CLIMATE CHANGE CHAMPS

# Enabling community-led climate action

## A guide and toolkit for designing and running community climate change workshops to encourage active citizenship and enable community-led climate action

Developed by GreenCape for the *Active Climate Change Citizenship for a Just Transition in South Africa* project.

Co-funded by the European Union

FRIEDRICH NAUMANN FOUNDATION For Freedom. South Africa
Implemented in partnership with FNF

GreenCape
Presented by GreenCape

**“We believe that the voice of communities, women and youth matters and improves climate policy.”**

– Ambassador, Sandra Kramer
European Union (EU)

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# Word from the EU

Two years ago, the European Union (EU) partnered with GreenCape and the Friedrich Naumann Foundation on a project to encourage active citizens and communities to communicate with government their needs and priorities for climate mitigation and adaptation, with a particular focus on energy.

This initiative was prompted by our belief that climate change indeed poses an existential threat, one that compels nations to unite in purpose and action, but at the same time, it offers opportunities for growth, jobs and business creation across all sectors of the economy. We believe that the voice of communities, women and youth matters and improves climate policy. It is through their collaborative engagement that South Africa can best tap into the boundless opportunities that its green economy offers.

This toolkit is born out of those convictions. This toolkit will empower communities to take meaningful action. Grassroots movements not only make a tangible impact but also inspire broader climate awareness. They demonstrate that the fight against climate change starts with engaged and proactive citizens working collectively to protect our planet. South Africa and the EU have embarked on a journey towards sustainability and climate action. Our ambitions towards a low-carbon economy and emissions reductions are a testament to our commitment to environmental stewardship. Recognizing the need for a "Just Energy Transition," South Africa and the EU ensure that the path to a greener future is not walked alone but is instead shared by all, particularly those most vulnerable in society. A key contribution from the EU is Global Gateway, our new investment strategy to boost smart, clean and secure links in digital, energy and transport sectors and to strengthen health, education and research systems to enable and facilitate South Africa just energy transition. As part of these ambitions, I am certain that this toolkit will contribute to drive our common objectives, from the community level up.

**Ambassador Sandra Kramer**

# Empowering communities for climate resilience: A foreword

In a world marked by the relentless advance of climate change, the devastating impacts have fallen heaviest on communities in developing countries, whose very livelihoods hang in the balance. South Africa, like many nations in the global South, has not escaped the pernicious effects of this global crisis. Inclement weather patterns have ravaged communities, causing destruction, loss of life, and prompting the declaration of states of disaster. This dire situation demands an all-encompassing, 'whole-of-society' response; one that engages individuals from all walks of life to collectively devise solutions that are necessary to adapt to this new reality.

Yet, as resources tend to be centralized within national and provincial governments and large corporations, local communities often find themselves disenfranchised, left with little say in shaping their own destiny. This disconnect reduces the likelihood of success for strategies imposed by external entities, as the very people these strategies affect are alienated from the development process. To bridge this gap, civil society and community-based organizations play a vital role. They mobilize local communities and create opportunities for organic solutions to emerge, instilling a sense of ownership and agency within marginalized groups. This sparks a culture of active citizenship, a fundamental pillar in crafting sustainable responses to climate change. This toolkit is one of several initiatives conceived by GreenCape and supported by the Friedrich Naumann Foundation. It serves as a practical guide to support community-led climate change workshops, offering a user-friendly, accessible, and step-by-step framework. From designing and facilitating successful workshops to providing valuable content, this toolkit is a tangible instrument empowering communities, especially those in under-resourced areas, to take charge of their climate resilience efforts.

In alignment with South Africa's commitment to a Just Transition, the Friedrich Naumann Foundation is proud to support projects like these, which are integral to the nation's climate response framework. We extend our heartfelt congratulations to GreenCape and the climate change champions throughout the country who are answering the calls of their communities. As we embark on this collective journey, we eagerly anticipate the innovative solutions that will emerge from the workshops and conversations, laying the foundation for a more sustainable, resilient, and climate-ready South Africa. Together, we can make a difference, and this toolkit is the first step towards that brighter future.

**Inge Herbert**

**Friedrich Naumann Foundation**
**Regional Director:**
**Sub-Saharan Africa**

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# Introduction

## 1.1. Why has this guide and toolkit been developed?

South Africa is particularly vulnerable to the impacts of climate change. The country is already experiencing the impacts of climate change, with an increase in the frequency and severity of droughts, floods, heat waves and wild fires. These direct environmental consequences of climate change have a negative impact on the livelihoods of citizens and on the economy, and exacerbate the existing challenges of poverty, unemployment and inequality. Simultaneously, responding to climate change and its consequences provides an opportunity for innovative thinking to enable communities to access new opportunities and to become more resilient.

Community-led action can be a powerful force for change. Community-led climate action refers to initiatives and efforts at the local level where communities play an active role to limit climate change and adapt to its consequences. It involves communities taking ownership of the challenges and opportunities associated with climate change and working collaboratively to implement solutions.

Active citizenship is key to community-led action. Active citizenship refers to the active engagement and participation of individuals in their communities and society as a whole. It goes beyond the traditional notion of being a passive member of society and emphasises the responsibility and agency of individuals in contributing to the betterment of their communities.

This guide and toolkit provides practical guidance to support grassroots organisations to expand their mandate to encourage active climate change citizenship and to enable community-led climate action.



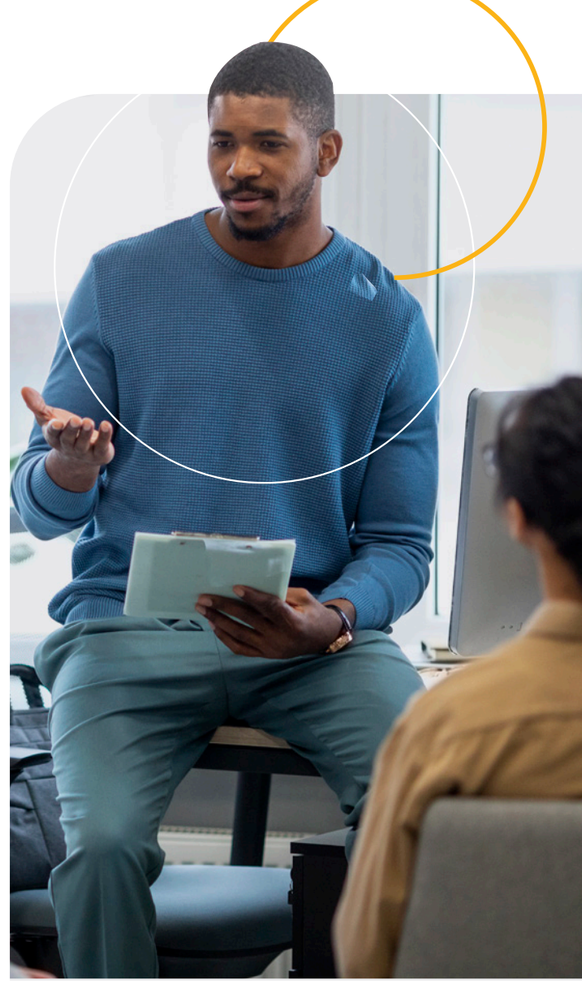
## 1.2. Who is this guide and toolkit for?

This guide and toolkit is for leaders of civil society organisations (CSOs) and community-based organisations (CBOs). It aims to equip leaders to host climate change awareness and empowerment workshops to enable their community members to recognise and benefit from any opportunities that could come from responding to climate change and to play an active role in taking local climate action to make their communities more sustainable and resilient.

## 1.3. Why is this guide and toolkit relevant to civil society organisations (CSOs) and community-based organisations (CBOs)?

In South Africa, grassroots organisations like CSOs and CBOs have a crucial role to play to uplift, strengthen and build resilience in communities. CSOs and CBOs do not necessarily need to have climate change mandate to have a positive climate change-related impact.

The COVID19 pandemic demonstrated that communities need to collaborate to develop local skills, resources and capacity and to proactively build local networks to become resilient. Participatory community climate change workshops raise awareness, build climate literacy, and empower participants to make informed decisions about what they can do as individuals, community members and citizens in response to climate change. Such workshops are an effective tool to engage and empower communities and enable local, collaborative, community-led climate action.



## 1.4. What does the document contain?

This document presents step by step guide to design and facilitate participatory community climate change workshops (Section 2) and a toolkit with content and practical, interactive activities that facilitators can use to generate and co-create content that their communities would engage with and relate to (Section 3).

**As a guideline to using the toolkit the following may be useful to note:**

| MAIN OBJECTIVE | APPLICABLE SECTIONS | DETAILS |
|---|---|---|
| **Workshop Facilitation** | Section 1<br>Section 2 | How to run workshops and to ensure participant engagement |
| **Climate Change** | Section 3 | Includes mitigation and adaptation measures and examples |
| **Renewable Energy** | Section 4 | Includes details on the Just Energy Transition (JET). This section partially addresses issues faced in Section 3 |
| **Glossary** | Page 39 | Terminology of technical terms |

## 1.5. What are the ideal outcomes of community climate change workshops?

**The ideal outcomes of a community climate change workshop may depend on the goals and objectives set for the specific workshop. Generally, ideal outcomes include:**

- Increased awareness and understanding: Participants gain a deeper understanding of climate change, its causes, and its impacts, both globally and locally. They become more aware of the urgency and importance of taking action to address climate change.
- Empowered and engaged participants: Workshop participants feel empowered to take action and engage in climate-related initiatives within their community. They develop a sense of agency and responsibility in contributing to climate solutions.
- Enhanced climate literacy: Participants acquire background knowledge and skills related to climate change mitigation, and adaptation. They understand the concepts, strategies, and practices that can help their community mitigate greenhouse gas emissions and adapt to climate change impacts. These strategies within themselves can have short term or long term outcomes.
- Collaborative and inclusive approach: Participants develop a sense of community and collaboration as they engage in discussions, group exercises, and networking opportunities. They recognise the importance of collective action and inclusivity in addressing climate change.
- Action planning and project development: Participants work collaboratively to develop action plans and projects that address climate change challenges within their community. They identify specific steps, goals, and timelines for implementation.
- Strengthened community resilience: The workshop helps build resilience within the community by raising awareness of climate risks and vulnerabilities. Participants gain insights into adaptation strategies, risk reduction measures, and sustainable practices that can enhance the community's ability to withstand and recover from climate impacts.
- Network and resource sharing: Participants establish connections and networks with other community members, organisations, and stakeholders working on climate-related initiatives. They have access to resources, tools, and support networks that can assist in their climate action efforts.
- Long-term engagement and follow-up: The workshop serves as a starting point for ongoing engagement and action. Participants are encouraged to continue their involvement in climate-related activities, sustain the momentum generated during the workshop, and contribute to the long-term sustainability of their community.

This guide and toolkit provide a first step in the journey to these ideal outcomes. Community leaders are encouraged to use this foundation with these ideal outcomes in mind and to draw on their own experiences and wider networks to customise the content to engage and empower their specific communities.

### WHAT IS A COMMUNITY CLIMATE CHANGE WORKSHOP?

*A community climate change workshop is an event or gathering organised at the local level to engage community members in learning about and addressing climate change. The workshop aims to raise awareness, provide information, foster dialogue, and empower individuals and communities to take action in response to the challenges posed by climate change. It typically involves a combination of presentations, interactive activities, discussions, and group exercises.*

*Community climate change workshops play a vital role in fostering climate literacy, building local capacity, and empowering individuals and communities to take ownership of climate action. By providing a platform for learning, collaboration, and action planning, these workshops contribute to a more resilient and sustainable future at the community level.*



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# Designing and facilitating community-led **climate change workshops**

A workshop is a dynamic engagement process that facilitators and participants co-create. Workshops are typically designed to guide participants through facilitated discussions to increase their knowledge on a subject complemented by practical exercises to provide an opportunity to apply this knowledge to gain deeper insight and learn new skills. Exercises are typically done in pairs or groups to encourage active participation and collective problem solving to set up a foundation for inclusion and collaboration. Enabling participants to collectively solve a problem that they have identified themselves is often a good way of making the content relevant to them and getting engagement.

However, the success of a workshop, and its ability to catalyse sustained community climate action, is also very much dependent on the planning and community engagement experience that precedes it, as well as the close-out or follow-up activities afterwards. This section provides guidance on all of the steps that need to be undertaken to deliver a successful community climate change workshop.

## 2.1. Preparing to host a workshop

**Setting goals and objectives:** When planning a workshop, start by defining the workshop goal and a clear set of objectives that can practically be achieved in the time available. Once the goal and objectives of the workshop are clear to the team organising it (and other essential steps of the preparation[1] have been done), communicate the goal and objectives to potential participants well before the workshop. It will focus everyone on the intended outcomes and will minimise possible misalignment and frustrations. This will help to ensure that those who attend are engaged in the content of the workshop, and it also gives them an opportunity to co-create the agenda.

**Possible goals for workshops might include:**

- Raising awareness of climate change and its potential implications for your community.
- Inspiring communities about a future with renewable energy.
- Developing an action plan to put in place measures that will enable greater resilience to the impacts of climate change.
- Developing an awareness campaign for the wider community to support these actions.
- Encouraging collaboration between participants for climate change initiatives within communities.
- Encouraging youth involvement in climate change discussions both locally and nationally.

Workshops will have different goals depending on the community and the time available. Facilitators should select manageable goals for each workshop, or have a series of workshops if a large number of goals need to be covered.

**Developing an agenda that enables co-creation:** The workshop agenda needs to at all times consider how participants could co-create and share knowledge. A core principle of community-led climate action is enabling people to be at the centre of their own development, leading the way to identify the challenges they face and deciding on locally appropriate actions and solutions.

1 This includes identifying the date and venue, booking the venue, identifying the participants, sending invites with RSVPs to help determine final numbers, and arranging catering, security (if necessary), chairs/tables (if not available at the venue), stationery (including flip charts / pens, paper), projectors and audio equipment (if required), registration lists, name tags etc.

## 2.2. Workshop facilitation

No workshop will ever be the same as the next. Most 'active citizens' who work in community settings would attest to this. An approach can work extremely well in one context and be a complete failure in another. So a definitive guide on how to facilitate does not exist; that is why it is important to take time to understand the specific community context, and build on the experience of facilitating in the same or different settings by drawing on reflections from previous facilitation processes to create what may useful for each individual context.

**FACILITATION**

*To facilitate something means to make something easier, or to help to bring something about. This is exactly what we are trying to do in the process of holding a meeting, training or community workshop, and a good facilitator can lead a meeting by helping participants to stay involved, identify and solve problems, and can help to direct group discussions.*

Facilitation is often easiest done as a team, where people can work together to share responsibilities and draw on the strengths of different team members to achieve desired outcomes. In every facilitation team, each facilitator must know the roles assigned to them. Aim to create a facilitation team where roles are shared in terms of planning the workshop, logistics, and finally the actual facilitation and overseeing of the workshop. It may be helpful to have a clear list of roles and responsibilities for the facilitation team.[2] The main facilitator/s needs to have the experience and necessary skills to ensure that the workshop is facilitated as a safe space.

