

Climate Change Decision Making Tools



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Available Climate Change Decision-Making Tools

The report at hand summarizes and analyses twenty-six climate change decision-making tools, existing and in process of development, including some that use multiple criteria in the analysis. A descriptive table for each tool is presented, showing the type of tool, year of launch and author, scale and focus, level of complexity, time and cost for applying the tools, type of information that is generated and its use, among others.

The final section presents some comparative illustrations, information and recommendations. This further analysis includes a comparison and contrast of the applicability of the different tools to different contexts, the focus of the different tools, and the complexity level and requirements. Additionally, a deeper analysis is presented for tools with a more prominent mitigation focus, how they apply in a process of evaluating mitigation alternatives, their advantages and disadvantages.

CLIMATE WIZARD

By: The Nature Conservancy

<http://www.climatewizard.org/>

Contact at The Nature Conservancy: Chris Zganjar

E-mail: czganjar@tnc.org

Year: 2009

Type: Data/ Information Generation

Scale: Global

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☒ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☒ Others: The user may alter other variables including analysis area, emission scenario, general circulation model, etc.

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☒ Event/Impact Probability

☐ Implementation options

Outputs:

- Visual representation through **historic and projected temperature and rainfall maps** for anywhere in the world, showing change or average over a specified period of time by the user.
- State-of-the-art future predictions of temperature and rainfall around the world.
- Links to resources as case studies, documentation, developer data, etc.

Use:

This tool allows users to access leading climate change information and visualize the impacts anywhere on Earth. The user can choose a state or country and both assess how climate has changed over time and to project what future changes are predicted to occur in a given area. The user chooses variables and the changes on the maps are visible immediately online.

Targeted users / Stakeholder Involvement:

Technical and non-technical users

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Climate history and impacts for a landscape brought together in a friendly format.

TYPE:

☒ Climate change and impacts prediction / visualization

☐ Adaptation Planning

☐ Mitigation / Future Alternatives Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ Not Specific

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/ Region Specific:

☒ Not Specific

☐ Non-Annex I

☐ Africa

☐ U.S.

CLIMPAG

By: **FAO**

<http://www.fao.org/nr/climpag/>

Telephone: +39 (0)6 5705 3450

E-mail: agromet@fao.org

Year: 2012

Type: Adaptation Data and Information / Knowledge sharing

Scale: Global, National, Sub-national

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☒ None

☐ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☐ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☐ Implementation options

Outputs:

Information through links to publications, methodologies and tools for a better understanding and analysis of the effect of the variability of weather and climate on agriculture as well as data and maps under subject areas of Advice and Warnings, Climate Change, Climate Indicators, Data and Maps, Hotspots, and Natural Disasters.

Use:

The user has access to information, gains awareness, and a more clear definition of the problem.

Targeted users / Stakeholder Involvement:

Policy makers, technical users

Use restrictions:

A few links are no longer working.

Applicability:

Differentiating characteristic(s):

Brings together various aspects and interactions between weather, climate and agriculture in the general context of food security.

TYPE:

☐ Climate change and impacts prediction / visualization

☐ Adaptation Planning

☐ Mitigation / Future Alternatives

Evaluation & Cost Estimation

☒ **Information Exchange Platform**

SECTOR:

☐ Not Specific

☒ **Agriculture/**

Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/Region Specific:

☒ **Not Specific**

☐ Non-Annex I

☐ Africa

☐ U.S.

MAGICC / SCENGEN

By: UCAR

<http://www.cgd.ucar.edu/cas/wigley/magicc/>

Contact: Dr. Tom Wigley / **Telephone:** +1 303.497.2690
E-mail: wigley@cgd.ucar.edu

Year: 2007

Type: Data / Information Generation

Scale: Global and regional levels

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

- | | |
|--|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input type="checkbox"/> Expert Support |
| <input type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input type="checkbox"/> Implementation options |
- ☒ Other: User-choices in the production of future climate or climate change scenarios are: a future date; a climate variable (temperature, precipitation or MSLP); either a specific month or season or the annual mean; etc.

Outputs:

- Suite of coupled gas-cycle, climate and ice-melt models integrated into a single software package.
- Predictions of global-mean temperature, sea level rise, and regional climate.
- SCENGEN constructs a range of geographically explicit **climate change projections** for the globe using the results from different models.

Use:

This software allows the user to determine changes in greenhouse-gas concentrations, global-mean surface air temperature, and sea level resulting from anthropogenic emissions. It allows the evaluation of the consequences of different mitigation policies; and guidance on developing adaptation policies by highlighting areas of vulnerability. MAGICC has been used in all IPCC reports to produce projections of future global-mean temperature and sea level change.

Targeted users /

Stakeholder Involvement:

Technical experts

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Beyond simple climate change scenarios, SCENGEN produces spatial pattern results

TYPE:

- ☒ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☐ Information Exchange Platform

SECTOR:

- ☒ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ Not Specific
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

Adaptation Learning Mechanism

By: ALM / UNDP

<http://www.adaptationlearning.net/>

Contact: Andrea Egan

E-mail: andrea.egan@undpaffiliates.org

Year: 2007

Type: Knowledge-sharing

Scale: Global

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☒ Others: The user can explore information by selecting specific adaptation to climate change themes, types of information, projects funding source and leading organization.

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☐ Implementation options

Outputs:

• Collaborative **Knowledge-Sharing Platform** on Adaptation to Climate Change

• Tools and resources to support: Adaptation practices, Integration of climate change risks and adaptation into development policy, planning and operations, and capacity building.

Use:

Brings relevant knowledge and stakeholders together to exchange information, experiences, and expertise. The user can explore information of current projects, training, case studies, and many more types of information worldwide. On the other hand, the user can provide information to the platform.

Targeted users / Stakeholder Involvement:

Technical and non-technical users

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Provides a space for networking between members and discussion forums.

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☒ **Information Exchange Platform**

SECTOR:

- ☒ **Not Specific**
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ **Not Specific**
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

Africa Adapt

By: ENDA-TM

<http://www.africa-adapt.net/>

Contact: Moussa Na Abou Mamouda (Network Coordinator)
E-mail: mamoudam@gmail.com

Year: 2011

Type: Knowledge-sharing

Scale: Global, Africa specific

Focus:



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☒ None

☐ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☐ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☐ Implementation options

Outputs:

- Online **learning and networking platform** on adaptation practices in Africa.
- Innovation fund offering small grants for new approaches to knowledge sharing
- Radio-based programming and dialogues in local languages
- Face-to-face meetings bringing people together to exchange ideas and overcome challenges

Use:

Provides stakeholders with the latest web-based applications, face-to-face interactions, and other media on a platform to facilitate learning, share resources and strengthen the community surrounding climate change adaptation in Africa. Users find a facilitated flow of climate change adaptation knowledge for sustainable livelihoods between researchers, policy makers, civil society organizations and communities who are vulnerable to climate variability and change across the continent.

Targeted users / Stakeholder Involvement:

Technical and non-technical users

Use restrictions:

None

Applicability:

Differentiating characteristic(s):
Bilingual network (French/English)

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☒ **Information Exchange Platform**

SECTOR:

- ☒ **Not Specific**
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☐ Not Specific
- ☐ Non-Annex I
- ☒ **Africa**
- ☐ United States

MARKAL / TIMES

By: IEA-ETSAP

<http://iea-etsap.org/web/E-TechDS/Technology.asp>

Contact: Uwe Remme / **Telephone:** (+33) 1 4057 6783
E-mail: Uwe.Remme@iea.org

Year: -

Type: GHG Emission and Energy Models

Scale: Licensed, global spread. Country level, sectorial.

Focus:



Level of complexity:

Low Medium High

Time for applying the tool:

30 min Few hours Few days Few months Over a few months

Cost of the tool:

☐ None Low Medium High

Cost for applying the tool:

☐ None Low Medium High

Training required:

☐ None 30 min – Hours 1-3 days 3-5 days > 5 days
Minimum Low Medium High

Type of information needed to use the tools (Inputs):

- | | |
|--|---|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input checked="" type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input checked="" type="checkbox"/> Other: Data on energy technologies to run (e.g. energy efficiency, lifetime, GHG emissions, investment and operation costs), data projections for each technology. | |

Outputs:

- **Least expensive combination of technologies to meet set requirements and determined emission reductions** – within feasibility limits– with increasing total system cost with each further restriction.
- Determination of the marginal cost of emission reduction in each time period.
- Results can be plotted as continuous abatement cost curves.

