.

Policy implications – Demand

Laying the foundations for adaptation – a public sector lead

- Awareness and understanding of adaptation to both climatic events and climate policy across government departments/SOEs based on adaptation strategy
- Appropriate legislation to promote adaptation markets, e.g. new building laws; public housing
- Regulatory framework for NGS, SSEG, etc.

State procurement as a driver for markets

- Procurement of adaptation goods by the state to lead by example
- Use of renewable energy in municipal buildings
- Rainwater harvesting
- Water efficiency products
- NGS

Direct state–support for vulnerable poor

- Subsidies

Support programmes for general h/h's

Policy implications – Support

Funding

- Provision of dedicated funding to small businesses through funding institutions (e.g. IDC, DBSA, TIA)
- Funding needs to account for the nature of adaptation and stage of development

Institutional support

- Provision of infrastructure (e.g. agricultural land/manufacturing floor) at preferential rental
- Provision of access to facilities which lower operational costs
- Access to technical skills/expertise
- Dedicated institutions for support

Market access

- Access to skills/resources that enable small business to reach consumers
- Access to marketing/advertising expertise
- Incentivise large firms

Knowledge and education

- Targeted education programmes to SMMEs
- Incubators used as a possible means of diffusion
- Account for traditional practices

Conclusions / Way forward

- ▶ Climate change is unavoidable and SA is vulnerable – the need to adapt is urgent – SA faces climate and policy risk
- ▶ Potential for adaptation-driven needs to generate socio-economic opportunities for remains largely unexplored and misunderstood
- ▶ The market opportunities for small businesses are:
 - products with immediate savings, offerings with future savings, financial risk transfer products, and products that enhance consumer experience
- ▶ Small businesses require intensive support and an accommodating policy and regulatory framework.

Conclusions / Way forward

- ▶ A basket of support measures to stimulate demand and support small business is required
- ▶ This includes an adaptation strategy, public procurement, support for vulnerable consumers, and awareness raising
- ▶ Download the report and the case studies [here!](#)

Trade & Industrial Policy Strategies (TIPS) is a research organisation that facilitates policy development and dialogue across three focus areas: trade and industrial policy, inequality and economic inclusion, and sustainable growth

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March 2019



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Model 1: Solutions with rapid returns

- ▶ Offerings a consumer purchases to adapt to climate change and the benefit is realised fairly soon with certainty
- ▶ Typically voluntary and represent an associated savings rather than a pure cost with an uncertain benefit
- ▶ Government support can drive market interactions where activity is stagnant.

Water

- Leak detection and repair
- Water recycling
- Water efficient taps and showers

Energy

- Small-scale embedded generation (SSEG)
- Smart meters to monitor consumption

Food

- Efficient irrigation
- Water-efficient crops
- Removal of invasive species

Model 1: Solutions with rapid returns

Techno-economic/social aspects:

- ▶ Comparatively easier sell – savings can be demonstrated
- ▶ Vital that offerings are viable and competitive on price
- ▶ Novel/technically complex offerings harder to sell
- ▶ Acceptability, convenience and desirability also important

Small business actions:

- Using online platforms for technology and solution dissemination.
- Value added services
- Modular design
- Franchising

Financing:

- *Poorer households/communities* – mix of assistance from the state, donors and private sector (through incentives)
- *Large businesses and households* – rebates/tax incentives; state procurement creating an environment of adaptation; linking of adaptation to profit-making (e.g. sale of power)
- *Public sector/Utilities* : State procurement of adaptation goods – e.g. reduction of water losses

Model 2: Solutions protecting against climate change risks

- ▶ Do not provide immediate benefits, but build resilience and provide protection at some future date
- ▶ Solutions in this market segment are likely to be triggered (rather than voluntary).
- ▶ Represent costs coupled with savings that are not immediate

Water

- Climate-proofing of infrastructure
- Increasing dam capacity/heightening dam walls

Energy

- Diversification of energy mix through increased alternate energy supply options (solar, wind, biomass, hydro)
- Design, construction and fortification of generation and T&D infrastructure

Agriculture

- Landscaping modifications to protect against flooding
- Crop yield forecasting

Model 2: Solutions protecting against climate change risks

Techno-economic/social aspects:

- ▶ Viability largely depends on technology and costs
- ▶ Offerings in water and energy sectors are largely unlikely to face technical issues with market uptake, except where new and not developed to operate scale

Small business actions:

- Establishing niched expertise
- Large-scale projects and partnerships

Financing:

- Target consumer an important determinant of affordability and uptake
- *Utilities*: capital subsidies and soft loans; project financing arrangements; greater IPP involvement
- Vulnerable/agricultural consumers: direct state support to assist in purchasing; use of state land for interventions where possible

Model 3: Financial risk transfer offerings

- ▶ Transfer risk to the financial sector in exchange for a premium
- ▶ Assist in protecting the vulnerable through smoothing consumption and lessening the financial and economic impacts
- ▶ Also can assist in adaptation to climate change
- ▶ Insurers able to identify and predict risks – assist consumers to understand, manage and limit risk

Energy & Water

- Insurance models that promote investments in infrastructure resilience
- Parametric insurance which links payouts to certain metrics (e.g. paying out a utility during water shortages triggered by a threshold dam level)
- Premiums linked to investments in efficiency

Agriculture

- Insurance index mechanism with incentivised risk reduction: reference farm plot
- Livestock insurance

Model 3: Financial risk transfer offerings

Techno-economic/social aspects:

- ▶ Insurance does not face substantial technical barriers per se but prediction tools are a barrier
- ▶ Certain consumers unable to afford insurance, especially high-risk events which inflate premiums

Small business actions:

- Leveraging technology to provide solutions.
- Microfinance
- Niche focus service offerings to large insurers.
- Brokerage services

Financing:

- *Vulnerable communities/farmers:* state subsidies combined with well-tailored insurance packages that incentivise the building of resilience into business activity (e.g. microinsurance)
- To crowd in insurance firms, state has to commit to increasing reliance in the economy through infrastructure investment
- PPP arrangements have succeeded in some countries (e.g. flood schemes)
- Government guarantees can provide confidence to insurance firms initially

Model 4: Enhanced consumer experience

- ▶ Solutions primarily sold on offering an aspirational experience (or protecting lifestyles) while also contributing to adaptation
 - ▶ Consumers of such products would tend to generally fit a middle-to-upper income demographic and derive utility from luxury and climate friendliness
 - ▶ Offerings that posit the consumer experience as paramount provide additional utility to consumers in that the offerings are eco-friendly and sustainable
- Water-efficient coffee machines
 - Luxury LED lighting and fixtures
 - Use of sustainability-certified inputs in foods
 - Plant-based and recycled packaging
 - Chemical products with limited additives
 - Non-electric clay refrigerators
 - Eco-furniture
 - Solar battery storage units

Model 4: Enhanced consumer experience

Techno-economic/social aspects:

- ▶ Aspirational goods are those for which there is high demand already – unlikely that such offerings will face any technical constraints
- ▶ Room for such products to be marketed at the middle-to-upper income demographic

Small business actions:

- Niche/specialised products in speciality stores
- Targeting large customers

Financing:

- Unlikely that any form of external funding would be required on the demand-side
- Due to their aspirational nature, however offerings in this model do have a high risk of cyclicity with the business cycle and their demand will probably wane during economic downturns