A "safe space" in a workshop setting refers to participants feeling comfortable and speaking openly and freely about feelings, challenges, and emotions as they may arise. It allows the participants to "arrive" and just be present at the workshop, knowing that their presence is welcomed and respected.

How participants work together during the workshop is also important. A "team contract"[3] can be agreed upon when the participants start to work together to ensure that everyone feels that they are operating in a safe space.

The following videos are visual learning materials that enrich an overall understanding of the role of a facilitator. Before consulting the technical content of the toolkit, these visual materials are highly recommended as general rule of thumb.

1. Facilitation 101 – **youtube.com/watch?v=J-_KUfc-FMs** (4:24 min)
2. How to be a great facilitator – **youtube.com/watch?v=S-y2fkRs12s** (13:33 min)

2 It is a good idea to have at least one person at the workshop who is not actively facilitating so that there is one person available to manage any late arrivals and deal with any logistics issues that may come up during the workshop.

3 A "team contract" is when workshop participants together with the facilitator share and write down the rules and expectations for the workshop. It thus binds all participants and facilitator to be accountable for the success of the workshop.



## 2.3. Key steps for the planning and delivery of a community climate change workshop

Figure 1 below is a simple illustration of the different steps involved in planning and delivering a workshop. The timing of each of the steps and the activities within them will vary widely as the audience varies. Each group and situation will be different. This guide will not be able to anticipate every curveball that facilitators may come across both in planning or execution, therefore facilitators need to be flexible to adapt where necessary.


**Figure 1:** Workshop flow diagram

### 2.3.1. Step 1: Laying the foundation

It is important that the facilitators are familiar with the workshop content and can also put this in context for the participants.

The toolkit in Section 3 provides an introduction to climate change that will assist facilitators with the foundational tools to develop a workshop. It shares links to additional resources for further reading and videos that explain key terminology, and it gives ideas for facilitation, such as energisers, group work and discussions, to make it easier to host a workshop. Facilitators should also familiarise themselves with local data, policies and plans affecting their community so as to enable them to place the content in context for the participants and/or facilitate discussions that enable this. Relevant contextual information can typically be found on websites of local municipalities and publications from science communities and environmental organisations.

### 2.3.2. Step 2: Defining the scope

In this step, facilitators narrow down the learnings from Step 1, and link it to the workshop goal and objectives.

Facilitators need to define a goal and objectives, scope the content and plan the workshop. This will include deciding how best to deliver the workshop creatively.

**The following questions can guide the process:**

- **Why are we hosting this workshop? What is the goal?**
- **Who is the target audience?**
- **What do I/we want to achieve?**
- **What should participants be able to do or have learnt once the workshop has concluded?**
- **What will be a key measurement of success? What kind of evidence will there be of knowledge gained or what tangible outputs will be produced?**

  For example, pre- and post-workshop feedback forms can be used to establish a baseline and how that has changed through participation in the workshop. Tangible outputs may be action plans or awareness raising plans.

- **What kind of energisers, activities and peer learning methods would be ideal with this kind of audience?**

## 2.3.3. Step 3: Workshop preparation

It is important to consider inclusivity into the planning of the workshop. This will give all attendees the opportunity to fully participate. This includes considering attendees' availability, mobility, cultures, identities and their preferred language. Here are some key considerations when preparing for a workshop:

**1. Known the audience**

- Find out their foundational understanding of the subject matter. This will enable the tailoring of content to be relevant to them specifically. Conduct a pre-workshop survey if people are able to complete and return it, or speak to a few community members who will either be attendees or know the attendees.
- Find out the best way is to communicate with potential attendees to make them aware of the workshop.

**2. Draw up a budget. This will include the following considerations:**

- How many participants may be attending?
- How long the workshop will be (hours or days)?
- Is catering, security and/or transport required?

**3. Select a suitable venue**

- Is it close to the community and easy to locate?
- Is it inclusive and safe?
- Is it free or does it need to be paid for? If venue hire is to be paid, add this to the budget.
- Does it have the necessary audio-visual equipment (if this is to be used)?

**4. Send out invitations (based on the information on the best route of communication with potential attendees gathered earlier) (e.g. put up posters at relevant locations from where the participants are drawn).**

**5. Confirm attendance and travel arrangements with participants in advance.**

**6. Order and confirm catering (refreshments and meals) - note this activity is budget permitting.**

**7. Determine what stationery is needed– like pens, flipcharts etc., add this to the budget and acquire well ahead of time.**

**8. Arrange for any audio-visual equipment that may be needed, and add this to the budget if needed to hire this.**

**9. Prepare an attendance register and nametags.**[4]

The following videos are visual learning materials that enrich an overall understanding of the role of a facilitator. Before consulting the technical content of the toolkit, these visual materials are highly recommended as general rule of thumb.

1. Prepare the workshop goal statement and programme.
2. Familiarise the facilitation team with the technical content of the workshop (i.e. climate change- and related material – see Section 3) and draw on experts to assist, if required.
3. Decide which energisers, activities and group discussions will be used based on the workshop goal and time available.
4. Plan for comfort breaks, refreshments and meals (budget permitting) in the programme.
5. Create opportunities for reflection and feedback.

4 It is helpful to have nametags so that people can refer to each other by name which helps with respect and cohesion. This can be as simple as stickers on which people can write their names on the day.



If possible, distribute the workshop programme to attendees ahead of the workshop. Have printed versions available to participants on the day (if budget and logistics permit) or have a few copies of the programme up at convenient locations at the workshop venue (e.g. at the registration desk, where refreshments are served, at the back and along the sides of the venue etc.)

## 2.3.4. Step 4: Host the workshop

Section 3 will introduce materials that can be used to host community climate change workshops. The activities in Section 3 are tools to guide the facilitator. The facilitator ultimately has the choice to only use the ones most relevant to their audience and workshop objective.

The planning and facilitation team is responsible for ensuring that the workshop can be convened in a way that is safe for all participants. It is thus important to create ways to that the participants can contribute.

The following tips and tricks are aimed at supporting experiential learning, to enable active participation from workshop participants, allowing them to feel comfortable in sharing opinions and inputs in a space that is respected by everyone in the workshop.

- **Be prepared:** Ensure that the facilitation team is well prepared and that everything is in order before the workshop starts. Anything can happen at any time, but preparation reduces the chances of anything going wrong.
- **Arrive early and get the "lay of the land":** Be mindful of the space and know where to point people to in case they need assistance with something. This can include anything from knowing where the restrooms are, where meals will be served, and where the nearest shops are.
- **Create a safe space:** This cannot be emphasised enough. Create a positive atmosphere, where people are given equal opportunities to contribute to the workshop.
- **Draw up a "team contract":** Source ideas from the workshop participants on how they want to work together as a team. Write this up and keep it where it is visible for everyone to see.
- **Be present:** Be focused and stay focused. Always check the mood in the room to ensure appropriate interventions when energy levels get low.
- **Crowdsource insights:** Facilitators do not have to be the expert on every topic. Use the participants to each other's advantage, but work towards achieving a good flow rather than being stuck in a debate that no one wants to let go of, especially if it is not part of the programme. However, it is important to communicate to the participants that their inputs count. A good way to manage inputs that may not be part of the programme or not relevant at that particular point in the programme is to have a space where "other points to think about" are recorded and can be referred to later (if and when relevant).
- **Make co-facilitators look good:** As a co-facilitator, do not interrupt when someone is busy facilitating. Rather call the person to the side when there is an opportunity and share whatever is needed to avoid the facilitator and the participants from feeling uncomfortable.
- **Short turn-taking:** Allocated realistic time to different inputs. PowerPoint presentations should ideally be no longer than 10 minutes at a time before encouraging engagement / commencing with activities.
- **Feedback is a gift:** People love to hear what they did well. Start with the good stuff. Ensure that participants share their experience of the workshop (e.g. "What went well? What did not go so well? What can we change/improve?").
- **Have fun!** It is very important that people have fun while they are learning. Section 3 shares some 'energisers' that can be used in a workshop setting to ensure that people have fun, their minds are stimulated, and that everyone is on the same page when it comes to discussing complex topics.

**Workshops typically commence with introductions, where the workshop goals are discussed, and attendees' expectations for the day are documented. The introduction can be done with an icebreaker.**

**ACTIVITY SUGGESTION: Workshop Icebreaker**

The goal of this icebreaker is to strengthen the relationship between the various participants present.

Divide attendees into pairs, specifically with someone with whom they have not yet engaged. In pairs, they will need to answer the following questions:

1. **Their names, surnames and organisations they represent.**
2. **What they wanted to be (career wise) when they were younger.**
3. **What the superpower is that they are each bringing to the room.**
4. **What their expectations are for the day.**

**Group Discussion:**

After this, each attendee introduces their partner to the larger group. This provides attendees the opportunity to learn something about the participants shared or divergent interests, and personal histories.

**Alternative ways to obtain information about goals and expectations:**

- Ask the invited participants to submit their expectations or hopes for the workshop in writing, if is this realistic, at least two weeks before the workshop will be convened, and then incorporate this feedback into the design of the process.
- Alternatively, facilitate an interactive exercise on expectations near the beginning of the workshop where participants work in small groups to articulate their collective expectations, write these down on cards or sticky notes, and then provide feedback to a plenary session. These cards can then be put on display so that participants can refer to them during the workshop.
- For online workshops, use virtual "breakout rooms" for smaller groups of participants to discuss and agree on their expectations, and then share these with all participants in the plenary session, or ask people to list these in the chat function if "breakout rooms" are not possible. Make sure it is easy enough for the audience to engage on virtual platforms if considering a virtual workshop.

Respond to the expressed expectations by explaining how they will be addressed in the programme. This might require some adjustment to the programme: Try to be flexible to accommodate whatever is reasonable and achievable. If the participants have an expectation that is beyond what can be achieved, respectfully acknowledge the expectation, and explain why it will not be possible to achieve it in the framework of the workshop.

Once the participants know who is in the room, and the goals and expectations have been set, the workshop can progress according to the planned programme drawing on the toolkit provided in Section 3.



## 2.3.5. Step 5: Workshop close-out and post workshop activities

**Participants' reflection and feedback:** Provide participants the opportunity to reflect and provide feedback either immediately after the workshop or a day after the workshop. Open the discussion and ask participants to feedback their key takeaways from the day and what they might do (differently) with their new insights / following on from the workshop. Enabling reflection on individual and collective change and action is essential when the intent is that workshop be a catalyst for community-led action. Also obtain feedback on workshop delivery to enable the facilitators to learn and make improvements for future workshops. Ask the participants what worked well and did not work very well. Alternatively, or in addition, have participants' complete written feedback forms (hard copy or electronically).

**Communicate next steps:** It is important to communicate next steps with participants. This can be done briefly as part of the close-out, but can also be a post-workshop e-mail in which participants, collaborators, funders and facilitators are thanked for participation. Include the following documents: a summary or a copy of all the presentation materials and a summary or copy of all the materials generated during the workshop. Where activities that need to be undertaken by community members have been identified during the workshop or specific action plans have been generated, make sure that the ownership of these is clear: Who is responsible for taking this forward? How might they do so and by when? It is important that (such voluntary) ownership be identified and agreed to at the workshop, and the close-out and follow-up activities serve merely as confirmations and reminders of expected actions / commitments made.

**Internal next steps:** Make time to have a team debrief directly after the session while the experience is still fresh. Start with what went well and what excited them most, and then with what could have been done better. Take notes as reminders. Write a summary of the workshop, with a focus on insights. Compile any photos, slides and written materials and file it to draw on for planning future workshops, report to funders etc. The next section is the toolkit with workshop resources.

**"Enabling reflection on individual and collective change and action is essential when the intent is that workshop be a catalyst for community-led action."**

## 2.4. Workshop General Ice breakers and Exercises

As a way for participants to discern between factual information and misinformation.

### EXERCISE: TWO TRUTHS AND A LIE - Discovering Shared Experiences

**Objective**

The goal of this ice breaker is to create a fun and interactive activity that allows participants to learn more about each other by sharing interesting facts about themselves. It encourages engagement, laughter, and connection among participants while keeping a time limit to ensure efficiency.

**Time Allocation**

Approximately 15-20 minutes.

### Instructions

**Introduction: (2 minutes):**

- Welcome participants to the workshop and briefly introduce yourself as the facilitator.
- Explain the purpose of the ice breaker: to get to know each other better and find commonalities through sharing interesting facts.

**Instructions: (3 minutes):**

- Instruct participants that they will take turns sharing three statements about themselves: two truths and one lie.
- Emphasize that the statements can be fun, unique, or even slightly bizarre, but they should be believable to keep the game exciting.
- Inform participants that after sharing their three statements, the rest of the group will have a brief opportunity to guess which statement is the lie.

**Small Groups (8-10 minutes):**

- Divide participants into small groups of 4-6 people, depending on the total number of participants.
- Allocate about 2 minutes per person for sharing their three statements and the group's guessing process.
- Encourage active listening and interaction within the small groups.

**Group Sharing (3-5 minutes):**

- Gather all participants back together as a whole group.
- Invite each small group to share one interesting truth and lie they discovered within their group.
- Allow a brief moment for other participants to guess which statement they think is the lie.

**Reflection and Wrap-up (2 minutes):**

- After each group has shared, facilitate a quick reflection by asking participants about their experiences during the activity.
- Highlight the shared interests, surprising facts, or common experiences that emerged during the game.
- Express appreciation for participants' engagement and willingness to connect with one another.

**Conclusion (3-5 minutes):**

- Thank participants for their active participation in the ice breaker and setting a positive tone for the workshop.
- Transition smoothly into the main agenda or activities of the workshop.

*Note: Be mindful of the time during the small group activity to ensure everyone gets an opportunity to share within the allocated time. Also, encourage a relaxed and non-judgmental atmosphere, so participants feel comfortable sharing their statements. As a facilitator, you can start the activity by sharing your own two truths and a lie to set an example.*

*An ice breaker which focuses on refreshing attention span and concentration.*



### EXERCISE: CONCENTRATION CHALLENGE - Match Me If You Can

**Objective**

The goal of this concentration game is to improve participants' focus and memory while fostering a fun and interactive atmosphere. The game involves matching pairs of cards, requiring participants to stay attentive and engaged throughout the activity.

**Time Allocation**

Approximately 15-20 minutes (adjust the number of cards to fit the allocated time).

### Instructions

**Preparation: (2 minutes):**

- Before the workshop, create a set of matching cards. Each card should have a unique image or word on it, and there should be an identical match for each card (e.g., 10 pairs of cards for a total of 20 cards).
- Shuffle the cards and place them face down on a table in rows.

