Call for submission on adaptation actions and plans that could enhance economic diversification and have mitigation co-benefits[1]

We thank you in advance for filling out this template with concise, evidence-based information and for referencing all relevant sources. There are several sections in the template: please fill the sections that are relevant to the work of your government or organization. As you will see on the last page of the document, more detailed information on case studies, tools/methods and other knowledge resources for dissemination through the Adaptation Knowledge Portal is welcome, but optional.

Name of the organization or entity:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Type of organization:

Please choose as appropriate:

- ☐Local government/ municipal authority
- ☐Intergovernmental organization (IGO)
- ☐National/public entity
- ☒ Non-governmental organization (NGO)
- ☐Private sector
- ☐ Regional center/network/initiative
- ☐Research institution
- ☐UN and affiliated organization
- ☐University/education/training organization

Scale of operation:

- ☒ Global
- ☐Local
- ☐National
- ☐Regional
- ☐Subregional
- ☐Transboundary

City(ies)/Country(ies)/Rgion/s of operation (if appropriate):

Bangladesh, Costa Rica, Morocco, Rwanda,

Description of relevant actions/plans or research:

Concerted efforts by the public sector, the private sector, and civil society are necessary to tackle climate change by building the resilience of societies and economies. If engaged effectively, the private sector, and especially SMEs, are uniquely able to develop locally relevant, effective adaptation solutions which can increase the resilience of a society due to SMEs' vital role within communities.

The Climate Expert approach developed by the GIZ program "Strengthening the Capacities of the Private Sector to adapt to climate change" (PSACC) on behalf of the German Federal Ministry for Economic Cooperation and Development aims to provide approaches and tools which strengthen SMEs' resilience. The Climate Expert approach was set in place in a number of countries, including Bangladesh, Costa Rica, Morocco and Rwanda.

[1] FCCC/SBSTA/2016/2, paragraph 15 (d)

Description of relevant tools/methods:

Projects can use the Climate Expert Approach to support SMEs in identifying adaption needs and measures as well as implementing and financing these measures. The Climate Expert Approach was developed by the GIZ Global Project PSACC and tested in four pilot countries; it consists of a modular systematic process with a **four-step approach** that is supported by five ready-to-use service packages directed at either consultants and multipliers, companies or industrial zones.

The Climate Expert Approach aims to:

- Raise awareness among private sector actors about the relevance of adaptation to climate change for business survival and growth
- Assist SMEs in assessing climate change related risks and developing a suitable adaptation strategy
- Train multipliers and consultants in assisting SMEs in the development of an adaptation strategy
- Facilitate access to finance for adaptation measures of SMEs

Five replicable service packages have been developed in pilot projects across the world:

- Service Package Awareness Raising of Companies (SP AR)
- Service Package Training of Consultants (SP ToC)
- Service Package Company Assessments for Consultants (SP AsCons)
- Service Package Company Assessments for Companies (SP ASComp)
- Service Package Training of Industrial Zones (SP IZ)

The result of the Climate Expert risk assessment can lead to investments in projects with mitigation effects (see example AGRUMAR SOUSS in Morocco).

Key outcomes of the actions/plans undertaken:

Please provide information regarding the outcomes of the actions/plans described above, and also provide qualitative assessment and/or quantitative data to substantiate the information, if applicable

Climate Expert Company Assessments:
In each of the pilot countries, several climate risk assessments have been conducted in line with the Climate Expert in around 30 companies coming from different sectors. The results and experiences of these deep dive assessments were summarized in more than ten company case studies which are available on the website http://www.climate-expert.org/en/home/case-studies/introduction-to-cases/

Awareness Raising:
Business Multipliers are now using the case studies and other information/ capacity building materials of the provided service packages to mobilize SMEs in activities in order to strengthen climate resilience and their competitiveness. The regional investment center (CRI) as well as the regional chamber of commerce and industry (CC) in Morocco's Souss Massa Region and other partners succeeded in inviting more than 150 business representatives and CEO's for a joint discussion on climate change adaptation. Both organizations have integrated "adaptation topics" in their member communication in order to inform about adaptation actions and offer advice to SMEs.

In Morocco, the national business Association CGEM (La Confédération Générale des Entreprises du Maroc) has started a new initiative "Initiative entreprises climat Maroc" (IECM) based on the input and in line with the Climate Expert Approach. This initiative aims to accompany their member companies in supporting their efforts to adapt to climate change: On the one hand in managing the risks and on the other hand in seizing opportunities in order to strengthen their competitiveness and in realizing competitive advantages.
CGEM has integrated the Climate Expert Approach into Chapter 3 of their publication (July 2017) "Guide Entreprise du Maroc" (http://www.cgem.ma/upload/1437692021.pdf) and is implementing it.