Use:

Evaluate a range of alternative futures with determined emission reductions, including energy plans, environmental policies, climate mitigation scenarios and new technologies in trade-off modes. Based upon the characterization of hundreds of energy technologies and demand devices, MARKAL and TIMES models calculate the optimal mix of technologies and commodities, that is the least expensive combination that meets set requirements.

Targeted users / Stakeholder

Involvement:

Technical users
The number of users of the MARKAL family of models has multiplied to 77 institutions in 37 countries, many with developing economies.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Unlike some "bottom-up" technical-economic models, this one does not require -- or allow -- as input of previous ranking of GHG abatement measures.

TYPE:

- ☐ Climate change and impacts prediction / visualization
☐ Adaptation Planning
☒ **Mitigation / Future Alternatives Evaluation & Cost Estimation**
☐ Information Exchange Platform

SECTOR:

- ☒ **Not Specific**
☐ Agriculture/
Food Security
☐ Industry
☐ Energy
☐ Land Use

Country/ Region Specific:

- ☒ **Not Specific**
☐ Non-Annex I
☐ Africa
☐ U.S.

Mitigation Action Plans and Scenarios (MAPS)

By: NGO SouthSouthNorth, University of Cape Town's Energy Research Centre

<http://www.mapsprogramme.org/>

Telephone: +27 21 461 2881

E-mail: info@mapsprogramme.org

Year: 2009

Type: Process guidance. Low Emission Development Strategies

Scale: Country level

Focus:

Development
☒

Adaptation
☐

Mitigation
☒

Level of complexity:

Low Medium High

Time for applying the tool:

30 min Few hours Few days Few months Over a few months

Cost of the tool:

☒ None

Low Medium High

Cost for applying the tool:

☐ None

Low Medium High

Training required:

☐ None

30 min – Hours 1-3 days 3-5 days 8 days
Minimum Low Medium High

Type of information needed to use the tools (Inputs):

- | | |
|---|---|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input checked="" type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input checked="" type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input checked="" type="checkbox"/> Other: Specific particular information of each participating country. | |

Outputs:

Collaboration work amongst developing countries to establish the evidence base for long-term transition to robust economies that are both carbon efficient and climate resilient. Scenario models for each country on a low emissions development pathway to feed into policies and national scale planning decisions.

Use:

Design of scenarios to produce information and options required by decision-makers that participate in the formulation of a national approach to greenhouse gas reduction. The MAPS community provides support in the form of scenario modeling, research, process design, stakeholder management and in some financial resources as well.

Targeted users / Stakeholder Involvement:

Multi-stakeholder approach

Use restrictions:

Participating countries already defined (Brazil, Chile, Colombia, Peru, South Africa)

Applicability:

Differentiating characteristic(s):

National mitigation pathways planning.

TYPE:

- ☐ Climate change and impacts prediction / visualization
☐ Adaptation Planning
☒ Mitigation / Future Alternatives Evaluation & Cost Estimation
☐ Information Exchange Platform

SECTOR:

- ☒ Not Specific
☐ Agriculture/ Food Security
☐ Industry
☐ Energy
☐ Land Use

Country/ Region Specific:

- ☒ Not Specific
☐ Non-Annex I
☐ Africa
☐ United States

ESMAP LCGCS (Low Carbon Growth Country Studies Program)

By: ESMAP – World Bank

<http://www.esmap.org/node/22>

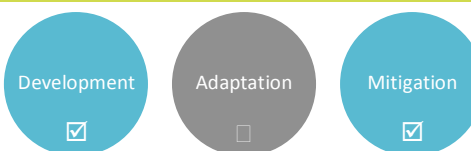
E-mail: esmap@worldbank.org

Year: 2009

Type: Process Guidance

Scale: Country-scale

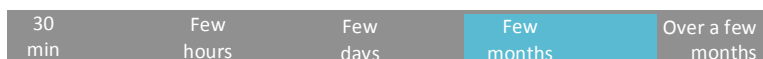
Focus:



Level of complexity:



Time for applying the tool:



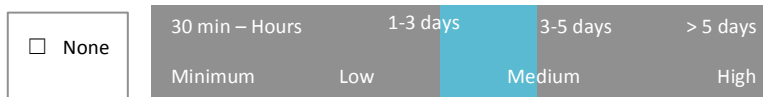
Cost of the tool:



Cost for applying the tool:



Training required:



Type of information needed to use the tools (Inputs):

- | | |
|--|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input type="checkbox"/> Time frame of interest | <input checked="" type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input checked="" type="checkbox"/> Other: other particular conditions and context of each country under the study | |

Outputs:

- Support of country efforts in leading their own study in their local context to assess their development goals and priorities, their GHG mitigation opportunities, and examination of additional costs and benefits of lower carbon growth, through: Technical assistance, Knowledge transfer, Funding to support modeling of carbon pathways and Policy response.
- Knowledge products developed by ESMAP from assembling the lessons generated from these six country studies: modeling toolkits, best practices and 'how to' guidance, and interactive training.

Brochure with additional info.: http://www.esmap.org/sites/esmap.org/files/FINAL_LCCS_bro.pdf

Use:

Six emerging economies—Brazil, China, India, Indonesia, Mexico and South Africa – have fallen under the umbrella of the *Low Carbon Growth Country Studies Program*, receiving help in the process of analyzing various development pathways - policy and investment options that contribute to growth and development objectives while moderating increases in GHG emissions. ESMAP will foster knowledge exchange and capacity building with its clients—low- and middle-income countries—to support their exploration of low carbon growth opportunities.

Targeted users / Stakeholder

Involvement:
Multi-stakeholder approach. Low- and middle-income countries.

Use restrictions:
None

Applicability:

Differentiating characteristic(s):

Analysis and support of low carbon growth strategies

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☒ Information Exchange Platform

SECTOR:

- ☒ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ Not Specific
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

ADAPT

By: ICLEI Sustainable Communities

<http://www.iclei.org/tools/adapt>

Telephone: (510) 844-0699

E-mail: iclei-usa@iclei.org

Year: 2011

Type: Online guidelines database

Scale: City and country level, only for ICLEI members

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☐ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☒ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☒ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☒ Implementation options

Outputs:

- Assessment of vulnerabilities, setting of resiliency goals, and development of plans that integrate into existing **hazard and comprehensive planning efforts**.

Use:

Interactive tool that guides users (local government) through ICLEI's 5 Milestones for Climate Adaptation planning framework: (1) Initiate, (2) Research, (3) Plan, (4) Implement, (5) Monitor/Review.

It walks the user through the process of assessing their vulnerabilities, setting resiliency goals, and developing plans that integrate into existing hazard and comprehensive planning efforts. It uses indicators in the process to set a baseline, and an interactive process to define actions and priorities.

Targeted users / Stakeholder Involvement:

Technical users

Use restrictions:

Available to ICLEI (Local Governments for Sustainability USA) members only, others will be declined.

Applicability:

Differentiating characteristic(s):
Intended for local governments

TYPE:

☐ Climate change and impacts prediction / visualization

☒ **Adaptation Planning**

☐ Mitigation / Future Alternatives

Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ **Not Specific**

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/ Region Specific:

☐ Not Specific

☐ Non-Annex I

☐ Africa

☒ **United States**

CRiSTAL (Community-based Risk Screening Tool – Adaptation and Livelihoods)

By: IISD, IUCN, SEI-US

<http://www.iisd.org/cristaltool/>

Contact: Anne Hammill

E-mail: ahammill@iisd.ca

Year: 2005

Type: Process Guidance

Scale: Community Level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☐ Projected demands / costs

☒ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☒ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☒ Implementation options

Outputs:

Enables local decision makers to assess the impact a project may have on the resources of the community, and by this modify them to reduce vulnerability and enhance adaptive capacity by incorporating adaptation methods.

- “Risk Screening” –aids **identification and prioritization of climate risks** that projects might address.
- “Adaptation and Livelihoods” –aids identification of livelihood resources most important to climate adaptation and uses these as a basis for **designing adaptation strategies**.

Use:

Helps users design activities that support climate adaptation at the community level. It steps the user through a series of worksheets for each element from the identification of impacts, through implementation and evaluation of strategies.