**Introduction: (3 minutes):**

- Welcome participants to the workshop and introduce yourself as the facilitator.
- Explain the purpose of the concentration game: to challenge their memory and ability to focus.
- Briefly explain the rules of the game and the time allocation.

**Concentration Game Rules (2 minutes):**

- Participants will take turns flipping over two cards to reveal the images or words.
- If the two cards match, the participant keeps the pair and gets another turn.
- If the two cards do not match, they are flipped back face down, and the next participant takes a turn.
- The game continues until all the cards have been matched.

**Concentration Game Activity (8-12 minutes):**

- Start the game by asking the first participant to choose two cards and flip them over to reveal the images or words.
- Allow each participant a specific time limit (e.g., 15 seconds) to make their selections and show the cards.
- Continue in a clockwise direction, giving each participant their turn within the allocated time limit.
- If a participant finds a matching pair, they keep the cards and take another turn. If not, they flip the cards back face down before the next participant's turn.

**Reflection and Discussion (3 minutes):**

- After all the cards have been matched, gather the participants for a brief discussion.
- Ask them about their experience during the game—how they managed to concentrate and what strategies they used to remember the card placements.
- Encourage participants to share any insights they gained about improving their concentration skills.

**Conclusion (1 minute):**

- Thank participants for their active engagement in the concentration game.
- Highlight the importance of concentration and memory in various aspects of personal and professional life.
- Encourage participants to continue practicing and developing their focus and memory skills.

*Note: The number of cards can be adjusted based on the workshop duration and the complexity of the images or words. To increase the challenge, you can gradually reduce the time limit for each turn as the game progresses. Ensure a positive and supportive atmosphere during the game to foster a sense of enjoyment and accomplishment for all participants.*

## EXERCISE: FUN FACTS BINGO - Discovering Shared Interests

**Objective**

The goal of this ice breaker is to help participants get to know each other better by finding shared interests and unique qualities. The activity takes the form of a bingo game, creating a fun and interactive way for participants to connect.

**Time Allocation**

Approximately 15-20 minutes.

### Instructions

**Preparation: (5 minutes before the workshop):**

- Create "Fun Facts Bingo" cards with a 5x5 grid, where each square contains a fun fact or unique characteristic about a person (e.g., "Loves hiking," "Has traveled to more than three countries," "Can play a musical instrument," etc.). Ensure each card has different facts in a random order.
- Prepare enough bingo cards for all participants, and distribute them at the beginning of the ice breaker.

**Introduction: (2 minutes):**

- Welcome participants to the workshop and introduce yourself as the facilitator.
- Explain the purpose of the ice breaker: to get to know each other through shared interests and fun facts.

**Concentration Game Rules (2 minutes):**

- Instruct participants to walk around the room and find individuals who match the characteristics in each square of their bingo card.
- When they meet someone who fits a description, they should introduce themselves, chat briefly, and ask the person to sign their card in the corresponding square.
- Emphasize that participants should try to learn something new about each person they meet.

**Bingo Card Completion (8-12 minutes):**

- Encourage participants to keep mingling until they have filled in as many squares as possible on their bingo cards.
- Set a time limit of 5 minutes for this mingling activity.

**Sharing and Reflection (3 minutes):**

- Gather all participants back together as a whole group.
- Invite a few participants to share interesting facts they learned about others during the ice breaker.
- Facilitate a brief discussion about any surprising commonalities or connections that emerged.

**Conclusion (1 minute):**

- Thank participants for their active participation in the Fun Facts Bingo game.
- Highlight the importance of finding common ground and shared interests in building connections.
- Transition smoothly into the main agenda or activities of the workshop.

*Note: Adapt the fun facts and characteristics on the bingo cards to suit the specific group and context of the workshop. Ensure that the ice breaker promotes a positive and inclusive atmosphere, allowing participants to feel comfortable sharing and learning about each other.*



3

# Toolkit: Topic specific content and activities

This section contains content and practical tools for workshop facilitation. It is structured according to specific topics, and provides background content and activities for each topic which are designed to help participants understand and apply climate change related topics to their own lives and communities.

How to use this toolkit: Facilitators can prepare content for workshops by reading the background content for each topic, and could prepare a short presentation based on the background content. The workshop programme (see Section 2) can be structured to include a presentation and associated activities per topic.

**The specific topics covered in this toolkit are as follows:**



## 3.1. Topic 1: What is climate change?

**Topic 1: Background content**

The Earth's climate has cycled naturally through several warmer periods and cooler periods (called "ice ages") over time. So why is there a current concern over climate change? The problem with the current period of global warming is that it is happening at a much faster rate than it has in the past, and it is clearly being caused by anthropogenic or human activities. The rapid warming has a spill-over effect on the environment, communities, the economy and primary health. It has magnified inequalities by placing greater pressure on communities with already limited resources.

Scientists started studying the atmosphere as far back as the 1800s, and began to understand the role of gases in the atmosphere, and specifically how certain gases trap heat. They noted that increased levels of carbon dioxide (CO2) could lead to warming of the planet. Since society has industrialised, increased levels of carbon dioxide continue to be released into the atmosphere, particularly by burning fossil fuels like oil, coal and gas. The gases generated through these practices trap the sun's heat and are causing the Earth's surface and atmosphere to warm rapidly. Evidence of ancient climates shows that current global warming is happening about 10 times faster than the usual rate of warming following an ice age.[5] Global warming is causing major changes to the Earth's climate and natural systems, and if people do not act soon to reduce emissions, some of these changes will be irreversible and significant damage to the environment and communities may be unavoidable. Figure 2 illustrates the impact of increased carbon dioxide levels on global temperatures.

The rate of climate change due to human activity can have short and long term effects. The Earth system consists of living and non-living components. The hydrosphere, geosphere, atmosphere and biosphere are all affected differently yet they are all connected. As an example, a natural disaster such as a tropical cyclone (atmosphere) can have extreme consequences on the livelihoods of humans (biosphere). Given the complex nature of climate change, it is larger than an environmental issue. Climate change is also a social issue and moreover, affects humans differently based on location, accessibility and socioeconomic standing.

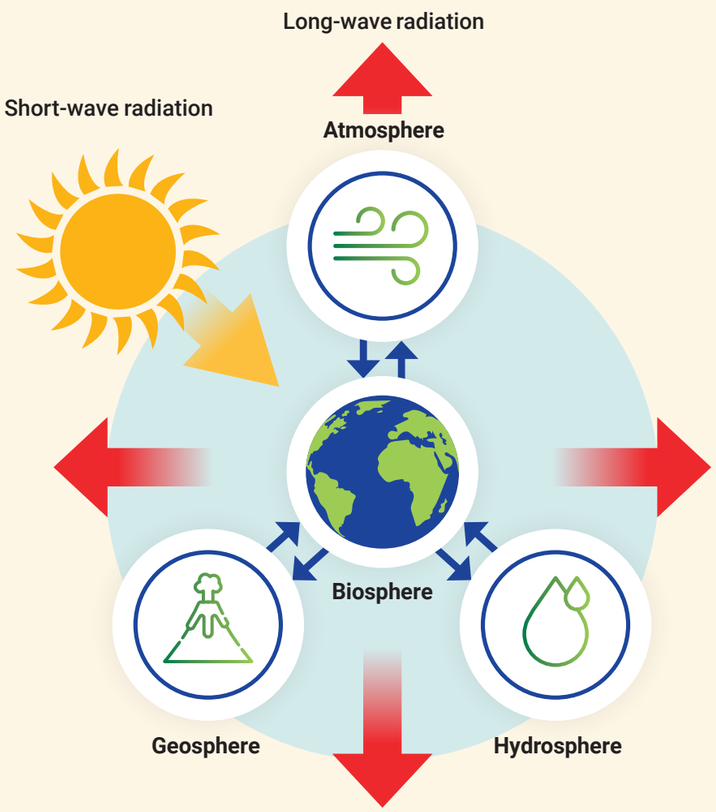



**Figure 2:** The spheres of the Earth system

5 For more information, see the National Space Administration (NASA) (n.d). How do we know climate change is real? Available online: https://climate.nasa.gov/evidence/



### WHAT IS CLIMATE CHANGE?

*Climate change refers to long-term shifts in temperatures and weather patterns.[6] These types of climate shifts can occur naturally over a long period of time, due to changes in the sun's activity. However, the more rapid changes experienced since the 1800s are clearly due to human activities, primarily through the burning of fossil fuels like coal, oil and gas. The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as: "A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".[7]*

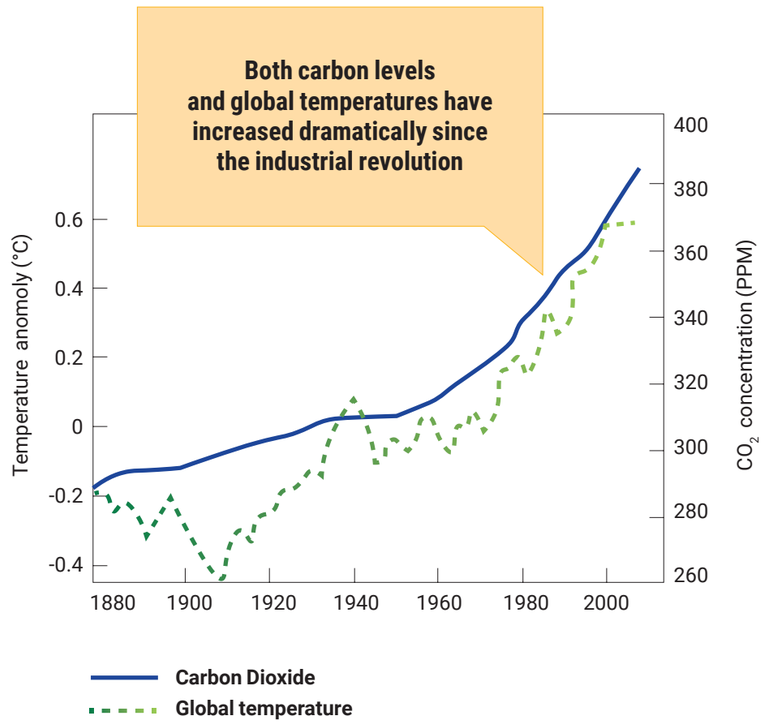



**Figure 3:** The relationship between carbon dioxides levels in the atmosphere and global temperatures since the industrial revolution
Source: The Climate Reality Project[8]

6 United Nations (n.d). What is Climate Change? Available online: https://www.un.org/en/climatechange/what-is-climate-change
7 United Nations (1992). United Nations Framework Convention on Climate Change. Available online: https://unfccc.int/files/essential_background/background publications_htmlpdf/application/pdf/conveng.pdf
8 The Climate Reality Project. (n.d.). So You Want to Learn About the Climate Crisis: A Quick Guide to the Basics. Available online: https://www.climaterealityproject.org/climate-change-basics

The following videos can be used as additional resources on the topic of climate change. These videos introduce the science behind climate change, which is important background knowledge for facilitators. The videos also introduce what is predicted to happen in future. These additional resources can also be used within a workshop setting:

- **Causes and Effects of Climate Change, by the National Geographic** - (youtube.com/watch?v=G4H1N_yXBiA) (3:04 min).
- **Climate 101 with Bill Nye, by Climate Reality** - (youtube.com/watch?v=3v-w8Cyfoq8&t=78s) (4:34 min).
- **Introduction to Climate Change (Let's Respond Toolkit), by the Department of Environment, Forestry and Fisheries** - (youtube.com/watch?v=eUa1DDISRM0) (3:20 min).

## The "greenhouse effect" explained

The "greenhouse effect" refers to how certain gases in the atmosphere act like a blanket - or greenhouse - around Earth for humans to live comfortably. Gases that trap heat in the atmosphere (like carbon dioxide) are referred to as greenhouse gases (GHGs). Burning fossil fuels like oil, coal and gas, which were stored under the Earth's surface for thousands of years, as well as the release of gases by other industrial processes and intensive farming, has significantly increased the amount of carbon dioxide and other greenhouse gases in the atmosphere. At the same time, changes humans make to the environment, like cutting down forests to clear land for other uses (known as deforestation), limit the ability of the Earth's systems to reabsorb carbon dioxide over time. Collectively, this results in a greater concentration of greenhouse gases in the atmosphere and thus more heat being trapped in the Earth's atmosphere, leading to greater warming of the Earth's surface and atmosphere, and ultimately climate change.

How much climate change we will experience in the future is dependent on how much action nations take to reduce their greenhouse gas emissions. To create understanding of the future climate and what to expect, scientists use climate models to see how the climate system is likely to change depending on how much greenhouse gas are emitted, and downscale this to show what the impacts are likely to be for a particular region, such as South Africa and its provinces, to allow planning for the coming changes.