Training and Capacity Building:
In each pilot country, local consultants have been trained to support companies in assessing their climate risks and developing adaptation strategies. In addition, training institutions such as Bangladesh International Management Training Organization (BIM) have tested and are now planning to integrate the training climate expert tool into their curriculum.
Adaptation Strategy from a Company:
The navigation training was a result of the Rocky Dockyard Climate Risk Assessment that has effects on the inland water transport sector: (see further information (http://www.climate-expert.org/en/home/case-studies/rocky-dockyard-bangladesh/)

The training was developed providing knowledge on meteorology, seamanship and navigation as well as hands-on training on relevant navigation equipment under changing river conditions due to climate change phenomena such as heavy rainfalls, storms and droughts. The trainings were prepared together with the Deck Engineers Personal Training Centre (DEPTC), a training centre for captains and deck personnel from Bangladesh, and conducted in cooperation with the International Maritime Training Academy (IMTA). More than 30 captains of the Khulna region were trained in the use of relevant navigation equipment that was installed on a training boat provided by Rocky Dockyard. It is also planned to integrate the navigation training into the regular training schedule of DEPTC and IMTA in order to sustainably anchor water transport-related climate change adaptation in Bangladesh.

Adaptation Strategy of an Industrial Zone in Morocco:
In Morocco, the PSACC Project conducted trainings with Industrial Zone managers. Moroccan IZs are highly vulnerable to climate change. Following a practical bottom-up approach the Climate Expert Methodology aimed at helping industrial zone managers in dealing with adaption to climate change. After a climate-risk assessment conducted in the Industrial Zone Ait Melloul (ZIAM) in the Region Souss Massa Draa, a concrete action plan for climate change adaptation was developed. The Regional Council has integrated the adaptation plan in both the regional plan of the requalification of the ZIAM, in the Territorial Program against Global Warming as well as in the Regional Development Program (RDP).
It is important to highlight, that for the first time in Morocco, the "Climate Change Territorial Plan" of Souss Massa integrates the Private Sector Adaptation as a priority in their action plan based on the ASPCC approach in industrial zones and with SMEs.

By now, the implementation of adaption measures is ongoing: e.g., Concerning the water stress issue on the level of the ZIAM a rainwater collection will be installed and the cleaning and maintenance system of the water drainage system will be improved. On company level, investments in water recycling systems are recommended and already ongoing. Based on the experiences of Ait Melloul, a training for IZ Managers was developed and conducted to participants of the association of Eco-Industrial Parks in Morocco (COZINE). The guide for managers of industrial zones to adapt to Climate Change was launched during the conference COP 22 in November in Morocco and is available here: http://www.climate-expert.org/en/home/tools-trainings/guide-for-industrial-zones/

Description of lessons learned and good practices identified:

Lessons learned:

Climate change has become a reality all over the world and increases pressure on companies: Companies already have to deal with many challenges, including high resource prices (water, energy, and primary resources), value chain issues and stakeholder problems (employees, neighbouring communities, NGOs). Climate change is going to make these issues worse.

Hence, businesses need to be made aware of how both extreme weather events and slow onset change events affect a company's premises, supplies, logistics, stakeholders and business environment. Moreover, focusing not only on the negative effects of climate change but also on the potential benefits of adaptation (e.g. reduced variable operating costs due to improved energy efficiency) will incentivize managers to actively search for such opportunities.

Climate change adaptation is essential for business survival: Companies have to identify and deal with the challenges ahead. Otherwise, they will probably see their premises and products damaged, fall behind their competitors, get issues with the bank and government, or otherwise suffer blows that force them to close down.

Climate change adaptation can even spur business growth: Companies that prepare for climate change will have advantages over their competitors when the changes occur. What is more, adaptation can actually make companies more efficient and successful – by reducing production costs and diversifying the product portfolio.

Adaptation is not magic: Climate change adaptation is based on similar methods and tools as routine risk management – monitoring of the market and business environment, development of measures to reduce production costs and gain market share, budget planning, financial ratio analysis, etc. Companies are mostly familiar with managing risks and they have to integrate the "Climate-risk" into their overall risk-management strategies.

