

Technology Needs Assessment (TNA) Resource document for South Africa

Climate Change, Energy and environmental management
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Acknowledgements

DST- Imraan Patel and Linda Manyuchi

CSIR – Bob Scholes, Linda Phalatse, Marna van der Merwe and Gill Collett

Steering committee and workshops participants

Experts from ERC and WITS

Background

TNA is a requirement of Article 4.5 of the UNFCCC

*‘Technology Transfer’ is a broad set of processes covering the flows of know-how, experience and equipment for mitigating or adapting to climate change amongst **different stakeholders** such as governments, private sector entities, financial institutions, NGOs and research/education institutions*

Completed TNAs are available on
<http://ttclear.unfccc.int/ttclear/jsp/index.jsp>



Key principles for technology transfer

1. Technology transfer must be **driven by the needs of the user**
2. Most technology is used by the non-governmental sector so should be initiated and supported by the **private sector and civil society** organisations.
3. Technology transfer needs to be **collaborative, consultative and participatory** among many different players.
4. Market mechanisms are the main vehicles to deliver and sustain technologies, but should be supported by regulation.

Document objective

Resource document **to identify and prioritise** climate change adaptation or mitigation technologies needed by South Africa, **that require support and co-operation from developed countries**

It will be used to prepare final South African Technology Needs Assessment submission to the UNFCCC

It will form a foundation of the Climate Change technologies database

TNA main activities

source: Handbook on conducting TNAs, UNDP, 2003

1. Prepare initial review of technology transfer options (1st CSIR report)
2. Identify criteria for assessment and prepare list of sectors to be evaluated
3. Prioritise sectors and select key technologies
4. Identify barriers and policy needs
5. Define and select options
6. Prepare a synthesis report to UNFCCC
(including an implementation plan)