**GREENHOUSE EFFECT**

**"Greenhouse effect" gets its name from actual greenhouses. A greenhouse is made up of windows, which allows sunlight in, but does not let all the heat escape. The trapping gases include water vapour, carbon dioxide and methane.**

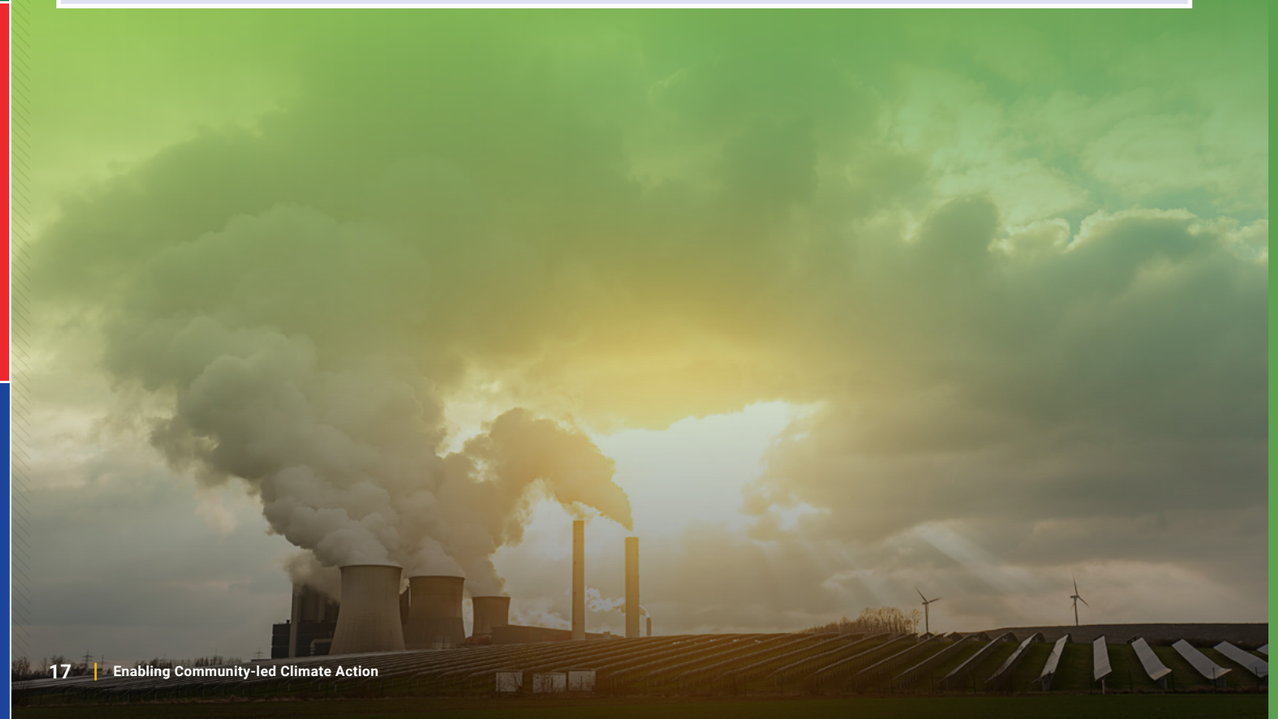




**Figure 4** illustrates how greenhouse gases trap heat and adds to the warming of Earth's surface.

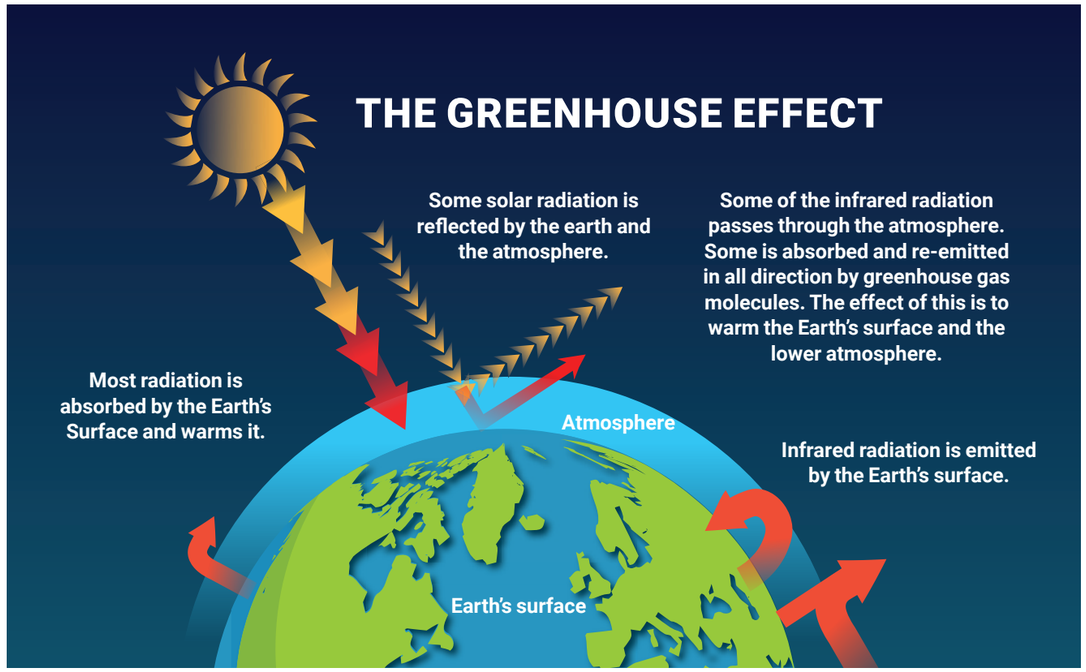



**Figure 4:** The Greenhouse Effect[9]

## 3.2. A South African's perspective on Climate Change

In a South African context, climate change refers to the long-term shifts and alterations in weather patterns and climatic conditions experienced in the country as a result of human activities and natural processes. Droughts, flooding and wildfires are particularly prevalent in South Africa. However, changing conditions are variable across South Africa. South Africa has a wide variety of climatic regions including sub-tropical, temperate and semi-arid to arid.

**Increasing/Decreasing Temperatures:** South Africa has observed an increase in inter-decadal, inter-annual and inter-seasonal average temperatures over the past century. Warmer summers and winters are becoming more common, leading to prolonged heatwaves and higher temperatures. However, colder than normal conditions have also been observed in parts of the country.

**Changing Rainfall Patterns:** Variable precipitation patterns have occurred across South Africa, resulting in altered rainfall distribution and more frequent extreme weather events such as droughts and heavy rainfall, leading to floods.

**Water Scarcity:** With changing rainfall patterns and increased evaporation due to higher temperatures as well as demand for water, water scarcity has become a significant concern in many regions of South Africa. Droughts have affected agricultural productivity, water supply for communities, and the availability of water for various industries. Reservoir dams are particularly at risk during multiyear droughts.

**Rising Sea Levels:** South Africa has an extensive coastline, and rising sea levels due to climate change pose a threat to coastal communities, infrastructure, and biodiversity. Rising temperatures limit the amount of habitable dry land due to coastal erosion. This is a concern as South Africa has a number of coastal cities.

**Biodiversity Loss:** Climate change impacts are affecting South Africa's rich biodiversity. Increasing temperatures and changing rainfall affects whether areas are habitable or not. Wildfires are a prime example as to how climate change can affect an ecosystem or community.

**Agriculture and Food Security:** Droughts and changing weather patterns influence crop yields and the availability of resources. There are also financial implications depending on how persistent unfavourable conditions are and the demand for a resource.

**Human Health:** Climate change poses health risks, particularly in vulnerable communities. Climate change can either have direct consequence such as heat induced illness, or indirectly affect health such as contaminated water or problematic crop yields due to weather patterns.

9 Adapted from Environmental Protection Agency (EPA) (2012) Climate change indicators in the United States, 2012 Available online: **https://nepis.epa.gov/Exe/ZyPDF.cgi/P100FE65.PDF?Dockey=P100FE65.PDF**

South Africa is actively working on climate change adaptation and mitigation strategies. This includes policies and initiatives to reduce greenhouse gas emissions, increase renewable energy use, promote sustainable agriculture, improve water management, and enhance disaster preparedness and response. Climate adaptation involves effect research about local climate. Knowing how the climate is changing allows for effective planning such as infrastructure design, rationing or finding an alternate way to overcome unfavourable conditions. Mitigation on the other hand, aims to dampen cause due to climate change. For example, water rationing is an effective way for a community to deal with drought in a region. Mitigation requires extensive planning to deal with abnormal conditions.

South Africa, being a developing country with unique geographic and socio-economic challenges, faces particular complexities in addressing climate change. It requires a coordinated effort from various sectors and cooperation at the national and international levels to effectively address the impacts of climate change and work towards a more resilient and sustainable future.

## Local Policy and Legislation

South Africa has developed several policies and pieces of legislation to address climate change and its impacts. These policies and laws aim to promote sustainability, reduce greenhouse gas emissions and enable a transition towards a low-carbon economy. Some key policy and legislative measures include:

1. **National Climate Change Response Policy (NCCRP):** The NCCRP provides a comprehensive framework to address climate change in South Africa. It highlights objectives in terms of climate change adaptation and mitigation.
2. **National Climate Change Adaptation Strategy (NCCAS):** This strategy focuses on building the resilience of communities and ecosystems to the impacts of climate change. The aim is to reduce vulnerabilities in communities and to leverage opportunities to reduce emissions and effectively demonstrate climate change adaptation.
3. **National Greenhouse Gas Emission Reduction Strategy (NGERS):** South Africa's NGERS outlines the country's commitments to reduce greenhouse gas emissions in the context of the Paris Agreement. It sets emission reduction targets and identifies measures across various sectors, including agriculture, energy and transport.
4. **Renewable Energy Independent Power Producer Procurement Program (REIPPPP):** The REIPPPP is a government initiative that promotes the development of renewable energy projects in South Africa. It allows independent power producers to bid for contracts to supply renewable energy to the national grid, thus increasing the portion of renewable energy in South Africa. This promotes both businesses/organizations and aims to reduce greenhouse gas emissions.
5. **Carbon Tax Act:** The Carbon Tax Act was implemented in 2019 as a market-based measure to incentivize companies to reduce their individual carbon emissions. The act imposes a tax on greenhouse gas emissions from industrial activities and aims to encourage emission reduction but also seek renewable energy solutions.
6. **National Water Act:** The National Water Act addresses water management and how this can be sustainably. Focus is placed on water supply and quality considering climate change.
7. **Integrated Resource Plan (IRP):** The IRP is a long-term energy plan that outlines South Africa's energy supply, including renewable energy sources and coal-fired power plants. Focus is placed on the decommissioning of coal plants and shifting to more renewable energy sources.
8. **National Biodiversity Strategy and Action Plan (NBSAP):** The NBSAP aims to conserve and sustainably manage biodiversity in South Africa considering climate change. The plan emphasizes ecosystem resilience and the conservation of diverse and vulnerable habitats.

Policies and legislation are continuously evolving, and new measures may have been introduced or updated as an improved knowledge of climate change is reached. It is important to stay updated and provide input where necessary in order to tailor these policies and laws for South Africa. Additional videos on South Africa's unique climate change situation may be found here:

- **Climate Change 101 - Effect on South Africa -** (Let's Respond Toolkit), by the Department of Forestry and Fisheries and Environment youtube.com/watch?v=B80h7X1vrfk (2:20 min).
- **Climate Change: How is climate change likely to affect South Africa? -** (Let's Respond Toolkit) by the Department of Forestry, Fisheries and the Environment - youtube.com/watch?v=ix-UBgyIG5o (14:47 min).



## 3.3. Local characteristics and examples of Climate Change

South Africa has been experiencing various local examples of climate change impacts. These climatic changes affect ecosystems and communities. Some local examples of climate change in South Africa include.

1. **Droughts:** Several regions in South Africa face prolonged droughts which lead to water scarcity. As a domino effect, water scarcity affects agricultural productivity availability to communities.
2. **Heatwaves:** Heatwaves have become more frequent and intense in many parts of the country during the summer. Heatwaves are particularly extensive in urban areas with more manmade infrastructure.
3. **Wildfires:** Wildfires have affected ecosystems, wildlife, and human settlements. Fires are particularly evident in semi-arid and arid regions.
4. **Coastal Erosion:** Changing weather patterns and rising sea levels have resulted in coastal erosion and increased vulnerability of coastal communities and infrastructure to storm surges and flooding.
5. **Changes in Rainfall Patterns:** Some regions have experienced shifts in rainfall patterns, with altered seasonality and intensity of rainfall. Changing rainfall patterns affect water management, ecosystems and agriculture.
6. **Shifts in Ecosystems:** Rainfall variability have been known to cause shifts in ecosystems andbiodiversity distribution.
7. **Impacts on Agriculture:** Temperature and rainfall pattern changes are affecting crop yields and agricultural productivity. Farmers have to adapt to deal with these changes.
8. **Water Stress:** Climate change exacerbates water stress in regions already facing water scarcity, affecting water availability for drinking, agriculture, and industrial use.

These local examples highlight the diverse and significant impacts of climate change on South Africa's ecosystems, communities, and economy. Efforts to address climate change in the country include implementing adaptation strategies, promoting renewable energy, improving water management, and enhancing resilience in vulnerable regions. More specific examples include the following:

## Flooding

**Flooding in KZN (Climate stressors highlighted 4,5 and 7)**

Rapid urban growth creates a hotspot for climate impacts, and can compound exiting stressors related to poverty, informality, exclusion and governance.[10] This can clearly be seen in the example of flooding in Kwa-Zulu Natal in April 2022. A scientific study on the flooding indicated that climate change likely increased the intensity of the flooding that caused over 400 people to lose their lives and caused significant damage to infrastructure.[11] Poor communities living in informal housing in flood-prone areas or on steep hillsides vulnerable to mudslides during heavy rainfall were particularly impacted.

Human-induced climate change has doubled the likelihood of such an extreme event happening, and likely increased the intensity between 4% and 8%, leading to a one-in-200-year flooding event in an already more flood-prone province. If this type of event is likely to become more frequent in future, the province will need to improve its early warning systems and infrastructure to cope, and improve the access of vulnerable communities to safer housing.

**Figure 5:** Informal settlements were badly hit by the flooding in Durban in 2022[12]

10 IPCC, 2022. Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Available online: https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf

11 Omarjee, L. (2022). Disasters like KZN floods doubled in frequency owing to climate change - study. [online] Fin24. Available at: https://www.news24.com/fin24/economy/disasters-like-kzn-floods-could-double-in-frequency-owing-to-climate-change-study-20220513

12 Mwai, P. 2022. Durban floods: Is it a consequence of climate change? BBC News Available online: https://www.bbc.com/news/61107685

**Heavy thunderstorms, strong winds and flooding in the Eastern Cape**[13]

As climate change results in warmer air, which allows it to hold more moisture, and also increases atmospheric instability, it can potentially enhance the intensity of thunderstorms. This was experienced in the OR Tambo district municipality in 2021 where six people were killed, 27 hospitalised and hundreds left homeless because of thunderstorms and heavy rains. These severe thunderstorms affected the Eastern Cape Province more widely, with floods resulting in casualties and damage to infrastructure. More than 1000 homes were damaged – some severely or destroyed, while others were only partially damaged resulting in the risk of unsafe buildings. In total, 1,762 households (8,810 people) were estimated to be adversely affected.

## Drought

**The Cape Town drought (Climate stressors highlighted 1,2 5,7)**

Droughts, such as the Cape Town drought of 2015 – 2018, are five to six times more likely due to human-induced climate change.[14] Following three consecutive years of low rainfall, Cape Town prepared for major water shortages by undertaking a significant campaign to nearly halve water usage, from 540 to 280 litres (about 2 bathtubs full) per household per day. This campaign included both managing demand by increased water prices and an important media campaign that focused on "Day Zero" to ensure that all water users were aware of the urgent need to conserve water. The drought has since led Cape Town to change its approach to water supply and to diversify its water sources and develop better disaster responses to slow-onset disasters such as drought.

**Figure 6:** Awareness raising poster urging Cape Town residents to save water and avoid Day Zero

**Nelson Mandela Bay approaches "Day Zero"**

The Eastern Cape experienced a devastating drought, and in 2022, the Nelson Mandela Bay metro was following in the footsteps of the City of Cape Town approaching "Day Zero" when taps stood the risk of running dry. As water saving measures began to be implemented, winter rainfalls in the region bought some time and staved off the switch-off date a little longer. In response to the drought, the metro municipality urged residents to reduce their water usage to 50 liters per day and started a campaign to fix water leaks and divert dam water to more equitably service all of the metro's residents.[15]

In the example of Nelson Mandela Bay, it is challenging to identify how much of the crisis was attributable to natural drought cycles potentially exacerbated by human-induced climate change, and how much of the crisis was due to poor planning as the municipality scrambled to fix chronic water leaks and had not managed to reign in local water consumption significantly. Good planning and preparedness can make a significant difference to how much climate impacts affect local people.