Yet, adaptation will likely require some capacity building: These processes can be very difficult for companies that are not accustomed to structure planning. Moreover, SMEs of often lack information on expected climate change trends. Hence, they should seek support from their business associations, (up- or downstream) business partners, consultants and others.

Good practices:

The result for SMEs in using these instruments allowed them to analyse the impact that an increase in extreme weather events has on the delivery of primary products, energy and water, on production, and on sales. Stakeholders like chambers of commerce, business associations, investment promotion agencies were involved and provided logistics to conduct trainings for management consultants to use these methods and to advise SMEs on how to elaborate adaptation plans and how to implement them into their overall risk management strategies in order to adapt to climate change.

- The Climate Expert Approach supports companies on the one hand to raise opportunities for innovation to develop new products and services, which are more climate-resilient and
- on the other hand, to stay competitive and to gain competitive advantages in approaching other market players

To achieve a certain impact and legacy, stakeholders on the national level should be involved from the very beginning. These should include political stakeholders as well as private sector stakeholders who are already engaged in issues such as sustainability, mitigation, green growth and related.

Experiences on a local level showed that cooperation with the private sector was most successful, where the impacts of climate change were already perceptible.

Adapting language to the business community is important to increase the understanding of the concept among the partners. For instance, the term “adaptation“ should be related to terms such as “risk management and business continuation“ with which companies are more familiar.
An integration of the Climate Expert Approach as an instrument for consultancy services can work where there is an existing consultancy market. Experienced and acknowledged consultants can integrate it into their service portfolio and offer it to their clients, which was the case in Costa Rica and Morocco.

In order to achieve financing for adaptation measures, the financial sector needs to be involved. Often SMEs are not aware of the financial instruments available for them. On the other hand, the financial sector is unaware of adaptation efforts of SMEs. In that sense, a Finance Lab greatly contributed to the financing of adaptation measures.

Description of key challenges identified:

Climate change will take place over the course of decades and centuries. The link between adaptation and business survival is often not immediate enough for companies to invest into adaptation measures. Companies, that are so far not directly affected by climate change, but indirectly through interruptions of the value chain or the vulnerability of other stakeholders are not yet aware that they do have to undertake action in order to prevent their businesses. Private sector adaptation can only be successfully if companies perceive climate change as relevant and do their best to prepare for it.

The cooperation in the pilot countries requires a strong multi-stakeholder approach between representatives of relevant regional public authorities, the local community, consultants, research institutes and NGOs, which are all strongly committed. Lacking availability of local climate change data and scenarios can hinder awareness raising efforts on the ground.

Whereas mitigation is a concept that is easily understood by everybody, the concept of adaptation is more abstract and does not necessarily provide deep understanding of the interdependencies between climate change, negative effects on businesses and business opportunities, especially when the effects of climate change are not yet felt. Therefore, awareness raising on adaptation requires more effort than on mitigation.

One of the key hindrances for SMEs besides lack of awareness to implement adaptation measures is access to finance. A comprehensive approach on private sector adaptation should therefore include the financial sector in order to build awareness among financial institutions regarding the benefits of adaptation, including for the SME’s risk profile.

The certification of climate risk assessments was an issue that came up in all four pilot countries when discussing a way forward. To increase the value of climate risk assessments for the private sector it might be helpful to develop an official certification system either for consultants and/or for SMEs. This certification could distinguish SMEs from their competitors, qualify the respective SME for specific financing programmes, or improve their financing prospects, as they have demonstrably minimized climate risks.

Planned next steps (as appropriate):

Based on this experience or research, have next steps been planned to address/study some of the identified challenges, implement, scale up (e.g. from local to national context) or scale out (e.g. from one country to another) such actions/plans

Relevant hyperlinks:

www.climate-expert.org;
www.adaptationcommunity.net

Further information:

Please do not hesitate to submit more detailed information on case study(ies), tool(s)/method(s) and/or other relevant knowledge resource(s) that are relevant to economic diversification. The latter will be shared through the Adaptation Knowledge Portal:

- Case study(ies)