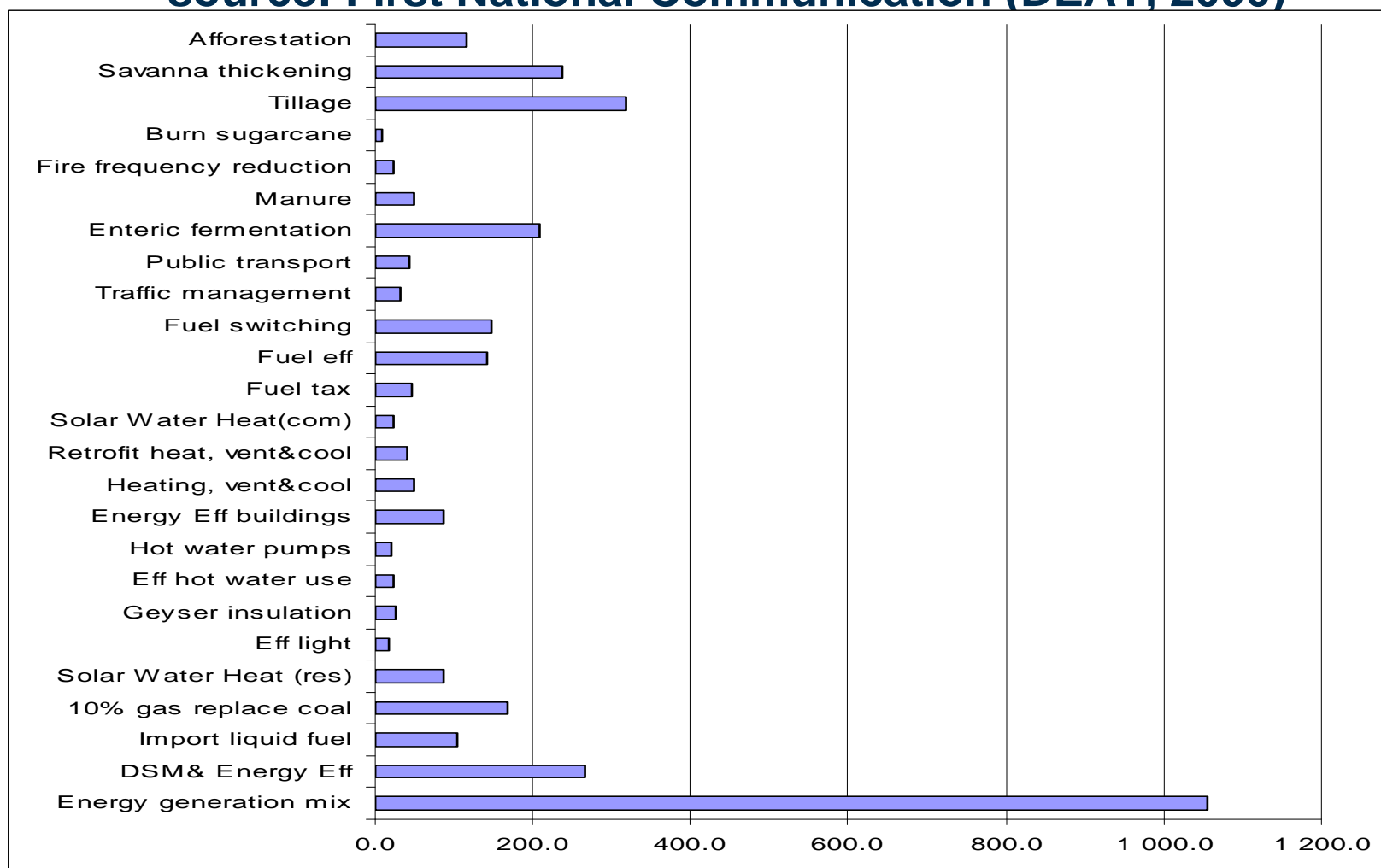
Process of producing this report



1. Steering Committee Meetings and workshops with all main sectors (to define criteria and options)
2. Draft report presented at NCCC and feedback included
3. Session with DST (criteria use and 1st selection)
4. Experts input on weighting and prioritisation
5. Synthesis of all information into report-
released to NCCC for comments last week

Sectors mitigation potential (MtCO₂eq)

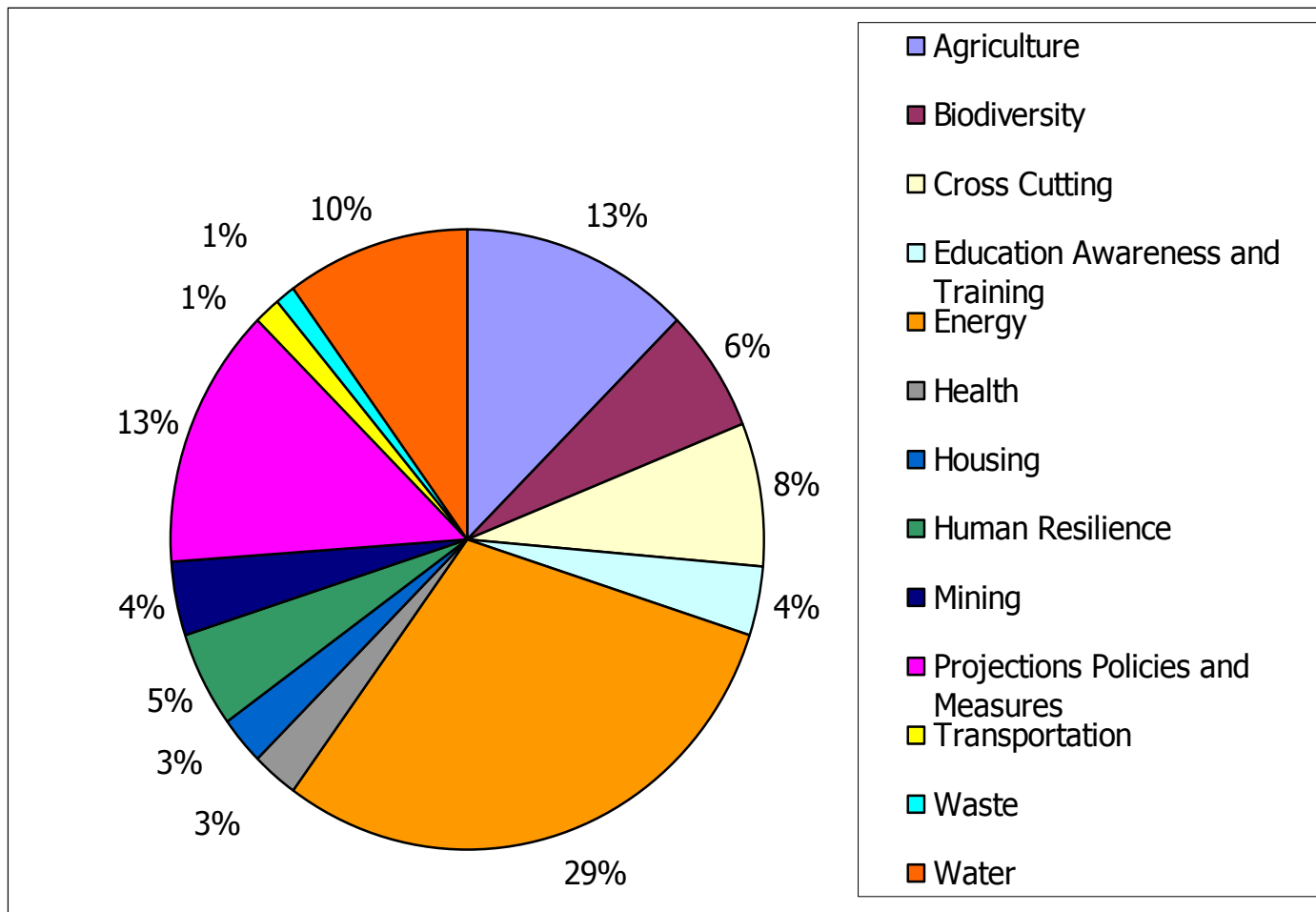
source: First National Communication (DEAT, 2000)