Targeted users / Stakeholder

Involvement:

Technical users, community managers

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Significant participation from the community

TYPE:

☐ Climate change and impacts prediction / visualization

☒ **Adaptation Planning**

☐ Mitigation / Future Alternatives Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ **Not Specific**

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/ Region Specific:

☒ **Not Specific**

☐ Non-Annex I

☐ Africa

☐ United States

HAZUS- MH (Hazards U.S. Multi- Hazard)

By: FEMA

<http://www.fema.gov/hazus>

Telephone: 1-877-336-2627

E-mail: helpdesk@support.hazus.us

Year: 2012

Type: GIS- Socio-economic model

Scale: Country level, local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☒ Event/Impact Probability

☒ Implementation options

Outputs:

- Estimates of physical, economic and social hazard-related damage before, or after a disaster.
- Estimates of potential losses from earthquakes, floods, and hurricanes.
- Graphical illustration of the limits of identified high-risk locations due to earthquake, hurricane, and floods. Allows visualization of the spatial relationships between populations and other more permanently fixed geographic assets or resources for the specific hazard being modeled, a crucial function in the pre-disaster planning process.

Use:

Hazus is used for impact mitigation and recovery as well as preparedness and response, to determine losses and the most beneficial mitigation approaches to take to minimize them. It can also be used in the assessment step in the mitigation planning process.

Hazus is additionally being used by states and communities in support of risk assessments to perform economic loss scenarios for certain natural hazards and rapid needs assessments during hurricane response. Other communities are using Hazus to increase hazard awareness.

Targeted users / Stakeholder

Involvement:

Technical users.
Government planners, GIS specialists, and emergency managers.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Risk assessment methodology that uses Geographic Information Systems

TYPE:

☒ Climate change and impacts prediction / visualization / estimation

☒ Adaptation Planning

☐ Mitigation / Future Alternatives Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ Not Specific

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/ Region Specific:

☐ Not Specific

☐ Non-Annex I

☐ Africa

☒ United States

Land Use Portfolio Model

By: Western Geographic Science Center

<http://geography.wr.usgs.gov/science/lupm.html>

Telephone: 1-888-275-8747

Year: 2010

Type: Modeling-Analysis tool, GIS-Based

Scale: Local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

- | | |
|---|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input checked="" type="checkbox"/> Event/Impact Probability |
| <input checked="" type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
- ☒ Other: Probability of the hazard event, the planning time horizon, the assets at risk (e.g. tax parcels), the spatial probabilities of damage, the dollar value and/or vulnerability of each asset, and the cost and effectiveness of the risk-reduction measures being considered.

Outputs:

- Estimate **calculations for different hazard mitigation portfolios** of the total cost, number of locations mitigated, return on investment, expected loss, and community wealth retained.
- Maps showing the results of each mitigation policy, allowing to compare and rank the policies according to priorities present.

Use:

This is a tool for modeling, mapping, and communicating risk. It helps public agencies and communities understand and reduce their vulnerability to, and risk of, natural hazards. The user selects a portfolio of locations and/or measures in which to invest a limited budget for hazard mitigation.

Targeted users / Stakeholder Involvement:

Public Agencies, Technical users

Use restrictions:

None

Applicability:

Differentiating characteristic(s):
-

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☒ **Adaptation Planning**
- ☒ **Hazard* Mitigation / Future Alternatives Evaluation & Cost Estimation**
- ☐ Information Exchange Platform

SECTOR:

- ☐ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☒ Land Use

Country/ Region Specific:

- ☒ Not Specific
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

*This tool targets mitigation portfolio evaluation referring to **hazards**, rather than climate change and greenhouse gas emissions as the term mitigation otherwise refers to in the rest of this document and in the top right corner checkbox menu of tool focus.

Costing Nature By: King's College London, AmbioTEK, UNEP-WCMC

<https://sites.google.com/site/consmap/ping/costingnature>

Contact: Mark Mulligan
E-mail: mark.mulligan@kcl.ac.uk

Year: -

Type: Decision support-model analysis

Scale: Global, Country level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☒ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☒ Event/Impact Probability

☒ Implementation options

Outputs:

- Combines input maps to calculate the spatial distribution of ecosystem services for water, carbon, hazard mitigation and tourism and combines these with maps of conservation priority. Data is combined with analysis of current human pressures and future threats on ecosystems and their services in order **to assess conservation priority**.

- Results shown as maps through interactive web-based interface or downloadable in GIS format.

Use:

Provides access to a dashboard for development and implementation of development & conservation strategies focused on sustaining and improving ecosystem services. Focused on enabling the intended and unintended consequences of development actions on ecosystem service provision to be tested before they occur.

It calculates a baseline for current ecosystem service provision and allows a series of interventions (policy options) or scenarios of change to be used to understand their impact on ecosystem service delivery.

Targeted users /

Stakeholder

Involvement:

Public Agencies, NGOs, Policy analysts

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Also applicable to education and research. Calculates impacts & costs from implementation of particular elements on the ecosystem.

TYPE:

☒ Climate change and impacts prediction / visualization

☐ Adaptation Planning

☒ Mitigation / Future /

Conservation Alternatives

Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☐ Not Specific

☒ Agriculture/

Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/Region Specific:

☒ Not Specific

☐ Non-Annex I

☐ Africa

☐ U.S.

LEDS Framework

By: NREL

<http://www.nrel.gov/analysis/news/2012/1990.html>

NREL Telephone: +1 202-488-2200

Year: -

Type: Decision support- model analysis

Scale: National, local

Focus:

Development
☒

Adaptation
☒

Mitigation
☒

Level of complexity:

Low Medium High

Time for applying the tool:

30 min Few hours Few days Few months Over a few months

Cost of the tool:

☒ None

Low Medium High

Cost for applying the tool:

☐ None

Low Medium High

Training required:

☐ None

30 min – Hours 1-3 days 3-5 days > 5 days
Minimum Low Medium High

Type of information needed to use the tools (Inputs):

- | | |
|---|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input checked="" type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input type="checkbox"/> Other | |

Outputs:

- Framework—or support infrastructure—to enable the efficient exchange of LEDS-related knowledge and technical assistance via coordinating forums, "knowledge platforms," and networks of experts and investors.
- Sector and cross/sectorial networks of experts and investors on LEDS assessment, planning, implementation and policy.

Use:

This tool supports the creation and implementation of country-driven, analytically rigorous low emission development strategies (LEDS). Building on a review of similar methodologies and LEDS experiences internationally, it provides a generalized framework to guide countries through the development of LEDS.

Targeted users / Stakeholder

Involvement:

Technical users, policy makers

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Low Emission Development Strategies (LEDS) focus. Relevant stakeholder network.

TYPE:

- ☐ Climate change and impacts prediction / visualization
☐ Adaptation Planning
☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
☒ Information Exchange Platform

SECTOR:

- ☒ Not Specific
☐ Agriculture/ Food Security
☐ Industry
☐ Energy
☐ Land Use

Country/ Region

- Specific:**
☒ Not Specific
☐ Non-Annex I
☐ Africa
☐ United States

MACC-McKinsey

(Marginal Abatement Cost Curve)

By: McKinsey & Company

<http://www.climateplanning.org/tools/marginal-abatement-cost-curve-macc-mckinsey>

Contact: Sebastian Schienle

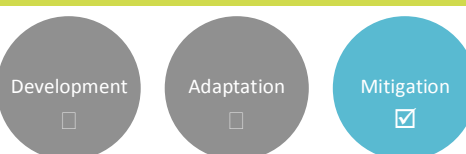
E-mail: sustainability@mckinsey.com

Year: 2008

Type: Modeling-Analysis tool

Scale: Country-local levels

Focus:



Level of complexity:

Low Medium High

Time for applying the tool:

30 min Few hours Few days Few months Over a few months

Cost of the tool:

☒ None Low Medium High

Cost for applying the tool:

☐ None Low Medium High

Training required:

☐ None 30 min – Hours 1-3 days 3-5 days > 8 days
Minimum Low Medium High

Type of information needed to use the tools (Inputs):

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input checked="" type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input type="checkbox"/> Other | |

Outputs:

- Graphing format to visualize cost vs. abatement potential of different mitigation options /scenarios.
- Opportunities for emission reductions included in the MAC-curve take into account the investments and associated operating costs.
- Information on the abatement potential, cost and investment of over 200 mitigation options with the possibility of various levels of granularity.

Use:

The tool presents how much emissions can be abated per specific option and the associated amount of money it will cost or save you per tCO₂e. The user must collect necessary information and process it using the marginal abatement cost curve logic offered.

Targeted users / Stakeholder Involvement:

Technical users

Use restrictions:

None

Applicability:

Differentiating characteristic(s):
Cost of emission abatement options.