1 Morocco; Agro-processing sector

AGRUMAR SOUSS is a citrus processing and export cooperative founded in 1980. The processing and packing units are located since 1983 in the industrial zone of Ait Melloul, 20 km away from Agadir harbour. The export citrus is mostly cultivated in the Souss-Massa and 20% are coming from the norther regions of Marrakech-Safi and Béni-Mellal-Khénifra. The company exports at 40-50% to Russia so as to the USA, Canada, EU, United Kingdom and Saudi Arabia. Given the geographic location as well as the vulnerability of the citrus fruits sector, the exposure of the company to climate change is high. Rising temperatures, erratic and heavy rainfalls, as well as more frequent heat waves, severe droughts, strong Chergui wind, and late frost belong to the most pressing climate phenomena, which have negative effects on the business operations. Through its dependence on the local citrus fruit production, climate change is putting the company's supply chain at risk. AGRUMAR SOUSS had already to deal with reduced amount of raw material and damaged fruits. Citrus trees are particularly vulnerable to heat waves and water-stress what decrease the productivity and the quality of the fruits and of the trees. During the heat waves of May to July 2015 and 2016 30% to 40% of the Souss Massa citrus blossom dropped. The company also experienced floods within its storage facility during the heavy rainfalls of November 2014 that damaged its stocks of packaging.

Adaptation strategy:

The Climate Expert Assessment enabled the identification of the following prioritized adaptation options for AGRUMAR SOUSS and integrated mitigation effects into the adaptation strategy:

- Use of solar pumping for water pumping and irrigation
- Sustainable water management system with valorisation of irrigation water
- Capacity-building for fruit producers on the different irrigation systems
- Integrating energy efficient measures in the production processes
- Be part of the regulation organisation for citrus exports and control of fruits quality

- Use of an anti-back flow system for rainfalls
- Strategic inventorial management
- Flatwork of the area for packaging stocks
- Restoration of waterproof area in the processing unites (with rainwater drainage as gravel pavers, natural or planned herbal trench)
- Use of an anti-back flow system for rainfalls
- Renewal and strengthened of windbreaks in the orchards to reduce the trees exposition to strong winds

Business opportunities

- Decrease production costs through the investment in water and energy efficient measures
- Production and export of new fruit varieties that are more resistant to climate extremes

2 Morocco: Fish-processing sector

NOUVELLE AVEIRO MAROC is a fish processing company founded in 1946 and based in Agadir in the semi-arid region of Souss Massa. The cannery factory is located 20 km away from the Atlantic coast in Ait Melloul industrial zone and most of the fish stocks come from the ports of Dahkla and Laayoune, located on the southern cost of Morocco. Around 600,000 cans are produced every day and commercialized under three different labels and client labels.

Adaptation strategy

The Climate Expert assessment enabled the identification of the following prioritized adaptation options

- Adapting parts of the company infrastructures to avoid floodings (e.g. pavement)
- Integrating flood barriers
- Alternative supply routes and weather alert system to inform fishers on extreme events
- Strategic inventorial management
- Integrating water efficient measures in the production processes (e.g. filter for cutting machines, water recycling, etc.)
- Sustainable water management system (e.g. monitoring system, etc.)
- Awareness raising/training of employees on sustainable water usage
- Collective rain water collection system in the industrial park

Business opportunities

- Decrease production costs through the investment in water and energy efficient measures
- Innovate with new products (new types of cans from different fish species or vegetable/fruit)

3 Bangladesh: Cargo transportation sector

M/S. Rocky Dockyard is a family run business founded in 1992 and is registered in Khulna. The company offers two kinds of services: cargo transportation, which covers 70 % and the dockyard, which covers 30 % of the service and includes mainly repair services as well as the construction of new (cargo-) vessels and pontoons.

Climate change cause negative effects on the inland water transport and shipbuilding sectors in various ways. On the one hand, various ship accidents can be related to extreme weather events, which have reportedly increased in the last decades. Due to siltation of rivers, business activities have to stop for

longer annual periods and important transport routes had to be closed leading to challenges for many companies in the inland water transport sector. On the other hand, the inland water transport is temporarily the only mode of transport for flooded regions. The sector depends on its waterways which have shrunk from more than 20,000 km to less than 3,000 km in the last decades, not only but certainly also due to climate change impacts like stronger erosions in the catchment, more sedimentation due to salinization and less lean flows in the dry season.

Adaptation strategy

The Climate Expert Assessment enabled the identification of the following prioritized adaptation options for M/S. Rocky Dockyard:

- Navigation training and navigation equipment to improve the navigation abilities in rough weather and silted waterways
- Improved anti-corrosive paintings to increase lifetime of ships
- Energy-efficiency training for electrical devices to save energy and lower energy dependency
- Use of water jets and/or water pumps to ensure continuous slip ways for the vessels

4 Bangladesh: Rice Mill Sector

M/S. Khairul Auto Rice Mill is a small business that was founded in 2007 and is registered by the government of Bangladesh. The company produces par-boiled rice (60 % of production) and atop rice (40 %).