13 ReliefWeb. (n.d.). South Africa: Severe Thunderstorms - Dec 2021. [online] Available at: **https://reliefweb.int/disaster/ot-2021-000210-za**
14 IPCC (2019). AR6 Climate Change 2021: Impacts, Adaptation and Vulnerability — IPCC. [online] Ipcc.ch. Available at: **https://www.ipcc.ch/report/sixth/assessment-report-working-group-ii/**
15 Dayimani, M. 2022. Day Zero: Govt diverts water from Gariep Dam to 'red zone' regions of Nelson Mandela Bay. [online] News24. Available online: **https://www.news24.com/news24/southafrica/news/day-zero-govt-diverts-water-from-gariep-dam-to-red-zone-regions-of-nelson-mandela-bay-20220706**



## Storm Surges

**Storm surges and coastal erosion threatens the Langebaan community (Climate stressors highlighted 4,5,6)**

Rising sea levels pose a range of risks to coastal communities, including storm surges, flooding and coastal erosion. One area that is particularly at risk to sea level rise and storm surges along South Africa's West Coast is the Langebaan shoreline in the Saldanha Bay Municipality, where the risk posed by sea-level rise caused by climate change is compounded by inappropriate development in an under-resourced municipality.[16] The Langebaan beach is already vulnerable to erosion due to development at the adjacent Saldanha Bay Port, while increasing residential development along the Langebaan beaches without a suitable coastal buffer zone has made this area highly vulnerable to sea level rise and storm surges. Following a severe storm in 1997, the local municipality put some emergency engineering measures in place, including rock revetments and groynes to limit erosion, but the long-term maintenance of these measures remain a concern.


**Figure 7:** Groynes and rock revetment at Langebaan North beach
Source: Saldanha Bay Water Quality Forum Trust[17]

**The Table Mountain National Park Wildfire (Climate stressor 3, 6, 8)**

An example of a wildfire in the Western Cape province of South Africa is the "Table Mountain National Park Fire" that occurred in April 2021. The wildfire started on April 18, 2021, near the iconic Table Mountain in Cape Town, Western Cape. Strong winds and dry conditions fuelled the fire, causing it to spread rapidly and pose a significant threat to nearby residential areas and natural habitats. The fire resulted in the evacuation of residents in several neighbourhoods, including the University of Cape Town.

The Table Mountain National Park Fire had severe impacts on the natural environment, destroying large areas of vegetation particularly fynbos and habitats. It also affected tourism and outdoor recreational activities in the affected regions.

16 Samuels, M.Y. (2020). Governing coastal risk: the case of Langebaan's disappearing shoreline. Available at: https://open.uct.ac.za/handle/11427/32962
17 Saldanha Bay Water Quality Forum Trust. The State of Saldanha Bay and Langebaan Lagoon 2018. Available at: https://anchorenvironmental.co.za/sites/default/files/2018-10/The%20State%20of%20Saldanha%20Bay%20and%20Langebaan%20Lagoon%202018_0.pdf

## 3.4. Responding to climate change. (Mitigation and adaptation)

Climate change mitigation and adaptation are two complementary approaches to address the challenges posed by climate change. Both strategies are essential for building community resilience to climate change, protecting communities and ecosystems, and promoting sustainable development in the face of a changing climate.

### 1. Climate Change Mitigation

Climate change mitigation refers to efforts and actions taken to reduce or prevent the emission of greenhouse gases (GHGs) into the atmosphere, thereby lessening the extent of global warming and its associated impacts. The primary objective of mitigation is to limit the extent of climate change by curbing human activities that contribute to the accumulation of GHGs. Some key aspects of climate change mitigation include:

- Transition to Renewable Energy: Shifting from fossil fuels (coal, oil, and natural gas) to renewable energy sources (solar, wind, hydro, geothermal) to reduce carbon emissions from the energy sector.
- Energy Efficiency: Implementing energy-efficient technologies and practices to reduce energy consumption and associated emissions.
- Afforestation and Reforestation: Restoring forests and vegetation to act as carbon sinks, absorbing $CO_2$ from the atmosphere.
- Sustainable Land Use: Promoting sustainable agriculture and land management practices that aim to reduce carbon emissions rather than add to it.
- Green Transportation: Encouraging the use of public transport, electric vehicles, cycling, and walking to reduce carbon emissions.

### 2. Climate Change Adaptation

Climate change adaptation involves adjusting societal and natural systems to cope with the current and anticipated impacts of climate change. It aims to reduce the vulnerability of communities, ecosystems, and economic sectors to the consequences of changing climate conditions. Adaptation is essential because some level of climate change is already inevitable due to past and present emissions. Key elements of climate change adaptation include:

- Enhancing Resilience: Building the resilience of communities, infrastructure, and ecosystems to withstand climate-related shocks and stresses. For example, the use of boreholes and water rationing improves community resilience during a drought.
- Water Management: Implementing strategies to manage water resources efficiently, considering drought vulnerability
- Disaster Preparedness: Developing and improving early warning systems to address climate-related disasters like floods, heatwaves, and storms. The more precautions and information provided to communities, the more prepared communities are.
- Ecosystem Conservation: Protecting and restoring natural ecosystems that provide essential services, such as flood regulation and biodiversity conservation.
- Climate-Smart Agriculture: Promoting agricultural practices that are adapted to changing climate conditions, such as drought-resistant crops and improved irrigation techniques.
- Urban Planning: Integrating climate considerations into urban planning to create climate-resilient and sustainable cities.
- Health and Social Services: Addressing public health challenges associated with climate change, such as heat-related illnesses and increased vector-borne diseases.

*Both climate change mitigation and adaptation are critical components of global efforts to address climate change and work towards a sustainable and climate-resilient future. Combining these approaches can help minimize the severity of climate change impacts and support the well-being of present and future generations.*



## Examples

**South African examples of climate change mitigation and adaptation initiatives**

Climate Change Mitigation:

1. Renewable Energy Projects: South Africa has made significant progress in promoting renewable energy through projects such as solar and wind farms. For example, the Solar Capital De Aar solar farm in the Northern Cape is one of the largest solar power plants in the country, contributing clean energy to the national grid.
2. Renewable Energy Independent Power Producer Procurement Program (REIPPPP): The REIPPPP has successfully facilitated the development of multiple renewable energy projects, including wind, solar, and biomass. This program has encouraged private investments in renewable energy and reduced the country's reliance on fossil fuels.
3. Green Transport: Cities like Cape Town and Johannesburg have implemented initiatives to promote green transport options. This includes investing in public transportation infrastructure, introducing bike lanes, and incentivizing electric vehicle adoption.
4. Carbon Tax: South Africa has introduced a carbon tax to incentivize businesses to reduce their greenhouse gas emissions. The tax aims to encourage companies to transition to cleaner technologies and practices.
5. Low-Emission Development Strategy (LEDS): South Africa has developed a Low-Emission Development Strategy to outline the country's path towards a low-carbon economy. The strategy includes actions to reduce emissions across various sectors.

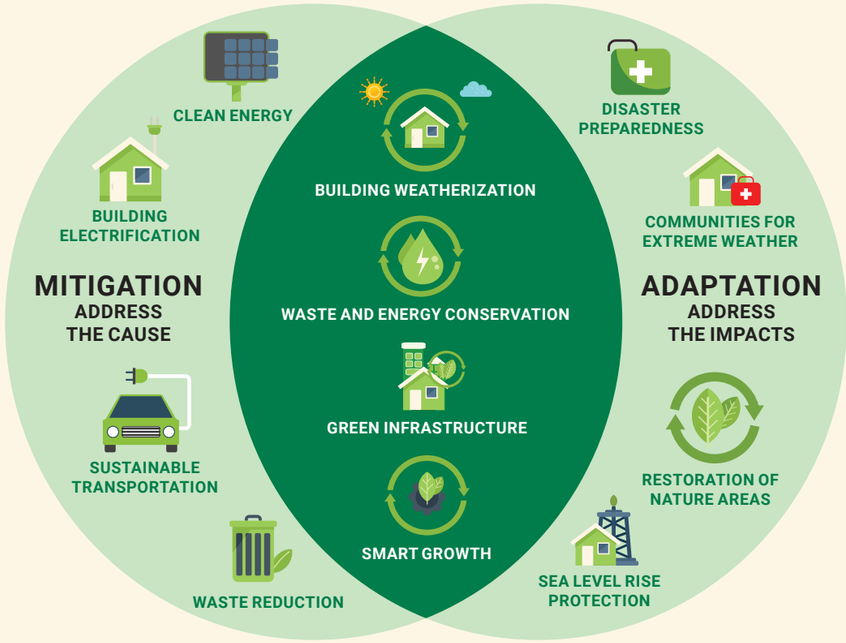



**Figure 8:** Cross cutting mitigation and adaptation plan (https://www.losaltosca.gov/communitydevelopment/page/climate-action-and-adaptation-plan) Background material for facilitators[18]

## Mitigation efforts in South Africa

**Emissions: sources and targets**

South Africa is one of the top 15 largest contributors to GHG emissions globally. In 2017, 77% of South Africa's GHG emissions are from energy in the form of electricity, heat and fuel for transport used by households and for other activities in the economy.[19] The country is still very reliant on coal as its main source of electricity, which is primarily generated by Eskom (the state-owned power utility). In 2022, coal fired power generation accounted for 73% of the electricity mix.[20]

18 The content in this topic is quite technical. It would provide facilitators with some understanding of global and national climate change mitigations efforts. This content is thus included here as background for facilitators rather than for communities, but facilitators could adapt this material for specific communities with more of an interest in global and local mitigation efforts and/or large scale solar / wind farms.

19 The Presidency (2022) South Africa's Just Energy Transition Investment Plan (JET IP) for the initial period of five years (2023-2027). Available online: https://pccommissionflow.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf

20 CSIR (2023). Statistics of utility-scale power generation in South Africa for 2022. Available from: https://www.csir.co.za/sites/default/files/Documents/Statistics%20of%20power%20in%20SA%202022-CSIR-%5BFINAL%5D.pdf

In 2016, at the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) (COP 21), South Africa (as one of 198 parties to the UN FCCC) adopted a legally binding international treaty on climate change called the Paris Agreement.[21] The overarching goal of the agreement is to get countries to commit to limiting global warming to 1.5 ºC and includes actions like an overall 43% cut in GHG emissions by 2030. Each country submits its own national action plans, called Nationally Determined Contributions (NDCs), taking into account their individual circumstances. Following a recognition that the initially conceived actions may be inadequate, the emphasis at the annual COPs has shifted in the past few years to achieving net zero carbon emissions by 2050.[22]

Figure 8 presents South Africa's historical GHG emissions, the updated 2030 NDC target, and the long-term pathway to net-zero emissions by 2050. It is notable from the diagram that, as indicated earlier, energy related emissions make up the vast majority of GHG emissions (77%) and the electricity sector in particular contributes by far the largest portion of GHG emissions (45%)[23]. Although the challenge is considerable, the use of low carbon renewable energy sources can be a major enabler of reducing GHG emissions and enabling South Africa to reach Net Zero by 2050.

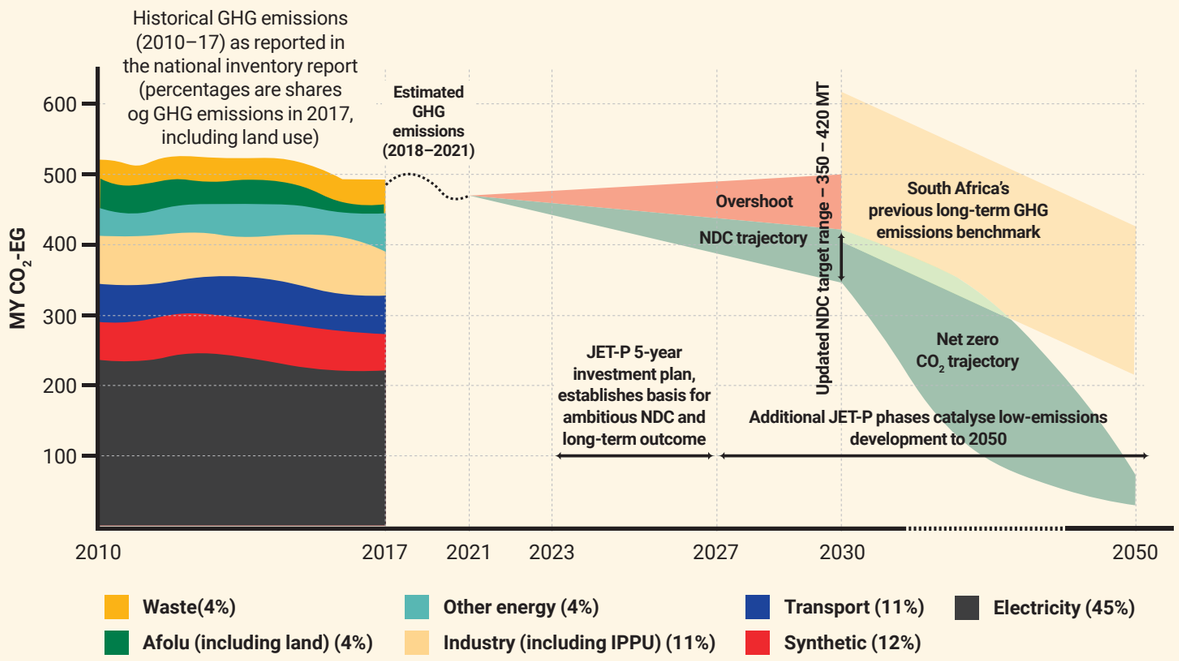



**Figure 9:** South Africa's greenhouse gas emissions up to 2017 by major sources, estimations to 2021 (left), 2030 Nationally Determined Contribution (NDC) target range and long-term decarbonisation pathway (right)
Source: The Presidency[24]

## 3.5 Exercises and Resources relating to Climate Change

**Resources**

The following video can be used as an additional resource to illustrate the difference between mitigation and adaptation. Videos are a great tool that may make it easier for participants to understand more complex content.

- **Climate Change 101** - Mitigation and Adaptation (Let's Respond Toolkit) by the Department of Forestry, Fisheries and the Environment (youtube.com/watch?v=taskvP-XqR0) (3:17 min).
- **Adaptation vs. Mitigation Climate Change Solutions by Now This Earth** (youtube.com/watch?v=2vqPfY7LjP8).
- Why are carbon sinks important? By Acciona (youtu.be/OoW2PlvMpZs) (2 min).