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☒ **Mitigation / Future Alternatives Evaluation & Cost Estimation**
- ☐ Information Exchange Platform

SECTOR:

- ☒ **Not Specific**
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ **Not Specific**
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

NAMAC (Non-Annex I Marginal Abatement Cost curve)

By: ECN

<http://www.ecn.nl/units/ps/models-and-tools/namac/>

Contact: Lachlan Cameron
E-mail: cameron@ecn.nl

Year: 1999

Type: Modeling-Analysis tool

Scale: Country – local – sectorial level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☒ Implementation options

Outputs:

Graphing of expected marginal cost and GHG abatement potential of several mitigation options:

Presents how much tCO₂-emissions can be abated per specific option and specific location and thereby the amount of money it will cost or save you per tCO₂.

For direct access to the tool: <http://www.ecn.nl/macchart/>

Use:

The curve tool compiles its results from bottom-up country studies, to provide information on existing MAC curves as opposed to creating new ones. This tool covers the GHG abatement potential by means of over 1100 country-technology combinations in the non-Annex I region.

Targeted users / Stakeholder Involvement:

Technical users- sectorial planners

These curves are tools for policy makers seeking for sectoral overviews of possible cost-effective mitigation options.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):
Cost of emission abatement options.

TYPE:

☐ Climate change and impacts

☐ prediction / visualization

☐ Adaptation Planning

☒ Mitigation / Future Alternatives

Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ Not Specific

☐ Agriculture/

Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/

Region Specific:

☐ Not Specific

☒ Non-Annex I

☐ Africa

☐ United States

Technology Needs Assessment - Guidebook

By: UNEP Risoe Centre

<http://www.tech-action.org/index.htm>

Contact: Lawrence Agbemabiese / **Telephone:** +33 1 44 37 30 03
(Task manager) **E-mail:** lawrence.agbemabiese@unep.org

Year: 2010

Type: Process Guidance

Scale: Country – sectorial level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☒ Time frame of interest

☒ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☒ Expert Support

☒ Defined set of restrictions

☐ Event/Impact Probability

☒ Implementation options

Outputs:

- **Guidebook** for Formulation of development priorities in light of climate change; the identification /prioritization of sectors; relevant low carbon technologies with the aim of maximizing development goals, reducing greenhouse gas emissions and boosting adaptive capacity.
- Existing specific guidebooks elaborated: Technologies for Climate Change (CC) Adaptation —Coastal Erosion and Flooding; Technologies for CC Adaptation—Water Sector; Technologies for CC Mitigation —Transport Sector; Technologies for CC Adaptation & Mitigation—Agriculture Sector

Use:

Evaluate and prioritize technological needs for the mitigation of greenhouse gases and adaptation to climate change, so as to facilitate sustainable development. The TNA project helps countries define what kind of technologies are best suited for their climate change mitigation and adaptation efforts, and what is the best way to get them up and running. TNAs also present an opportunity to track evolving needs for new equipment, techniques, knowledge, and skills for mitigating greenhouse gas emissions and reducing vulnerability to climate change.

Targeted users / Stakeholder

Involvement:

Technical users-sectorial planners

Use restrictions:

None

Applicability:

Differentiating characteristic(s):
Guidebook form.

TYPE:

☐ Climate change and impacts prediction / visualization

☐ Adaptation Planning

☒ **Mitigation / Future Alternatives Evaluation & Cost Estimation**

☐ Information Exchange Platform

SECTOR:

☒ **Not Specific**

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/

Region Specific:

☒ **Not Specific**

☐ Non-Annex I

☐ Africa

☐ United States

HEDON

<http://www.hedon.info/tiki-index.php>

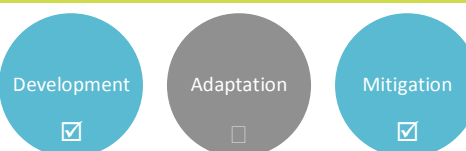
Contact: Contact form available when registered.

Year: 2011

Type: Knowledge sharing

Scale: Worldwide

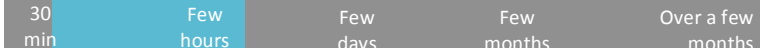
Focus:



Level of complexity:



Time for applying the tool:



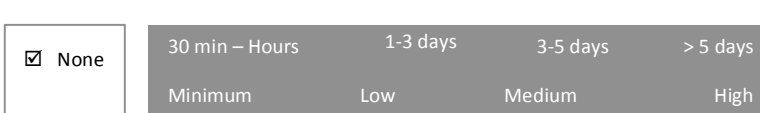
Cost of the tool:



Cost for applying the tool:



Training required:



Type of information needed to use the tools (Inputs):

- | | |
|--|--|
| <input checked="" type="checkbox"/> None | <input type="checkbox"/> Location of interest |
| <input type="checkbox"/> Time frame of interest | <input type="checkbox"/> Expert Support |
| <input type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input type="checkbox"/> Implementation options |
| <input type="checkbox"/> Other | |

Outputs:

- A practitioner's journal for **household energy** in developing countries.
- Informs and empowers practices on household energy, by addressing knowledge gaps, through information sharing, learning, networking and facilitating partnerships.

Use:

Tries to be a place where practitioners, policy-makers, funders, and business-owners actively pursue a cleaner, affordable and more efficient household energy sector. They can unite to share their experiences, learn from one another, and create new knowledge.

Targeted users / Stakeholder Involvement:

Multi-stakeholder

Use restrictions:

Must register.

Applicability:

Differentiating characteristic(s):

Household energy in developing countries focus

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☒ **Information Exchange Platform**

SECTOR:

- ☐ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☒ **Energy**
- ☐ Land Use

Country/ Region Specific:

- ☒ **Not Specific**
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

RETScreen

By: Natural Resources Canada

<http://www.retscreen.net/ang/home.php>

Contact form: http://www.retscreen.net/ang/m_comm.php
Telephone: +1-450-652-4621 / **E-mail:** retscreen@nrcan.gc.ca

Year: 2012

Type: Decision support- Information generation

Scale: Country – sectorial level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☒ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other

☒ Location of interest

☒ Expert Support

☒ Defined set of restrictions

☐ Event/Impact Probability

☒ Implementation options

Outputs:

Energy project analysis software tool (RETScreen 4).

Energy management software tool (RETScreen Plus).

The software (available in 35+ languages) includes product, project, hydrology and climate databases, a detailed user manual, and a case study based college/university-level training course, including an engineering e-textbook.

Use:

To evaluate the energy production and savings, costs, emission reductions, financial viability and risk for various types of technologies. Excel version (RETScreen 4): helps decision makers quickly and inexpensively determine the technical and financial viability of potential renewable energy, energy efficiency and cogeneration projects. Windows version (RETScreen Plus): allows a project owner to easily verify the ongoing energy performance of their facilities.

Targeted users / Stakeholder Involvement:

Technical users.

Use restrictions:

Must register.

Applicability:

Differentiating characteristic(s):

Evaluation of renewable energy, energy efficiency and cogeneration projects.

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☒ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☐ Information Exchange Platform

SECTOR:

- ☐ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☒ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ Not Specific
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

Red Cross / Red Crescent Climate Guide

By: Red Cross/Red Crescent
Climate Centre

<http://www.climatecentre.org/site/publications/85?type=3>

Telephone: +31 70 44 55 886

E-mail: climatecentre@climatecentre.org

Year: 2007

Type: Process Guidance

Scale: Local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

- ☐ None
- ☐ Time frame of interest
- ☐ Projected demands / costs
- ☐ Community consultation
- ☒ Assets at risk
- ☐ Other

- ☒ Location of interest
- ☐ Expert Support
- ☐ Defined set of restrictions
- ☒ Event/Impact Probability
- ☐ Implementation options

Outputs:

- **Guide on climate change risks** that has six thematic modules: Getting started, Dialogues, Communications, Disaster management, Community-based disaster risk reduction and Health. Presents five years of experiences from more than thirty national Red Cross and Red Crescent societies, in particular in developing countries.
- Relates the experiences of Red Cross and Red Crescent staff and volunteers all around the world trying to understand and address the risks of climate change.

Use:

Each module begins with a background section with real-life Red Cross and Red Crescent experiences and perspectives, followed by a 'how-to' section with specific step-by-step guidance.

Targeted users / Stakeholder Involvement:

Multi-stakeholder. Available in English, French, Arabic, Spanish and Russian.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):
Climate risk actions guide.