* sectors: 3 -land use; 4- agriculture; 12- energy, 1- financial tools

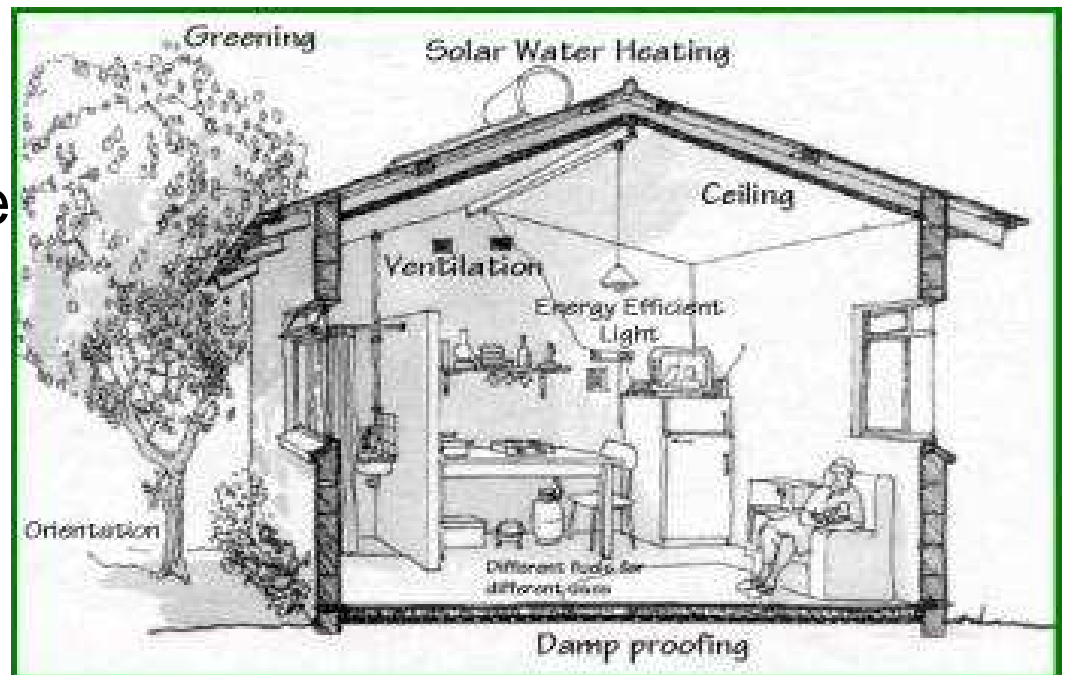
Climate Change Activities

source: Stocktaking report to DEAT, 2006



TN sectors: mitigation

1. Electrical energy generation
2. Production of liquid fuels, energy transformation, storage, transmission and transport
3. Transport
4. Buildings and domestic/commercial energy use
5. Industry and mining
6. Agriculture
7. Forestry and land use
8. Waste management



TN sectors: adaptation

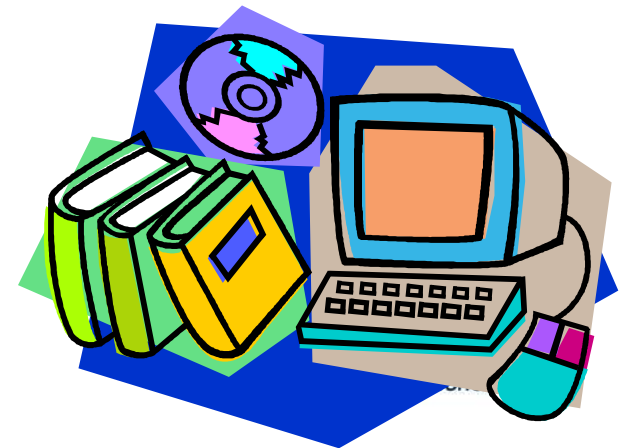


1. Energy production
2. Agriculture and forestry
3. Water Resources
4. Human health
5. Biodiversity
6. Fishery and coastal zone