21 United Nations Framework Convention on Climate Change Secretariat (n.d.) What is the Paris Agreement. Available online: https://unfccc.int/process-and-meetings/the-paris-agreement
22 Net zero refers to the balance between the amount of greenhouse gas (GHG) that is produced and the amount that is removed from the atmosphere. Simply stated, when an entity (e.g. a company or country) is at net zero, it initiates activities to remove as much greenhouse gases from the atmosphere as it emits.
23 The presidency (PCC) (2022) South Africa's Just Energy Transition Investment Plan (JET IP) for the initial period of five years (2023-2027). Available online: https://pccommissionflow.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf
24 The Presidency (2022) South Africa's Just Energy Transition Investment Plan (JET IP) for the initial period of five years (2023-2027). Available online: https://pccommissionflow.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf



## 3.6 Exercises

### EXERCISE: WHAT'S UP WITH THE WEATHER

**Objective**

- Participants draw on their own experiences to describe what they have noted as climate change and severe weather events relating to their town/city.
- Participants reflect on how the observed impacts of climate change have affected their livelihoods and what they have had to do in order to adapt.

**Process**

Divide participants into pairs for peer discussion if it is a small group. Alternatively, a bigger group can be divided into breakaway groups of three to five people for a more focused session. Ask them to discuss the following questions:

What significant changes to climate have you noticed over time, or what extreme weather events have you experienced specifically related to your town or city?

- Think about what the change or event looked like?
- How it affected you or the livelihoods of community members?
- What have you had to do to adapt?

Ask participants to identify a transcriber (someone who will write the feedback) to capture the group inputs on flipchart paper or other large sheet paper. Ask the group to nominate a participant to be the speaker who provides feedback from the discussion (and captured notes) to the plenary (i.e. the whole group at the same time) (15- 20 min).

Groups will then reconvene to present and also discuss the issue and perhaps prompt for solutions (25 min). It is also important to emphasize the importance of addressing a problem with a suitable solution.

**Materials needed**

Provide each group with flipchart paper (or other large sheets of paper, if flipchart paper is not available) and markers to write up their answers to the questions above.

**FACILITATOR'S TIP**

Go around to the breakaway groups while they are discussing the questions and listen in on the overall discussion to ensure they are answering the questions effectively. Once participant / group feedback information it is important to actively listen to the feedback and summarise what is shared.

**Is it just the weather or is it climate change? Tracking local changes**

Weather is what is experienced from day to day in terms of temperature and rainfall in a particular location, while climate refers to a longer-term pattern of weather for an area over time. Climate change refers to long-terms shifts in temperatures and weather patterns.[25]

It can be hard to tell at first glance whether the experienced changes are part of a natural cycle of weather that changes seasonally, or even part of a longer-term pattern of drier and wetter periods. However, patterns of temperatures and rainfall are observably changing over time. Local people can often remember when the rains used to fall in their region, and whether these patterns have shifted over time.

Tap into this knowledge and encourage community members to track their local weather over time to see how the local climate is shifting, to help community members and farmers to adapt how they plan their activities or farm to suit emerging conditions.

| DIFFERENCE BETWEEN WEATHER AND CLIMATE | |
|---|---|
| Weather | The state of the atmosphere in a particular place over short periods, including factors such as wind, rain and temperature. |
| Climate | The state of the atmosphere in a particular place over short periods, including factors such as wind, rain and temperature. |

25 United Nations (n.d). What is Climate Change? Available online: https://www.un.org/en/climatechange/what-is-climate-change

## EXERCISE: CLIMATE CHANGE MUSICAL CHAIRS CHALLENGE

**Objective**

The goal of this ice breaker is to raise awareness about climate change and its impact on different regions and ecosystems. The game incorporates a musical chairs twist to engage participants in a fun and interactive way while promoting a sense of urgency in addressing climate change.

**Time Allocation**

Approximately 15-20 minutes (adjust the number of cards to fit the allocated time).

### Instructions

**Preparation: (5 minutes before workshop):**

- Set up chairs in a circle, with one less chair than the number of participants.
- Create small placards or signs with the names of various regions or ecosystems (e.g., "Amazon Rainforest," "Arctic Ice," "African Savannah," "Great Barrier Reef," etc.).

**Introduction: (2 minutes):**

- Welcome participants to the workshop and introduce yourself as the facilitator.
- Explain the purpose of the ice breaker: to highlight the impacts of climate change on different regions and ecosystems while having fun.

**Musical Chairs Climate Change Challenge (10-15 minutes):**

- Instruct participants to walk around the circle of chairs while music plays.
- When the music stops, participants must quickly find a chair to sit in.
- Remove one placard (representing a region or ecosystem) from the circle after each round when the music stops. One participant will be left without a chair and will step out of the game.

**Climate Change Impacts (5 minutes):**

- After each round, when a participant is out of the game, hold up the placard of the region or ecosystem that was removed.
- Briefly discuss the climate change impacts affecting that specific region or ecosystem. For example, for the "Amazon Rainforest" placard, you can discuss deforestation, loss of biodiversity, and its role as a carbon sink.
- Encourage participants to reflect on the significance of the loss of each region or ecosystem and the urgency of addressing climate change.

**Conclusion (1 minute):**

- Thank participants for their active participation in the ice breaker and setting a positive tone for the workshop.
- Emphasize the importance of collective action to combat climate change and protect vulnerable regions and ecosystems.

*Note: Be mindful of the time during the small group activity to ensure everyone gets an opportunity to share within the allocated time. Also, encourage a relaxed and non-judgmental atmosphere, so participants feel comfortable sharing their statements. As a facilitator, you can start the activity by sharing your own two truths and a lie to set an example.*



## EXERCISE: THE CLIMATE MESSAGE

In order to help communities to prepare for climate shocks and stresses, it is necessary to be able to communicate climate messages. Complex climate messages often cause more confusion than clarity. This light-hearted exercise can open the space for an exploration of the effectiveness of seasonal forecasts, or any other complex climate messaging, and how to communicate it effectively without misguiding or oversimplifying the message.

**Objective**

- To explore how complex climate messages can be communicated easily.
- To discuss appropriate use of climate messages.

**Process (20-30 min)**

- The workshop participants are divided into two groups (if the groups are larger, there can be more groups). All groups stand or sit in a line.
- Explain the setting: Different extension officers have been tasked to share the seasonal climate forecast with the farmers of their area. They hold a meeting with the lead farmer and pass on the seasonal forecast message. They are careful not to oversimplify to not obscure uncertainties in the seasonal forecast.
- The first person in the row will be told the seasonal forecast. It contains detailed data and some recommendations.
- Ask the persons to pass on the message considering two rules: No repeating of the message (it can only be told once) and no notes are allowed.
- Once the message reaches the end, ask the last person to write down the message that has reached them. Read the message and share the original message with the group.
- In plenary: Reflect on the experience and what this means for planning climate change strategies using seasonal forecasts.

**The debriefing can include the following questions**

- How did you feel when receiving the message?
- What made it easy, or difficult, to communicate a climate message?
- What does this mean for our practices in using climate messages?

**Materials needed**

The climate message written on a piece of paper. Ensure that the forecast or climate message is relevant and realistic for the area. Quote from an actual forecast can be used. Here are two examples:

### Climate Message 1

"Currently we are experiencing a strong ENSO signal - and are in an El Nino phase. There is a 60% chance that there will be less than average rainfall and a 45% chance that the maximum temperatures will be lower than average for November December - January. The long-term forecasts show that there is an increased chance that the central parts of the country might experience drier conditions or even drought conditions."

### Climate Message 2

"Mount Kilimanjaro and Mt Kenya Glaciers: The gradual yet dramatic disappearance of the glaciers on Mount Kilimanjaro is a result of climate change. The glaciers act as a water tower and several rivers are now drying up. It is estimated that 82% of the ice that capped Mt Kilimanjaro, when it was first recorded in 1912, is now gone."

**FACILITATOR'S TIP:**

Your role as facilitator is to be strict with the groups and ensure that no questions for clarification are asked of each other during the exercise.

4

# Renewable Energy and the **Just Energy Transition**

## 4.1. What is renewable energy?

One effective way to approach Climate Change mitigation and adaptation is to transition to renewable energy to reduce GHG emissions. Renewable energy is energy derived from natural sources that are replenished naturally and continuously. Unlike fossil fuels (such as coal, oil, and natural gas), which are finite resources formed over millions of years, renewable energy sources can be harnessed and used without depleting them. Renewable energy is considered more sustainable and environmentally friendly because it produces little to no greenhouse gas emissions and helps reduce the reliance on fossil fuels, mitigating the impacts of climate change.

### Examples of Renewable Energy Sources

**Solar Energy:**

Solar energy is derived from the sun's radiation. Photovoltaic (PV) cells or solar panels convert sunlight directly into electricity, while solar thermal systems use sunlight to heat water or other fluids for various applications.

**Wind Energy:**

Wind energy is harnessed using wind turbines that convert the kinetic energy of the wind into electricity. Wind farms with multiple turbines are often installed in areas with consistent wind patterns.

**Hydropower:**

Hydropower is generated by harnessing the energy of flowing or falling water. Large-scale hydropower plants use dams to store water, while run-of-the-river systems generate electricity using natural river flow.

**Biomass Energy:**

Biomass energy is derived from organic materials such as plant matter, agricultural residues, and animal waste. Biomass can be burned directly for heat or used to produce biogas or biofuels.

**Geothermal Energy:**

Geothermal energy is sourced from the Earth's heat stored beneath the surface. Geothermal power plants use hot water or steam from geothermal reservoirs to generate electricity.

**Benefits of Renewable Energy:**

- **Environmentally Friendly:** Renewable energy sources produce little to no greenhouse gas emissions, reducing the contribution to climate change and air pollution.
- **Sustainable:** As natural resources, renewable energy sources are continuously replenished, ensuring long-term availability.
- **Energy Independence:** Utilizing renewable energy reduces dependence on imported fossil fuels, enhancing energy security and independence.
- **Job Creation:** The renewable energy sector creates job opportunities, from manufacturing and installation to maintenance and research. However, there is potential job loss which is why the Just Energy Transition is an essential component.
- **Energy Access:** In remote areas, renewable energy can provide access to electricity and energy services, improving the quality of life for communities.

As the world transitions to a more sustainable energy future, the adoption of renewable energy technologies is growing rapidly. Investments in research, technology advancements, and supportive policies are driving the shift towards a cleaner, more resilient, and sustainable energy system.



## 4.2. Renewable Energy through a South African lens (Policy and Mandate)

In the South African context, renewable energy plays a crucial role in addressing various energy and environmental challenges. The country has abundant renewable energy resources, and the adoption of renewable energy technologies is seen as a key strategy to promote sustainable development, reduce greenhouse gas emissions, and enhance energy security. Some important aspects of renewable energy in South Africa include:

**Solar Energy:**

South Africa enjoys abundant sunlight particularly in the Northern Cape, making solar energy a viable and attractive option for electricity generation. The country has seen a significant increase in utility-scale solar power plants and rooftop solar installations in residential, commercial, and industrial sectors.

**Wind Energy:**

South Africa's coastal areas (particularly Northern, Western and Eastern Cape) have excellent wind resources, and the country has made significant strides in developing wind farms. Wind energy projects, both onshore and offshore, contribute substantially to the national renewable energy mix. There are also opportunities for small scale wind turbines in rural and agricultural settings.

**Biomass and Biogas:**

Biomass and biogas are being explored as potential renewable energy sources, particularly in the agricultural sector. Both biomass and biogas from organics waste can be used to produce electricity or heat for cooking and agricultural activities.

**Small-Scale Renewable Energy:**

South Africa is also promoting small-scale renewable energy systems, such as solar home systems, solar water heaters and decentralized solar microgrids in rural areas, to improve energy access and reduce reliance on fossil fuels.

One such example are the tax incentives implemented by national government. Individuals or a community group who install solar panels between 1 March 2023 and 29 April 2024, can claim a 25% rebate on the cost of new or unused solar panels – up to a maximum rebate of R15,000 on that installation. To maximize the tax incentive, the investment in solar panels must be worth R60,000. It is also important to note that the rebate only applies to the cost of the solar panels and does not cover installation or other related expenses.

**Policy Support:**

The South African government has shown commitment to renewable energy through various policies and regulations. These include the Integrated Resource Plan (IRP), which outlines the country's energy mix, and the National Renewable Energy Policy (NREP), which provides a framework for renewable energy development. The biggest developments will be in enabling a more decentralized energy sector. This includes allowing registered independent power producers and licensed energy traders to sell power whereas only Eskom was allowed to sell power in the past.

**Socio-Economic Benefits:**

The expansion of renewable energy projects in South Africa has brought socio-economic benefits, including job creation, skills development, and community development initiatives.

Despite the progress made in renewable energy adoption, South Africa continues to face challenges in integrating renewable energy into the grid, addressing the intermittency of solar and wind energy, and balancing the transition away from coal-fired power plants. The government's commitment to renewable energy and ongoing investments in research and infrastructure are crucial to unlocking the full potential of renewable energy in the country and achieving a sustainable energy future.

## 4.3. Local Examples of renewable energy

As of my last update in September 2021, South Africa has made significant progress in adopting renewable energy technologies. Local examples of renewable energy projects in the country include:

**Solar Energy:**

- **Jasper Solar Power Project:** Located in the Northern Cape, the Jasper Solar Power Project is one of the largest solar photovoltaic (PV) power plants in the Southern Hemisphere. It has a capacity of 96 megawatts (MW) and contributes clean electricity to the national grid.
- **De Aar Solar Power:** Also situated in the Northern Cape, De Aar Solar Power is a 175 MW solar PV facility. It generates renewable energy to power thousands of homes and businesses.

**Wind Energy:**

- **Sere Wind Farm:** The Sere Wind Farm, located in the Western Cape, is one of the country's flagship wind energy projects. With a capacity of 100.5 MW, it plays a significant role in diversifying South Africa's energy mix.
- **Cookhouse Wind Farm:** Situated in the Eastern Cape, the Cookhouse Wind Farm has a capacity of 138 MW and provides clean energy to the local community.

**Biomass Energy:**

- **Mbombela Biomass Power Plant:** Located in Mpumalanga, the Mbombela Biomass Power Plant generates electricity from wood waste and other biomass sources.

**Small-Scale Renewable Energy:**

- **Solar Water Heaters:** South Africa has implemented a program to promote the use of solar water heaters in households. This initiative helps reduce electricity consumption for water heating and saves energy costs for homeowners.
- **Solar Microgrids:** In rural areas with limited access to the national grid, solar microgrids are being deployed to provide reliable electricity to communities and support local economic development.

### Case Studies

**Home-solar systems in Freedom Farm and Malawi Camp**

Freedom Farm is home to close to 2 000 people. Residents have been living in the area for as long as 30 years (average 12 years). There is no formal access to electricity in this settlement and limited communal water points. The unemployment rate in the area is close to 65% and more than 50% of children (0-18 years) are not in school.