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☒ **Adaptation Planning**
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☐ Information Exchange Platform

SECTOR:

- ☒ **Not Specific**
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ **Not Specific**
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

Climate Proofing for Development

By: GIZ

<http://www2.gtz.de/dokumente/bib-2011/giz2011-0223en-climate-proofing.pdf>

Contact: Christoph Feldkoetter
Telephone: +49 61 96 79-1299

Year: 2010

Type: Process Guidance

Scale: National-sectorial, local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

- | | |
|---|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input checked="" type="checkbox"/> Time frame of interest | <input checked="" type="checkbox"/> Expert Support |
| <input checked="" type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input checked="" type="checkbox"/> Event/Impact Probability |
| <input checked="" type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input checked="" type="checkbox"/> Other: process facilitation and tailor-made capacity development. | |

Outputs:

Integration of climate considerations into adaptation planning at national, sectorial, project and local levels. Determination of the bio-physical and socio-economic impacts of climate change.

Use:

It facilitates climate change oriented analyses of policies, projects and programs in partner countries; with the aim of highlighting the risks and opportunities climate change poses. Generated information can be used to plan appropriate adaptation strategies.

Targeted users / Stakeholder Involvement:

Multi-stakeholder

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Guiding static document.
Viewing development through a climate change lens perspective.

TYPE:

- ☐ Climate change and impacts prediction / visualization
☒ **Adaptation Planning**
☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
☐ Information Exchange Platform

SECTOR:

- ☒ **Not Specific**
☐ Agriculture/ Food Security
☐ Industry
☐ Energy
☐ Land Use

Country/ Region

Specific:

- ☒ **Not Specific**
☐ Non-Annex I
☐ Africa
☐ United States

SoVI (Social Vulnerability Index)

By: University of South Carolina

<http://webra.cas.sc.edu/hvri/products/sovi.aspx>

Contact: 803.777.1699

E-mail: cogeoghvri@sc.edu

Year: 2006

Type: Data Generation

Scale: Local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☐ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☐ Implementation options

☒ Other: Components that are considered and highly influential include race and class; wealth; elderly residents; Hispanic ethnicity; special needs individuals; Native American ethnicity; and service industry employment.

Outputs:

- **Graphical illustration of the geographic variation in social vulnerability**, synthesizing 32 socioeconomic variables, which the research literature suggests contribute to reduction in a community's ability to prepare for, respond to, and recover from hazards.

- The Social Vulnerability Index measures the social vulnerability of U.S. counties to environmental hazards.

Use:

The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties. It shows where there is uneven capacity for preparedness and response and where resources might be used most effectively to reduce the pre-existing vulnerability.

Targeted users / Stakeholder Involvement:

Technical users, Policy makers and practitioners.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Social vulnerability to environmental hazards graphic database.

TYPE:

- ☒ Climate change and impacts prediction / **vulnerability visualization**
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☐ Information Exchange Platform

SECTOR:

- ☒ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☐ Not Specific
- ☐ Non-Annex I
- ☐ Africa
- ☒ **United States**

REEGLE By: Renewable energy and energy efficiency partnership

<http://www.reegle.info/>

Telephone: +43 1 26026-3714

E-mail: office@reegle.info

Year: -

Type: Identification and selection of options and policies

Scale: Country – local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

- | | |
|--|--|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Location of interest |
| <input type="checkbox"/> Time frame of interest | <input type="checkbox"/> Expert Support |
| <input type="checkbox"/> Projected demands / costs | <input type="checkbox"/> Defined set of restrictions |
| <input type="checkbox"/> Community consultation | <input type="checkbox"/> Event/Impact Probability |
| <input type="checkbox"/> Assets at risk | <input checked="" type="checkbox"/> Implementation options |
| <input type="checkbox"/> Other | |

Outputs:

- Independent **information dissemination tool** and specialist search engine in the fields of renewable energy, energy efficiency and climate compatible development.
- Comprehensive country energy profiles combining data from different sources such as UN and World Bank and providing important insight into policy and regulation on individual country level.
- Clean energy information portal, comprehensive country energy profiles, energy statistics and a directory of relevant stakeholders, clean energy search, an extensive glossary and an insightful clean energy blog with up-to-date background information.

Use:

Allows stakeholders to access training options, obtain expert advice, and relevant information in subjects such as policy, project outputs, statistics and potentials.

Targeted users / Stakeholder Involvement:

Multi-stakeholder

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Renewable energy, energy efficiency and climate compatible development focus.

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☐ Mitigation / Future Alternatives Evaluation & Cost Estimation
- ☒ **Information Exchange Platform**

SECTOR:

- ☐ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☒ **Energy**
- ☐ Land Use

Country/ Region Specific:

- ☒ **Not Specific**
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

CVCA (Climate Vulnerability and Capacity Analysis)

By: CARE

http://www.careclimatechange.org/index.php?option=com_content&view=article&id=25&Itemid=30

E-mail: info@careclimatechange.org

Year: -

Type: Process Guidance

Scale: Local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☐ Time frame of interest

☐ Projected demands / costs

☒ Community consultation

☒ Assets at risk

☐ Other

☒ Location of interest

☒ Expert Support

☐ Defined set of restrictions

☒ Event/Impact Probability

☒ Implementation options

Outputs:

- Methodology and practical guidance for the **design and implementation of adaptation actions**.
- Adaptation strategies designed through a participatory analysis process which engages all stakeholders to consider socio-economic dimensions of vulnerability and issues of power, access to information and services and control over resources important in determining people's capacity to adapt to climate change.

Use:

The Climate Vulnerability and Capacity Analysis (CVCA) process helps stakeholders involved to better understand the implications of climate change for livelihoods, vulnerable stakeholders and better understanding of the challenges they face. It provides a base for the detection of practical strategies to assist with community-led adaptation to climate change, a framework for dialogue within communities and other stakeholders.

Targeted users /

Stakeholder Involvement:

Multi-stakeholder. Available in English, Spanish, French and Portuguese.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Participative process adaptation strategies planning.

TYPE:

☐ Climate change and impacts prediction / visualization

☒ **Adaptation Planning**

☐ Mitigation / Future Alternatives

Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ **Not Specific**

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/

Region Specific:

☒ **Not Specific**

☐ Non-Annex I

☐ Africa

☐ United States

MCA4Climate

By: UNEP

<http://www.mca4climate.info/>

Contact Form: <http://www.mca4climate.info/contact-us/>

Year: 2009

Type: Multi criteria analysis

Scale: National level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☒ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☒ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☐ Assets at risk

☐ Other: Climate policy options

☒ Location of interest

☐ Expert Support

☐ Defined set of restrictions

☐ Event/Impact Probability

☒ Implementation options

Outputs:

- A guide on possible climate policy options and measures across 12 mitigation and adaptation areas.
- A policy evaluation framework for analyzing climate policies and actions based on a multi-criteria analysis approach to ensure climate compatible development and more sustainable pathways.
- 3 case-studies illustrating the application of the MCA4climate evaluation framework: flood risks and resilience in India; water and adaptation in Yemen; and shifting of electricity sector in South Africa.
- Guiding principles providing additional support for a robust climate policy analysis on critical issues (dealing with the economics of climate change; developing coherent baselines; considering the fiscal implications of climate policies; accounting for risk and uncertainty; MRV, etc.).

Use:

Intended for governments to identify policies and measures that are low cost, environmentally effective and consistent with national development goals. Provides a structured approach for assessing and prioritizing climate policy actions, while considering associated economic, social, and environmental costs and benefits. Methodology based on a multi criteria analysis (MCA) approach and designed as a planning tool for developing NAMAs, NAPAs and other economy-wide climate strategies.

Targeted users / Stakeholder

Involvement:

Multi-stakeholder. Particularly for developing countries.

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Particular focus on climate policy guidance.

TYPE:

- ☐ Climate change and impacts prediction / visualization
- ☐ Adaptation Planning
- ☒ Mitigation / Future Alternatives
- Evaluation & Cost Estimation**
- ☐ Information Exchange Platform

SECTOR:

- ☒ Not Specific
- ☐ Agriculture/ Food Security
- ☐ Industry
- ☐ Energy
- ☐ Land Use

Country/ Region Specific:

- ☒ Not Specific
- ☐ Non-Annex I
- ☐ Africa
- ☐ United States

ORCHID (Opportunities and Risks from Climate Change and Disasters)

By: Institute for Development Studies

<http://www.ids.ac.uk/climatechange/orchid>

Contact: Thomas Tanner
E-mail: t.tanner@ids.ac.uk

Year: 2009

Type: Process Guidance

Scale: Local level

Focus:

Development



Adaptation



Mitigation



Level of complexity:

Low

Medium

High

Time for applying the tool:

30 min

Few hours

Few days

Few months

Over a few months

Cost of the tool:

☒ None

Low

Medium

High

Cost for applying the tool:

☐ None

Low

Medium

High

Training required:

☒ None

30 min – Hours

1-3 days

3-5 days

> 5 days

Minimum

Low

Medium

High

Type of information needed to use the tools (Inputs):

☐ None

☒ Time frame of interest

☐ Projected demands / costs

☐ Community consultation

☒ Assets at risk

☐ Other

☒ Location of interest

☒ Expert Support

☐ Defined set of restrictions

☒ Event/Impact Probability

☒ Implementation options

Outputs:

Pilot tested risk management approach to identify high-impact, practical, and cost-effective measures and processes to integrate disaster risk reduction and climate change adaptation into mainstream development activities.