TN sectors: cross cutting issues

1. Disaster management
2. Financial systems technologies
3. Systematic observation



Selection of sectors and technologies

	Sectors	Options
Mitigation	8	46
Adaptation	6	36
Cross cutting	3	18

Comprehensive approach to ensure that no important option is missed – but list of options is too long to discuss here

Methodology for prioritisation of options (*multi-criteria analysis*)

1st phase – select only options that have not yet been commercialised (from 110 to 85 options)

2nd phase – experts complete 3 stages
prioritisation matrix – *example of spreadsheet*

Steering committee, NCCC and stakeholders will provide further input and feedback



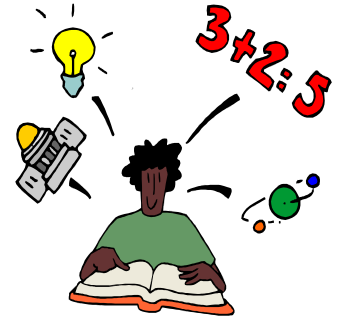
Criteria for options prioritisation

Criteria groups	Measures – full description	Weighting
Relevance to climate change (1st hierarchical stage)	Mitigation-measured by net reduction of Global warming potential	3
	Vulnerability and resilience	3
Alignment with national goals (2nd hierarchical stage)	Alignment with existing national policies and strategies	2
	Level of sustainability, “No regret” solutions	3
	National competitive advantage	1
Market potential (2nd hierarchical stage)	Full economic costs and benefits	3
	Potential scale of utilization	1
	Technology maturity in SA	1
Skills and Capacity building (3rd hierarchical stage)	Systems in place to support transfer/implementation	3
	Cultural preferences and/or understanding of technology by users	2
	Indigenous knowledge: Know how; Skills; Attitude and values	1

Extract from prioritisation matrix

Criteria Matrix methodology

1. List options in 3 sheets – mitigation, adaptation and cross cutting
2. Assign scores (0 to 3) to each criterion for every option
3. Remove options, if weighting is low (0 or 1)
4. Calculate total score for all options ($\sum \text{score} * \text{weighting}$)
5. Normalise score to express as %
6. Sort options (from highest to lowest score)



Current relevant projects

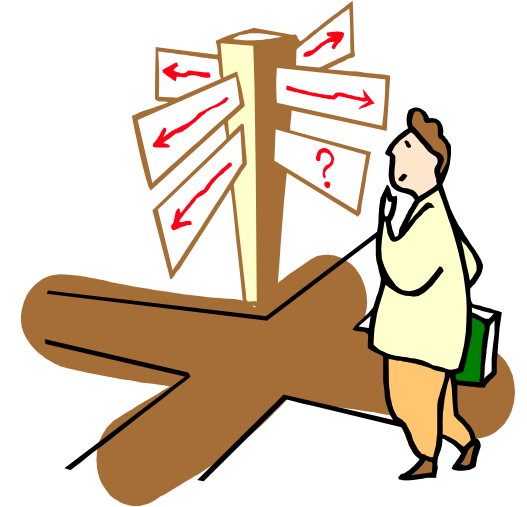
1. Climate Change R&D Strategy - *to finalise R&D priorities*
2. Long Term Mitigation Scenarios - *to prioritise options by marginal costs*
3. GHG Inventory – *to have more accurate emission data*
4. Biofuel strategy – *need for Life Cycle assessment for SA*

Conclusions

1. Resource document is a foundation to build a tool for knowledge sharing, but more participation and collaboration is needed
2. Insufficient info was used (update after LTMS and GHG inventory are completed)
3. Lack of capacity and cheap electricity seem to be major barriers
4. Need balance between market mechanisms and government involvement

Way forward

- Collect all inputs and summarise them
–YOUR CHANCE TO CONTRIBUTE!!!
- Present results to Steering Committee to achieve consensus on the final prioritisation results
- Produce final Resource document
- Prepare submission to the UNFCCC
- Create database of technologies
- Prepare National policy on technology transfer to address climate change



THANK YOU

please ask questions!

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