Malawi Camp's community is a bit smaller, with just over 1 000 residents. Its average resident has been living there for 13 years. As in the case of Freedom Farm, the community is almost 30 years old. Similarly, Malawi Camp also struggles with no formal electricity and limited communal water points. The unemployment rate in the area is slightly less than that of Freedom Farm at 55%, but just as many children (0-18 years) are not in school.

Four steps were taken to create the early foundations for trust, commitment and community buy-in and allowed for a co-design process informed by real-world data. These were:

- Community mapping and "snowball" engagements.[26]
- Direct community leadership engagements.
- Mobilisation and enumeration.[27]
- Community led co-design (interpreting the data to create a rich picture).

Through this process, the communities of Malawi Camp and Freedom Farm prioritised home level lighting and connectivity (TV, radio etc.). They also highlighted that cooking and food storage was a high priority in the local area. Through the process, a home-solar system was selected which is paid for on a monthly basis by individual households. The capital for the infrastructure was donated by the land owner, but the monthly fees are sufficient to create and maintain a local company employing community members to install and maintain the systems.

26 In a community mapping exercise relevant stakeholder from the community are identified and interviewed about the community to understand the local needs, current programmes and existing assets.

27 The goal of an enumeration exercise is to collect data about a community's characteristics to determine what kind of intervention would be best suited to each community in terms of their prioritised needs, affordability, and other characteristics and dynamics. The enumeration exercise is typically carried out by volunteers from the community to facilitate a sense of ownership and enable the exercise to be community-driven from the start.



**WiFi-enabled street lighting in Witsand**

Witsand informal settlement is based in the City of Cape Town Metropolitan Municipality. It is located about 40km from the central business district (CBD) and has of the order of 5000 residents. The average person has been living in Witsand for 6 years (longest, more than 30). As many as 80% of school age children (0-18) are not in school, while it is estimated that 38% of the people living there are unemployed. Witsand is characterised by a lack of formal tenure, insufficient public space and facilities, and inadequate access to basic services.

A similar process leadership- and wider community engagement, mapping, enumeration and community-led co-design was followed. From this process, the Witsand community prioritised area lighting and connectivity as their most pressing energy related needs. The areas lighting was provided by a company that specialises has an innovative business model that allows for both the infrastructure and the connectivity to be funded without the end user paying a cent.

The following case study documents and videos can be used as additional resources to explain what a future with renewable energy can look like for communities and the active role that the communities can play to enable this.

### Home-solar systems in Freedom Farm and Malawi Camp

**Case study documents:**

- Co-designing resilient urban communities: The power of human capital in inclusive public engagement - green-cape.co.za/library/co-designing-resilient-urban-communities/
- Resilient Urbanism: The intersection of shared data and inclusive public engagement - green-cape.co.za/assets/RESILIENT_URBANISM_REPORT_6_7-v2.pdf

**Video:**

- Encouraging active citizenship and energy democracy through alternative service delivery youtube.com/watch?v=MRIDM9N9TRs (7:30 min).

### WiFi-enabled street lighting in Witsand

**Case study document:**

- Witsand Informal Settlement: Building resilient urban communities though innovation and partnership. - green-cape.co.za/assets/GreenCape_Resilience_Case_Study_Witsand_29_6_20.pdf

Similar processes have also lead to the installation of solar geysers in Witsand and solar street lighting elsewhere in the Cape Town (video links are provided below as part of the workshop activity). It is notable that a key outcome of all of these case studies is that the community-based processes and implementation models used have also enabled local residents to access income opportunities.

These are just a few examples of the many renewable energy projects and initiatives happening across South Africa/Africa. The country's commitment to renewable energy is evident in its efforts to diversify the energy mix, reduce greenhouse gas emissions, and increase energy access in both urban and rural areas. With ongoing developments and investments in the renewable energy sector, South Africa continues to take significant steps towards a more sustainable and environmentally friendly energy future.

South Africa has been undergoing a significant energy transition to shift its energy mix towards a more sustainable and low-carbon future. The country faces various energy challenges, including a heavy reliance on coal-based power generation and concerns about energy security and environmental sustainability. The energy transition in South Africa aims to address these challenges and promote the adoption of renewable energy sources. Here are some key aspects of South Africa's energy transition:

South Africa's energy transition is not without challenges. Issues such as the integration of intermittent renewable energy into the grid, the impact on the coal industry and associated jobs, and financing for renewable projects are some of the challenges that need to be addressed. The energy transition in South Africa is an ongoing process, and continued commitment and collaboration among government, private sector, and civil society are crucial for its successful implementation. The shift towards a more sustainable energy future is expected to contribute to environmental protection, energy security, and socioeconomic development in the country.

## 4.4. Responding to demand for renewable energy (Just Energy Transition)

In the context of South Africa, a just energy transition refers to the process of shifting the country's energy systems from reliance on fossil fuels to cleaner and more sustainable energy sources while ensuring that the transition is fair, inclusive, and considers the social, economic, and environmental impacts on all segments of the population, especially vulnerable communities.

Key components of a Just Energy Transition in South Africa include:

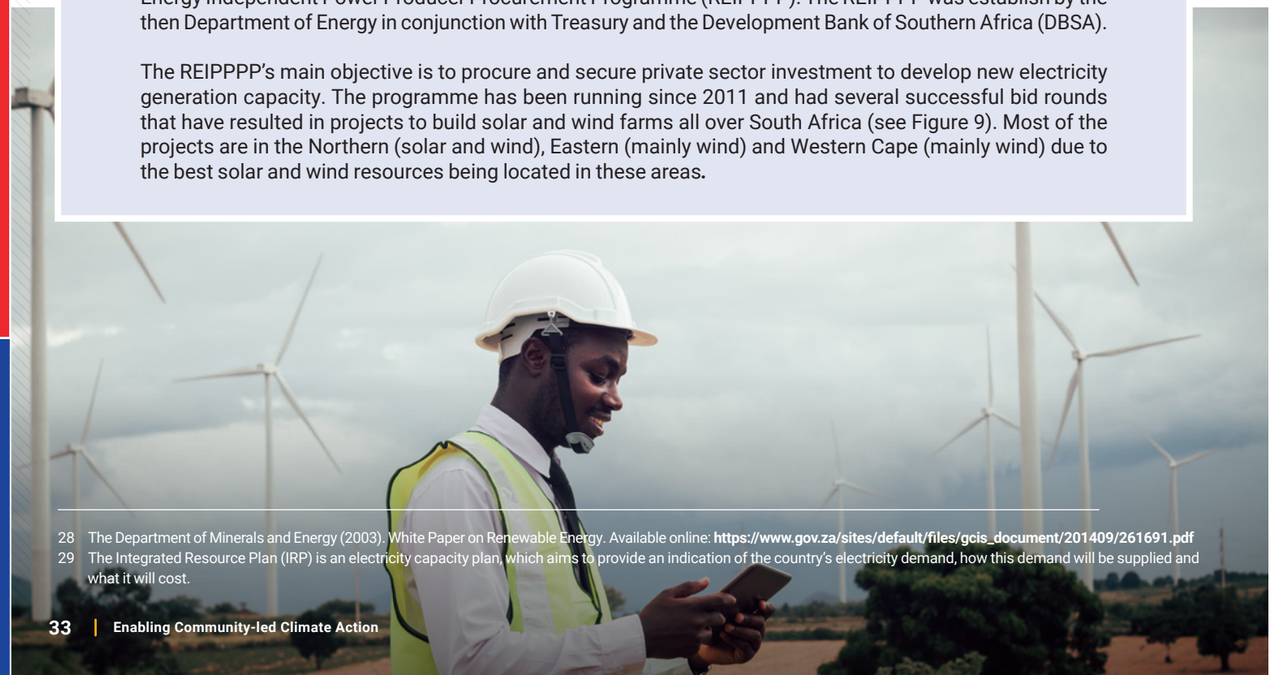
- **Decarbonization:** The transition aims to reduce greenhouse gas emissions by phasing out coal-based power generation, which is a major contributor to South Africa's carbon footprint. This involves investing in renewable energy sources such as solar, wind, and hydro power to replace coal-fired power plants.
- **Job Creation and Skills Development:** As the energy sector evolves, a just transition ensures that there are opportunities for job creation and skills development in the renewable energy industry. This includes training and reskilling workers from the coal sector to participate in the renewable energy workforce.
- **Social Equity:** A just energy transition considers the needs and interests of marginalized communities, ensuring that they are not disproportionately affected by the changes. Special attention is given to vulnerable populations who may face economic or social challenges during the transition.
- **Community Participation:** Involving local communities in the decision-making process is crucial to a just energy transition. Community engagement and participation ensure that the energy projects align with the needs and priorities of the people who live in the areas where these projects are implemented.
- **Energy Affordability:** The transition should strive to make energy more affordable for all citizens. Ensuring that renewable energy is accessible and cost-effective for low-income households is essential to avoid exacerbating energy poverty.
- **Environmental Protection:** A just energy transition considers the impact of renewable energy projects on the environment and aims to minimize negative ecological effects while promoting sustainable practices.
- **Governance and Policy:** A robust governance framework and supportive policies are necessary for a just energy transition. This includes setting clear targets for renewable energy deployment, providing incentives for investment in clean energy, and promoting transparent decision-making processes.

**START: Additional background material for facilitators**

***Renewable energy in South Africa***

The introduction of renewable energy in policy in South Africa dates back to the 2003 White Paper on Renewable Energy.[28] The subsequent Integrated Resource Plan (IRP)[29] 2010 - 2030 was instrumental in shaping the renewable energy framework as it determined the preferred energy mix for the next 20 years. The White Paper on Renewable Energy 2003 and IRP 2010 paved the way for the establishment and roll-out of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The REIPPPP was establish by the then Department of Energy in conjunction with Treasury and the Development Bank of Southern Africa (DBSA).

The REIPPPP's main objective is to procure and secure private sector investment to develop new electricity generation capacity. The programme has been running since 2011 and had several successful bid rounds that have resulted in projects to build solar and wind farms all over South Africa (see Figure 9). Most of the projects are in the Northern (solar and wind), Eastern (mainly wind) and Western Cape (mainly wind) due to the best solar and wind resources being located in these areas.



28 The Department of Minerals and Energy (2003). White Paper on Renewable Energy. Available online: **https://www.gov.za/sites/default/files/gcis_document/201409/261691.pdf**
29 The Integrated Resource Plan (IRP) is an electricity capacity plan, which aims to provide an indication of the country's electricity demand, how this demand will be supplied and what it will cost.



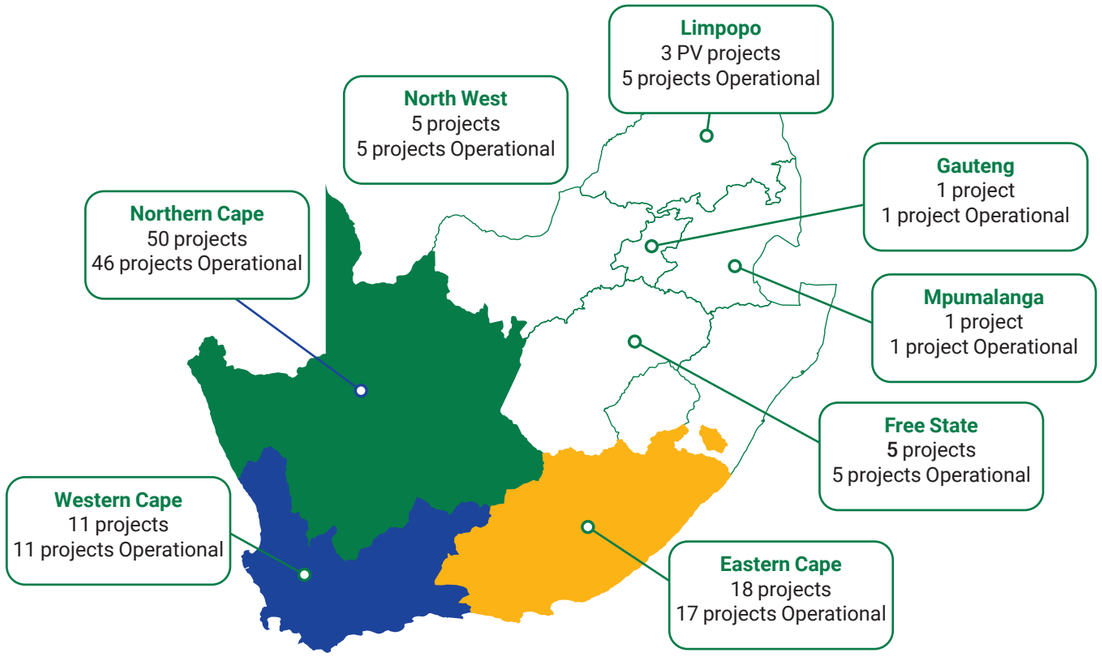



**Figure 10:** Map of REIPPPP projects across South Africa[30]

A number of key regulatory shifts has occurred nationally that has resulted in the rapid uptake of private renewables generation outside of Eskom's REIPPP. This is contributing to a more decentralized energy sector. It is now much easier to install large power plants >1MW in size for own consumption and sell power as a registered IPP to licensed energy traders and third-party off-takers such as municipalities and mines. Likewise, loadshedding is driving a big boom in uptake for solar PV and battery storage systems in the residential, commercial and industrial sectors, whereas before the strong business case and cost savings was the main driver. According to Eskom, these private embedded generation projects both large and small scale contribute 4.4 GW which reflects a near doubling in capacity in 2022/23.

The National Framework for a Just Transition defines just transition as: "A just transition aims to achieve a quality life for all South Africans, in the context of increasing the ability to adapt to the adverse impacts of climate, fostering climate resilience, and reaching net-zero greenhouse gas emissions by 2050, in line with best available science. A just transition contributes to the goals of decent work for all, social inclusion, and the eradication of poverty. A just transition puts people at the centre of decision making, especially those most impacted, the poor, women, people with disabilities, and the youth– empowering and equipping them for new opportunities of the future. A just transition builds the resilience of the economy and people through affordable, decentralised, diversely owned renewable energy systems; conservation of natural resources; equitable access of water resources; an environment that is not harmful to one's health and well-being; and sustainable, equitable, inclusive land use for all, especially for the most vulnerable."[31]

30 Department of Minerals and Energy (DMRE) (2023) Independent Power Producers Procurement Programmer: Quarterly report Quarter 3 20022/23. Available at: https://www.ipp-projects.co.za/Publications/GetPublicationFile?fileid=53c81924-e2e8-ed11-95a7-00505685662d&fileName=20230417_IPP%20Office%20Q3%20Overview%202022-23_Final.pdf
31 Presidential Climate Commission (2022,) A Framework for Just Transition in South Africa. Available online: https://pccommissionflow.imgix.net/uploads/images/A-Just-Transition-Framework-for-South-Africa-2022.pdf

The energy transition that the country is undergoing has significant implications on national energy supply. There are several reasons for the need for a transition, which include:

- South Africa's high greenhouse gas emissions due to the burning of coal.
- An aging fleet of coal power plants that will need to be gradually retired in the next three decades.
- Inadequate planning, management and maintenance of power plants.
- The lack of sufficient new capacity (i.e. new plants generating electricity).