Use:

Used to enable a more systematic consideration of climate risks in development of the design and implementation of development projects and programs. Methodology developed for climate risk screening of development interventions in Bangladesh and India. Work was built on through with the Chinese Academy of Sciences to pilot a screening methodology for water sector programs.

Targeted users / Stakeholder Involvement:

Multi-stakeholder

Use restrictions:

None

Applicability:

Differentiating characteristic(s):

Adaptation planning into development activities.

TYPE:

☐ Climate change and impacts prediction / visualization

☒ **Adaptation Planning**

☐ Mitigation / Future Alternatives Evaluation & Cost Estimation

☐ Information Exchange Platform

SECTOR:

☒ **Not Specific**

☐ Agriculture/ Food Security

☐ Industry

☐ Energy

☐ Land Use

Country/ Region Specific:

☒ **Not Specific**

☐ Non-Annex I

☐ Africa

☐ United States

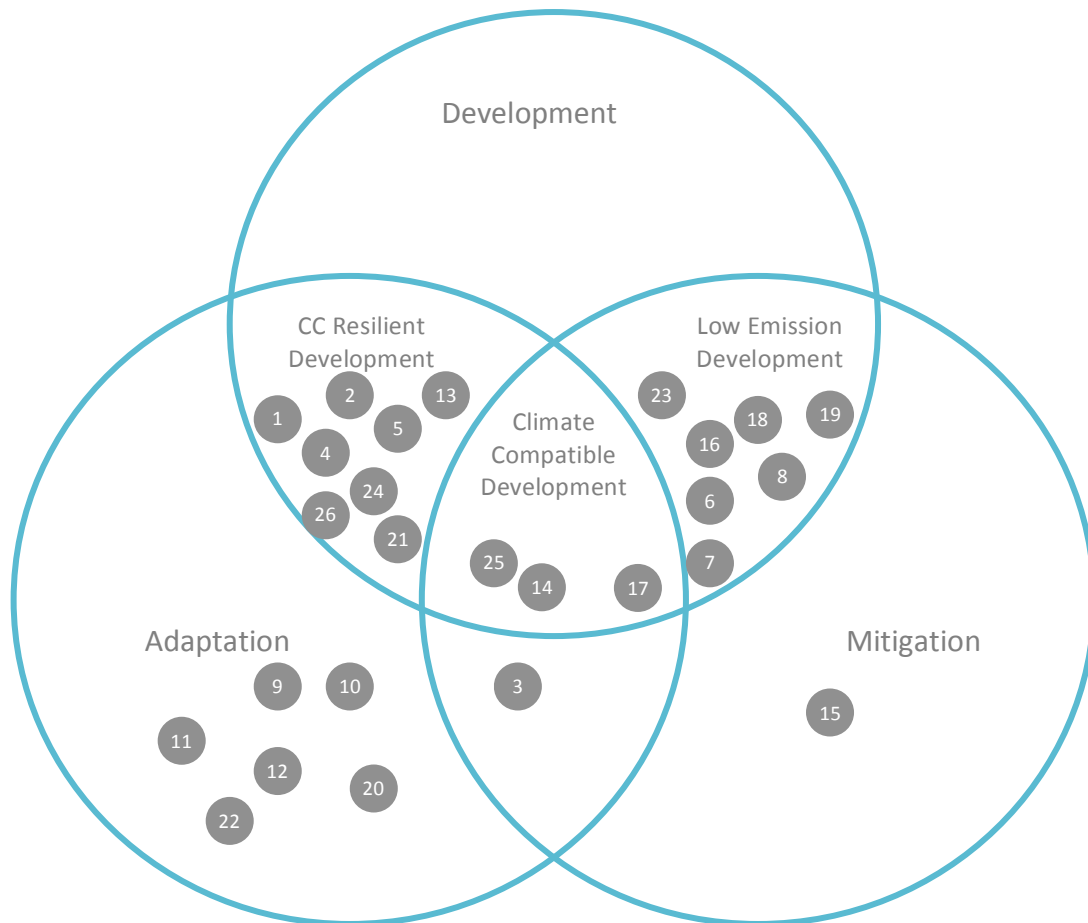
Complexity & Training, Cost and Time Requirements Summary Table

| Tool / Criteria | | Level of complexity | Training Requirements | Time for applying the tools | Cost of the tool | Cost for applying the tools |
|-----------------|---|---------------------|-----------------------|-----------------------------|------------------|-----------------------------|
| 1 | Climate Wizard The Nature Conservancy | ○ | ○ | ○ | — | — |
| 2 | CLIMPAG FAO | ○ | — | ○ | — | — |
| 3 | MAGICC / SCENGEN UCAR | ● | ○ | ○ | — | — |
| 4 | Adaptation Learning Mechanism ALM/UNDP | ○ | — | ○ | — | — |
| 5 | Africa Adapt ENDA-TM | ○ | — | ○ | — | — |
| 6 | MARKAL / TIMES IEA-ETSAP | ● | ● | ● | ● | ● |
| 7 | Mitigation Action Plans and Scenarios (MAPS) NGO SouthSouthNorth, University of Cape Town's Energy Research Centre | ● | ● | ● | — | ● |
| 8 | ESMAP LCGCS ESMAP – World Bank | ● | ● | ● | — | ● |
| 9 | ADAPT ICLEI Sustainable Communities | ● | — | ● | ● | ● |
| 10 | CRISTAL IISD, IUCN, SEI-US | ○ | — | ● | — | ● |
| 11 | HAZUS-MH FEMA | ● | ● | ○ | — | — |
| 12 | Land Use Portfolio Model Western Geographic Science Center | ● | ● | ● | — | ○ |

| | | | | | | |
|----|---|---|---|---|---|---|
| 13 | Costing Nature King's College London, AmbioTEK, UNEP-WCMC | ○ | ◐ | ◑ | — | ○ |
| 14 | LEDS Framework NREL | ◐ | ◐ | ● | — | ● |
| 15 | MACC McKinsey McKinsey & Company | ● | ● | ◐ | — | ● |
| 16 | NAMAC ECN | ○ | ◐ | ○ | — | — |
| 17 | Technology Needs Assessment – Guidebook UNEP Risoe Centre | ● | ● | ● | — | ◐ |
| 18 | HEDON | ○ | — | ○ | — | — |
| 19 | RETSscreen Natural Resources Canada | ◐ | ● | ◐ | — | ○ |
| 20 | Red Cross/Red Crescent Climate Guide Red Cross/Red Crescent Climate Centre | ○ | — | ○ | — | — |
| 21 | Climate Proofing for Development GIZ | ◐ | — | ◐ | — | ○ |
| 22 | SoVI (Social Vulnerability Index) University of South Carolina | ○ | ○ | ○ | — | — |
| 23 | REEGLE Renewable energy and energy efficiency partnership | ○ | — | ○ | — | — |
| 24 | CVCA (Climate Vulnerability and Capacity Analysis) CARE | ○ | — | ◐ | — | ◐ |
| 25 | MCA4Climate UNEP | ○ | — | ◐ | — | — |
| 26 | ORCHID Institute for development Studies | ◐ | — | ● | — | ◐ |

| | | | | | | | |
|---|------|---|-----|---|--------|---|------|
| — | None | ○ | Low | ◐ | Medium | ● | High |
|---|------|---|-----|---|--------|---|------|

Tools Focus Overview



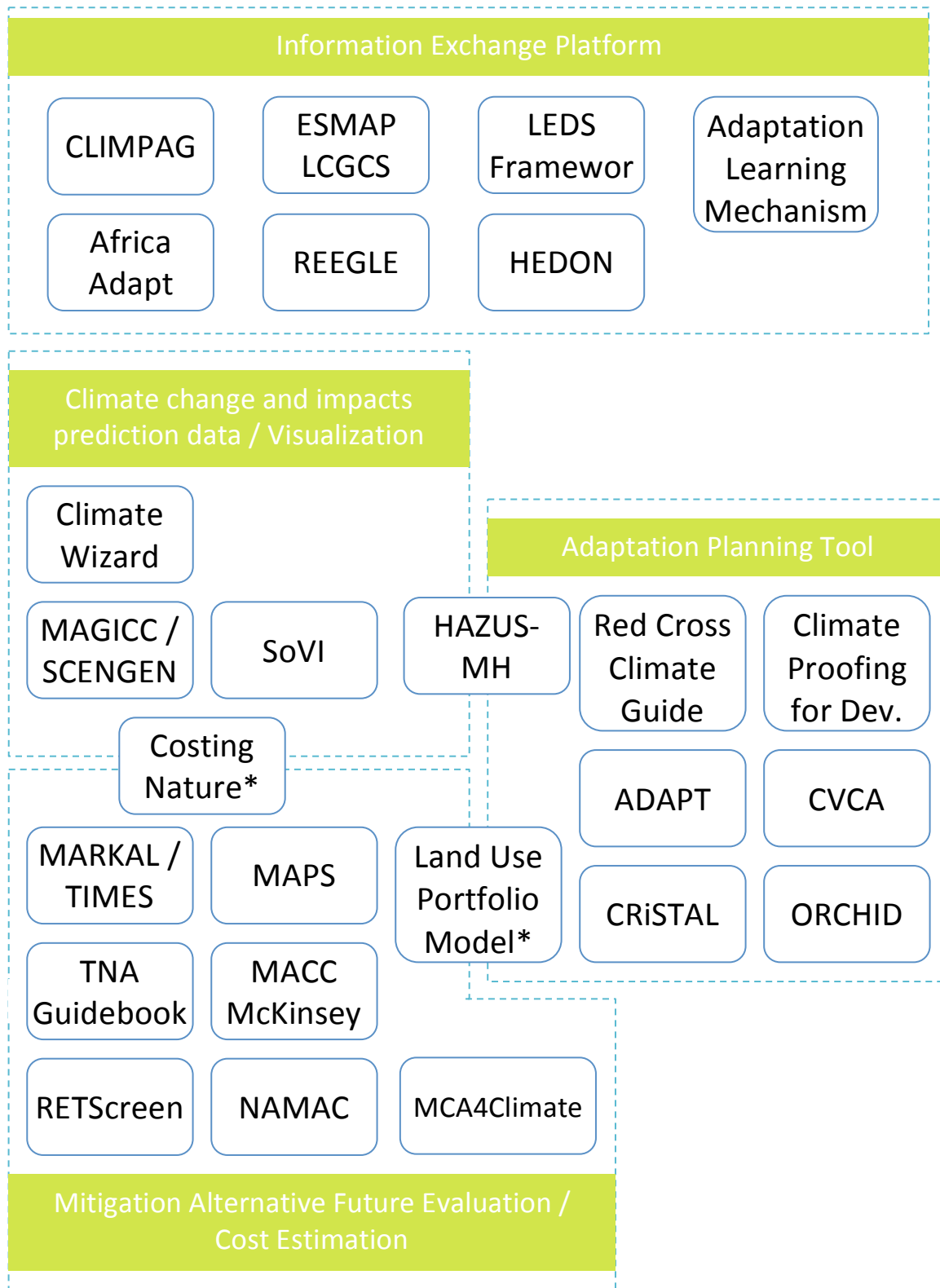
- | | | |
|---|---|--|
| 1. Climate Wizard | 11. HAZUS-MH | 20. Red Cross/Red Crescent Climate Guide |
| 2. CLIMPAG | 12. Land Use Portfolio Model | 21. Climate Proofing for Development |
| 3. MAGICC / SCENGEN | 13. Costing Nature | 22. SoVI (Social Vulnerability Index) |
| 4. Adaptation Learning Mechanism | 14. LEDS Framework | 23. REEGLE |
| 5. Africa Adapt | 15. MACC McKinsey | 24. CVCA (Climate Vulnerability and Capacity Analysis) |
| 6. MARKAL / TIMES | 16. NAMAC | 25. MCA4Climate |
| 7. Mitigation Action Plans and Scenarios (MAPS) | 17. Technology Needs Assessment – Guidebook | 26. ORCHID |
| 8. ESMAP LCGCS | 18. HEDON | |
| 9. ADAPT | 19. RETScreen | |
| 10. CRISTAL | | |

Tools to be used in different contexts

| BY SECTOR | |
|-----------------------------|-----------|
| Agriculture / Food Security | Energy |
| CLIMPAG | HEDON |
| Costing Nature | RETScreen |
| Industry | REEGLE |
| Costing Nature | |
| Land Use | |
| Land Use Portfolio Model | |

| Country / Region Specific | |
|---------------------------|---------------|
| Africa | United States |
| Africa Adapt | HAZUS-MH |
| Non Annex I Countries | SoVI |
| NAMAC | |

By Type



* Fit into the 'Mitigation / Alternative Future Evaluation & Cost Estimation' Category for particular reasons different to Emission Mitigation. Eg. Hazard Mitigation (Land Use Portfolio Model), Conservation Alternatives Evaluation (Costing Nature).

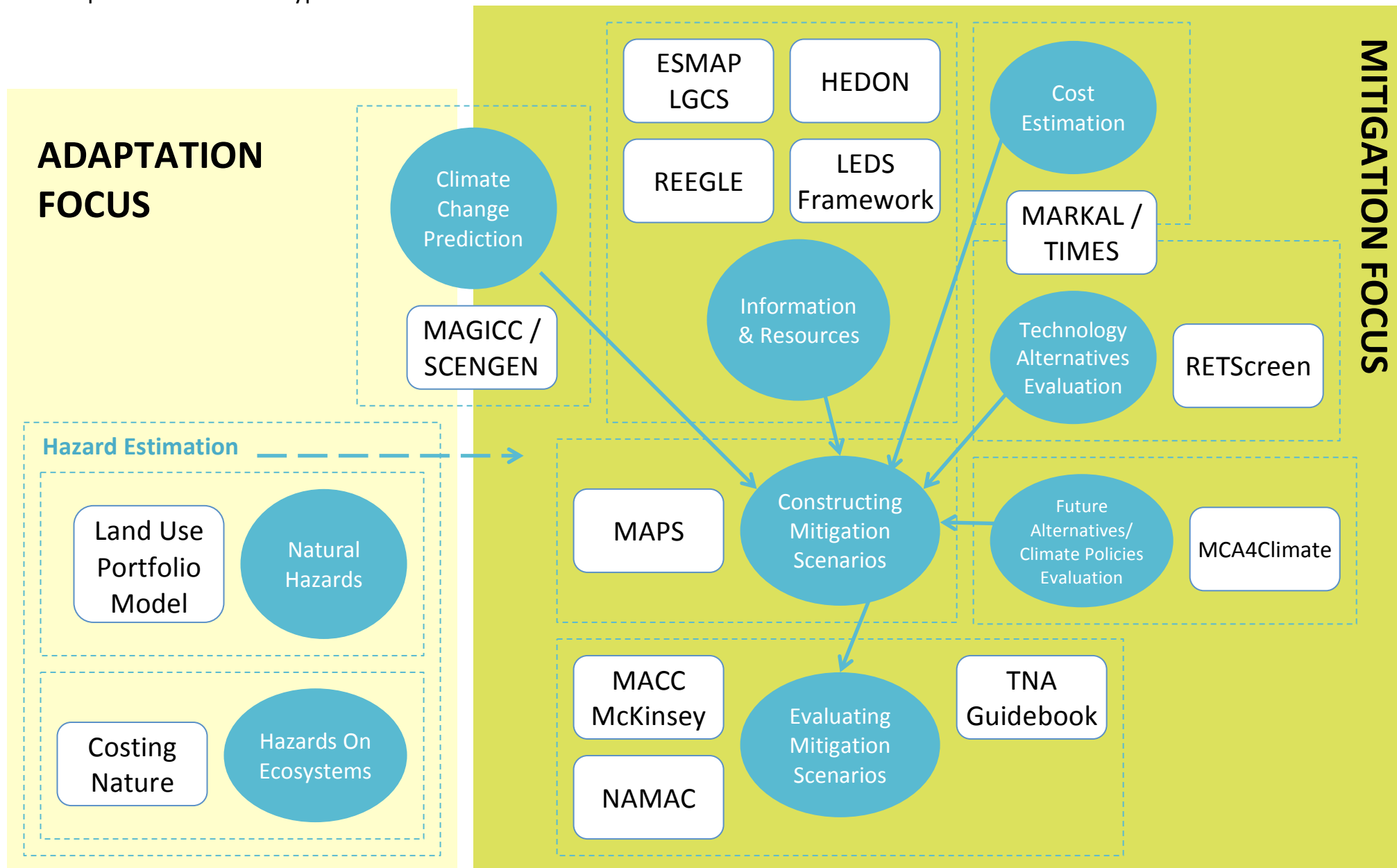
A closer look at tools with a mitigation component

Several tools from those included in this report have a mitigation component, some more prominently than others. However, they all have different uses in a case of determining alternative emission mitigation future paths for a community, local or national scale. Some provide information and resources, while others are directly intentioned for the evaluation of available options.