Due to our aging fleet of coal power plants and lack of sufficient new capacity we are faced with load shedding. In 2022 the supply shortfall was between 4-6 GW, resulting in loadshedding stage between 1-6.[32] It is expected that loadshedding is likely to persist for the next 3-7 years.

The greater the supply shortfall the more reliant Eskom becomes on its diesel based gas turbines to mitigate against higher stages of loadshedding, driving up the overall cost of electricity over time and thus having a significant knock on effect on the South African Economy, in addition to the more immediate financial and ultimately economy impact of losses experienced by businesses due to extended periods without power. Loadshedding is severely impacting the economy, according to the South African Reserve Bank[33] costs the economy up to R 900 million a day.

The province of Mpumalanga is where the coal sector is most concentrated and thus the transition stands to have the most apparent impact. For example, 93 000 workers are directly employed by the coal industry alone.[34] This will also impact other parts of the coal value chain and communities built around these mines and power plants. In order to have a successful just energy transition, concerted planning and proactive measures need to be taken to manage the economic and social impacts. The factors for consideration for the just energy transition interventions in South Africa are summarised in Figure 14.

**ENERGY SECURITY**

- Accelerating affordable, decentralised, diversely owned renewable energy systems
- Building new productive models for comprehensive economic transitions

**RESOURCE RESTORATION**

- Restoring previous and future ecosystems and natural resources impacted by coal mining and energy production

**VULNERABLE GROUPS**

- Reskilling present workforces and educating future ones in green and other new and viable development pathways. This includes direct and indirect workers in associated value chains, as well as induced jobs and economic activity in affected regions
- Local communities who may bear the brunt of environmental and social externalities, induced by the coal phasedown or the shift away from other fossil fuels
- Small, Medium and Micro Enterprises (SMMEs) and the self-employed who are part of both formal and informal value chains

**ENABLING OPPORTUNITIES**

- Supporting various impacted constituencies to play an active role in decisions and implementation of energy transition programs (be it government or non-government actors)
- Youth and future generations, particularly through new employment in green and emerging clean technology areas
- Existing undeserved communities who may have human and natural capital in which to locate decarbonising and innovative new industries

**Figure 13:** Factors for consideration in the just transition based on the JET IP.
Source: Just Energy Transition Investment Plan 2023 – 2027[35]

The government of South Africa with other key stakeholders (governmental and non-governmental) have been working together to continue to create enabling policy and regulatory frameworks to address climate adaptation and mitigation and to enable the necessary investment to support a just energy transition. These frameworks demonstrate South Africa's determination to fundamentally restructure the electricity sector to ensure equitable and affordable access to clean energy, address energy poverty, enable competitiveness and build human capacity for a new energy economy (e.g. through skills development). Figure 15 depicts the key policy milestones which have enabled the just energy transition.

32 CSIR (2022) Statistics on power generation in South Africa for 2022. https://www.csir.co.za/documents/statistics-power-sa-2022-csirpdf
33 Bloomberg (2023) Stage 6 load shedding costs South Africa R900 million a day: SARB.
Available online: https://businesstech.co.za/news/energy/662515/stage-6-load-shedding-costs-south-africa-r900-million-a-day-sarb/
34 Presidential Climate Commission (2022,) A Framework for Just Transition in South Africa.
Available online: https://pccommissionflow.imgix.net/uploads/images/A-Just-Transition-Framework-for-South-Africa-2022.pdf
35 The Presidency (2022) South Africa's Just Energy Transition Investment Plan (JET IP) for the initial period of five years (2023-2027).
Available online: https://pccommissionflow.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf



**END: Facilitator material**

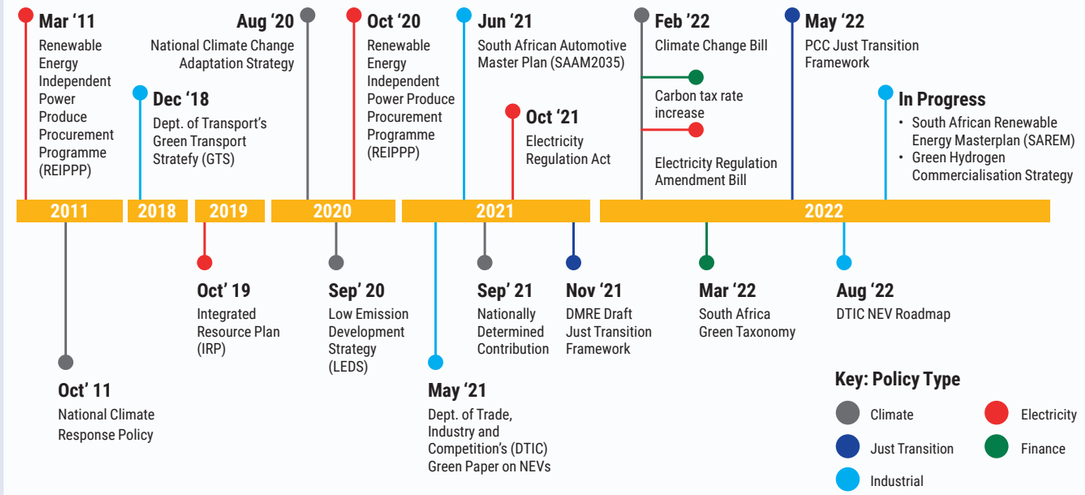



**Figure 14:** Key policy milestones enabling a just energy transition[36]

**Video:**

- **Climate Change Policy context in South Africa (2017)** - (Let's Respond Toolkit) by the Department of Forestry, Fisheries and the Environment (youtube.com/watch?v=FwEh-VsZvzU).

**Difference between policy and legislation:**

Policies are key mechanisms that government can use to set out the aim and goals or actions a group wants to commit to The video below provides an overview of some of the initial policies South Africa has adopted in response to climate change. The video can be used as additional resources to illustrate the polices that have been put in place up until 2017 to enable South Africa to respond to climate change.

A policy sets out what government hopes to achieve (aims and goals) and the methods and principles it will use to achieve them. A policy is not a law, but it could communicate the intent to introduce new laws that would assist with achieving the goals set out in the policy.

Legislation, which are laws like acts, by-laws and regulations sets out the rules (principles, procedure and standards) that are to be followed. Legislation enables enforcing how an action should be done and penalised if not done.

**Difference between policy and legislation:**

The following videos can be used as additional resources to explain what renewable energy is and how it is a key measure to mitigate climate change. Facilitators can use these resources in workshops to encourage discussion or complement the workshop materials.

- Renewable Energy 101 by National Geography (youtube.com/watch?v=1kUE0BZtTRc) (3:16 min)
- What are renewable energies? | Sustainability by Acciona (youtube.com/watch?v=Bkow2fDy5KY) (1:18 min)

36 The Presidency (2022) South Africa's Just Energy Transition Investment Plan (JET IP) for the initial period of five years (2023-2027).
Available online: https://www.thepresidency.gov.za/content/south-africa%27s-just-energy-transition-investment-plan-jet-ip-2023-2027

## 4.5. Exercises

### EXERCISE: RENEWABLE ENERGY RACE

**Objective**

The objective of this game is to educate participants about renewable energy sources, their benefits, and the importance of transitioning to a sustainable energy future. The game encourages teamwork and quick thinking while exploring various aspects of renewable energy.

**Time Allocation**

Approximately 30 minutes.

**Materials Needed:**

- Game Board: A large board or chart with a path divided into sections, representing different renewable energy sources and related challenges.
- Renewable Energy Cards: Index cards with information about different renewable energy sources (e.g., solar, wind, biomass, hydropower) and their benefits.
- Challenge Cards: Index cards with renewable energy-related challenges and questions.
- Timer or Stopwatch.
- Dice.

### Instructions

**Preparation: (5 minutes):**

- Set up the game board with the path divided into sections, each representing a specific renewable energy source or challenge.
- Place Renewable Energy Cards and Challenge Cards face down in separate stacks next to the game board.
- Form teams of 3-5 participants each.

**Introduction: (5 minutes):**

- Briefly explain the importance of renewable energy and its role in addressing climate change and promoting sustainability.
- Divide participants into teams and assign each team a unique colour or symbol.

**Game Rules (5 minutes):**

- Each team takes turns rolling the dice and moving their game piece along the path according to the number rolled.
- When a team lands on a section, they draw either a Renewable Energy Card or a Challenge Card, depending on the section's colour.
- Teams must complete the task or answer the question on the card within a specific time frame (e.g., 30 seconds).

**Renewable Energy Card Sections:**

- Solar: Explain the benefits of solar energy and how it works.
- Wind: Describe the advantages of wind power and its potential challenges.
- Biomass: Discuss the concept of biomass energy and its sustainability.
- Hydropower: Explain how hydropower harnesses energy from water sources.

**Challenge Card Sections:**

- Energy Quiz: Ask renewable energy-related questions for teams to answer within the time limit
- Renewable Debate: Teams engage in a friendly debate about a renewable energy topic.
- Energy Solutions: Teams brainstorm and present creative solutions to energy challenges.

**Scoring:**

- Award points to teams for correct answers, successful debates, and innovative solutions.
- Add bonus points for creative and well-thought -out responses.

**Conclusion (5 minutes):**

- After all teams have completed their turns, tally the scores and announce the winning team.
- Recap the key takeaways about renewable energy sources and their significance in transitioning to a sustainable energy future.

The "Renewable Energy Race" game engages participants in an interactive and educational experience, promoting teamwork, critical thinking, and awareness of renewable energy solutions. The time allocation ensures that the game remains engaging and moves at a steady pace.



### EXERCISE: TO TRANSITION OR NOT TO TRANSITION

Climate change conversations have to address the social injustice that vulnerable groups are exposed to, as the climate crisis vastly exacerbates the existing social inequalities. (30 min).

**Objective:**
Participants draw on their own knowledge and get a shared understanding of what the Just transition is and how it will impact them.

**Process (20-30 min):**
To host this activity, divide participants into groups of at least three to five participants. Play one of the videos, which explains just transition, and ask participants for reflections and thoughts. Create three thinking/feedback stations where one of the three questions below is highlighted either on a poster or written on flipchart paper.

Provide each group with a distinct colour sticky note or coloured paper for participants to write their feedback. Give everyone 5 minutes to contribute to sticky notes and another 5 – 10 minutes to discuss the question. Considering the just transition is a key intent of the South African government to reach its climate change goals answer the following set of questions as part of the group discussion:

- How do you think it will impact your community, your organisation?
- Are these negative or positive impacts?
- What are the risks of not transitioning?

**Videos**
- Leaving No One Behind in a Green Transition by Earthrise x Bloomberg (youtube.com/watch?v=OBm92hkDYSs)
- Just Transition in Action by Green European Foundation (youtube.com/watch?v=vAJZaGavWH0)
- Just Transition explained by Grist (youtube.com/watch?v=lfv52KF5fHM)

**Materials Needed:**
A screen (this can be screened from a projector or played on a smart TV) and access to the internet to access the videos. Provide each group with flipchart paper (or other large sheets of paper, if flipchart paper is not available) and markers to write up their answers to the questions above.

# Annexure A: Glossary of terms

| | |
|---|---|
| **Climate change** | Climate change refers to long-term shifts in temperatures and weather patterns. |
| **Climate adaptation** | Climate change adaptation refers to the ways that we need to change our behaviour and our systems to accommodate actual or expected changes in our climate and its impacts, to better suit the new climate conditions. |
| **Climate vulnerability** | Climate vulnerability is the degree to which a system or people is susceptible to or unable to cope with negative climate impacts. Climate vulnerability is determined both by the extent of the physical impacts and by the ability to cope, or even take advantage of, new climate conditions, which is known as 'adaptive capacity'. |
| **Deforestation** | The act of removing naturally growing vegetation from an area. This is usually done to avail space for human activity such as urbanisation or agriculture. |
| **Energy poverty** | Energy poverty is a situation in which households are unable to access essential energy services and products. It may occur for a number of reasons including lack of access to energy sources due to poor infrastructure or insufficient household income to afford energy services. |
| **Gender** | "Gender refers to the characteristics of women, men, girls and boys that are socially constructed. This includes norms, behaviours and roles associated with being a woman, man, girl or boy, as well as relationships with each other. As a social construct, gender varies from society to society and can change over time."[37] |
| **Greenhouse effect** | How certain gasses in the atmosphere act like a blanket - or greenhouse - around the Earth and prevent all of the sun's heat from radiating back out into space from the Earth[38], keeping it warm enough for us to live on. |
| **Interannual, Interdecadal, Interseasonal** | Refers to time scales of a changing climate. Climate variability comes across over multiple timescales. No winter/summer experiences the same features and this is variable from season to season, annually and decadally. Features such as El Nino and the position of semi-permanent climatic features influence climate in general. |
| **Just Transition** | General definition: A Just Transition means moving towards a greener economy "in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind".[39]<br><br>Definition on South African context: "A just transition aims to achieve a quality life for all South Africans in the context of increasing the ability to adapt to the adverse impacts of climate, fostering climate resilience and reaching net zero greenhouse gas emissions by 2050 in line with best available science. A Just Transition contributes to the goals of decent work for all, social inclusion and the eradication of poverty. A just transition puts people at the centre of decision making, especially those most impacted, the poor, youth, women, people with disabilities, and the youth – empowering and equipping them for the opportunities of the future. A just transition builds the resilience of the economy and people through affordable, decentralised, diversely owned renewable systems, conservation of natural resources, equitable access of water resources; an environment that is not harmful to one's health and well-being; and sustainable, equitable, inclusive land-use for all, especially for the most vulnerable."[40] |
| **Load shedding** | Load shedding is the deliberate cutting off of electricity to reduce the demand on electricity generators when the demand for electricity is more than the available supply of electricity. Load shedding protects the whole power systems from shutting down to avoid no-one having any electricity. |
| **Net zero** | Net-zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. Simply stated, when an entity (e.g. a company or country) is at net zero, it removes as much greenhouse gases from the atmosphere as it emits. |

37 World Health Organisation (n.d.). "Gender and health". https://www.who.int/health-topics/gender#tab=tab_1

38

39 International Labour Organisation (n.d.). "Frequently asked questions on a just transition". https://www.ilo.org/global/topics/green-jobs/WCMS_824102/lang--en/index.htm

40 Definition from Presidential Climate Commission (2022). "A Framework for a Just Transition in South Africa". Available from: https://pccommissionflow.imgix.net/uploads/images/A-Just-Transition-Framework-for-South-Africa-2022.pdf

# Notes

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