A graphic illustration of how the related tools have incidence in such a purpose can be found in the next page. Several types of tools provide ***Information and Resources, Cost Estimation, Alternative Technologies Evaluation, Future Alternatives and Climate Policies Evaluation*** and even ***Climate Change Impacts*** as inputs for the process at hand. Furthermore, with the use of these and other inputs, other tools are for ***Construction of alternative scenarios***. Finally, there are tools intended for the ***Evaluation of existing alternative scenarios***. Two adaptation-focused tools are also here included because their evaluations with other purposes may generate input information for the process of constructing and evaluating mitigation scenarios with climate resiliency considerations.


Additionally, following the illustration described, a table details the related tools, their functionality and description, purpose in a process of mitigation alternatives evaluation, differences from others with the same use, advantages and disadvantages. Those with a more direct relationship to the process of evaluating mitigation options are signaled with a turquoise shade. Those with a less direct relationship, and a more prominent adaptation focus are signaled with a cream color shade.



Graphic illustration of types and functionalities




Brief description, purpose, difference from others, advantages and disadvantages

| Relationship to mitigation alternatives evaluation process | Related Tools | Purpose in mitigation alternatives evaluation process | Tool Functions and Description | Difference from others | Advantages | Disadvantages |
|--|---------------|---|--|---|---|--|
| STRONGER  WEAKER | MAPS | Constructing Mitigation Scenarios | Collaboration work amongst developing countries to establish the evidence base for long-term transition to robust economies that are both carbon efficient and climate resilient, and determination of the possible mitigation paths into the future. | This is a collection of multiple information sources from data to context in each country. But it is also the partnership between participating countries to share experiences, lessons and challenges. | Multi-stakeholder approach. Collaboration amongst different countries involved. | Application in a long term, and high training required. Restricted to countries already participating: Brazil, Colombia, Peru, Chile and South Africa. |
| | MACC McKinsey | Evaluating Mitigation Scenarios | Graphing format to visualize cost vs. abatement potential of different mitigation options /scenarios. | The user must collect necessary information and process it using the marginal abatement cost curve logic offered. | Simple visualization format for informing and decision-making. | High training required. Long term for application of tool. |
| | NAMAC | | Graphing of expected marginal cost and GHG abatement potential of several mitigation options (how much tCO ₂ -emissions can be abated per specific option and location and thereby the amount of money it will cost or save you per tCO ₂). | Allows for the user to select different options of application and generates the curves automatically (builds on existing MAC curves data). Specific for Non-Annex I region. | Simple visualization format for informing and decision-making. | Medium training required. |
| | TNA Guidebook | | Guidebook for Formulation of development priorities in light of climate change; the identification /prioritization of sectors; relevant low carbon technologies with the aim of maximizing development goals, reducing greenhouse gases emissions and boosting adaptive capacity. | Guidebook form. | Different guides specific to sectors including transport and agriculture. | For technical users. High training required. |

| Relationship to mitigation alternatives evaluation process | Related Tools | Purpose in mitigation alternatives evaluation process | Tool Functions and Description | Difference from others | Advantages | Disadvantages |
|--|----------------|---|---|---|--|---|
| <p>STRONGER</p>  <p>WEAKER</p> | MCA4Climate | Future alternatives / Climate Policies Evaluation | A guide on possible climate policy options and measures across 12 mitigation and adaptation areas, and a policy evaluation framework for analyzing climate policies and actions based on a multi-criteria analysis approach to ensure climate compatible development and more sustainable pathways. | Particular focus on climate policy guidance. Based on a multi criteria approach. | Focuses on both adaptation and mitigation themes. | Adequate use of tool results must involve political levels. |
| | MARKAL / TIMES | Cost estimation & Technology Alternatives Evaluation | Finds the least expensive combination of technologies to meet set requirements and determined emission reductions within feasibility limits. | It does not allow the input of previous ranking of GHG abatement curves, providing a result with less interference. | Results can be shown as abatement cost curves. | The tool has a high cost and medium training is required. |
| | RETScreen | Technology Alternatives Evaluation | Software tools: Energy project analysis (RETScreen 4), and Energy management (RETScreen Plus). Help evaluate the energy production and savings, costs, emission reductions, financial viability and risk for various types of technologies. | Installable software tools (excel and windows versions). Evaluation of renewable energy, energy efficiency and cogeneration projects. | Available in English and French. Very low cost. | For technical users. High training required. |
| | ESMAP LGCS | Information Exchange Platforms: Provide Information and Resources | Support of country efforts in leading their own study in their local context to assess their development goals and priorities, their GHG mitigation opportunities, and examination of additional costs and benefits of lower carbon growth, through. | Six emerging economies— Brazil, China, India, Indonesia, Mexico and South Africa – have fallen under the umbrella of the <i>Low Carbon Growth Country Studies Program</i> | Foster knowledge exchange and capacity building with countries according to local context. | Medium level complexity, training requirement and application cost. |

| Relationship to mitigation alternatives evaluation process | Related Tools | Purpose in mitigation alternatives evaluation process | Tool Functions and Description | Difference from others | Advantages | Disadvantages |
|---|------------------|---|--|--|---|--|
| STRONGER  | REEGLE | | Independent information dissemination tool and specialist search engine in the fields of renewable energy, energy efficiency and climate compatible development | Contains, information portal, country profiles and a blog, amongst others. | No cost or training required. Multi-stakeholder approach. | Specific to energy. |
| | LEDs Framework | | Sector and cross/sectorial framework—or support infrastructure—to enable the efficient exchange of LEDs-related knowledge and technical assistance via coordinating forums, "knowledge platforms," and networks of experts and investors. | Building on existing methodologies and LEDs experiences, this tool supports creation and implementation of country-driven, analytically rigorous low emission development strategies (LEDs). | Valuable stakeholder network. | For technical users. |
| | HEDON | | Informs and empowers practices on <u>household energy</u> , by addressing knowledge gaps, through information sharing, learning, networking and facilitating partnerships. | Specific to household energy reduction practices in developing countries. | Multi-stakeholder approach. No cost or training required. | Specific to household energy. |
|  WEAKER | MAGICC / SCENGEN | Climate Change Predictions. | Predictions of global mean temperature, sea level rise and regional climate. It can aid in estimating the magnitude of mitigation required. | Installable software. | Integrates several models. No cost. | For technical users, medium training required. |
| | Costing Nature* | Evaluation of different conservation alternatives. | Combines input maps and data to analyze ecosystem services, conservation priority and current human pressures combined in order to assess <u>conservation priority</u> . Calculates impacts & costs from implementation of particular elements on the ecosystem. | Results are shown as maps through an interactive web-based interface or are downloadable in GIS format. | No cost. Also applicable at an academic level. | Specific to agriculture and food security. |

| Relationship to mitigation alternatives evaluation process | Related Tools | Purpose in mitigation alternatives evaluation process | Tool Functions and Description | Difference from others | Advantages | Disadvantages |
|---|---------------------------|---|--|---|------------|-----------------------|
| STRONGER  WEAKER | Land Use Portfolio Model* | Hazard Mitigation Alternatives Evaluation. | Estimates calculations for different <u>hazard mitigation</u> portfolios of the total cost, number of locations mitigated, return on investment, expected loss, and community wealth retained. | Maps showing the results of each mitigation policy, allowing to compare and rank policies analyzed according to priorities present. | No cost. | Specific to land use. |

* These two tools are meant particularly to feed into adaptation planning, but considerations of their results can influence in more holistic mitigation paths design considerate of climate resiliency as well. Their purpose in constructing and evaluating mitigation alternatives is they can aid in generating more integral mitigation paths that consider lessening of impact.

Note: Those tools with a more direct relationship to the process of evaluating mitigation options are signaled with a turquoise shade, those with a less direct relationship, and a more prominent adaptation focus are signaled with a cream color shade.