Climate Phenomena

Temperatures have been increasing and heat waves have become stronger and more frequent. In winter, the region now experiences more fog and cold waves. Extreme weather events like heavy rain and cyclones occur regularly during rainy season, and increasingly also outside the rainy season. Floods, which are caused by heavy rain events, lead to river erosion and create stronger siltation of the riverbanks. During the dry season, less and more erratic rainfall might lead to a decrease in water levels and an increase of soil salinization.

Adaptation strategy

The Climate Expert assessment enabled the identification of the following prioritized adaptation options for M/S. Khairul Auto Rice Mill:

- Installation of an auto dryer machine with boiler
- Construction of shed, ventilation system
- Motivational activities (offering refreshments, change in work shift) for worker productivity during heat periods

Business opportunities

M/S. Khairul Auto Rice Mill has now identified and prioritized adaptation measures to reduce the risks posed by climate change. Moreover, it has developed a communication plan that helps to disseminate the results of the company assessment among employees (announcing the motivational measures) and financial institutions (in order to raise awareness on the need for funding). The next step will be to identify possible funding options. As companies from the same sector face similar challenges like M/S. Khairul Auto Rice Mill, this case study can inspire and raise the awareness for climate risks of other rice and food processing companies as well.

5 Rwanda: Coffee Sector

COOPAC is a coffee processing company founded in 2001 in Gisenyi, Rubavu district in the Western Province of Rwanda. The company started as a cooperative and became a private company in 2011. With 8,000 associated farmers, the company currently produces around 1,200 tons of green coffee per year. COOPAC produces Rainforest-Alliance-certified, fair-trade, and organic coffee.

The region where the company is located belongs to the Western Kivu-sea climate zone. Average annual rainfall in this area amounts to 1.100 mm. According to a vulnerability baseline report by REMA the Western province is especially exposed to climate impacts from a change in the amount of rainfall, a shift in seasons - especially the beginning of the rainy seasons - and wind and thunder events (REMA, 2015). The Western province is less exposed to a change in temperature, heat waves, flooding and drought (ibid.). The general exposure of climate change of the Western province ranks third among all five provinces in Rwanda (ibid.).

Adaptation Strategy

PSACC identified throughout the vulnerability assessment a range of climate risk management interventions to support the company. The Climate Expert Assessment enabled the identification of the following key issues for COOPAC:

- Secure loose building parts
- Develop flood management system
- Plant shade trees
- Apply organic pesticides
- Plant new pest-resistant coffee plant varieties
- Organise the transport of workers to the company premises during heavy rains
- Develop an emergency plan with alternative routes, off-road vehicles
- Closely monitor regulatory developments and other government initiatives
- Hedge or insure against price fluctuations

Business opportunities

COOPAC could benefit from a potential increase in demand for coffee with the label “climate-proof” or “climate resilient”.

6 Costa Rica: Tourism Sector

Los Pinos Cabañas y Jardines is located in Monteverde, Costa Rica, a tourist lodging company founded in 1987. With an offer of 15 log cabins, a hydroponic garden of vegetables, and a private reserve of eight hectares, Los Pinos is distinguished by its eco-tourism and sustainable vacation, and has positioned itself in the tourist market at national and international level. The main effects of climate change affecting Los Pinos are related to the variation in temperature and precipitation patterns. While in the rainy season the decrease in temperature is more marked than in the past, temperatures are increasingly exceeding historical records in the dry season (February to April). This creates discomfort among some customers, who resent the lack of air conditioning or insufficient ventilation of the cabins. Also, high temperatures affect the productivity of the company's employees in the laundry, who suffer from fatigue and require constant hydration.

Adaptation strategy

The Climate Expert Assessment enabled the identification of the following key issues for COOPAC:

- Recycling gray water from cabins (cost reduction even without taking into account the effects of climate change)
- Recycling of laundry water (cost reduction even without taking into account the effects of climate change)
- Basic training of employees in Information Technology (IT)

7 Costa Rica: Tourism sector

Union Varsan is located in Monteverde, Costa Rica, a family-owned agro-tourism company founded in 1990 that has two main economic activities: the production, processing and marketing of coffee, and agricultural sustainability education. This second activity is carried out through the Life Monteverde program, which began in 2009. Union Varsan has a farm of 17 hectares, most of which is destined to the production of coffee. Varsan Union is affected by climate change both directly (by the effects of climate change on coffee production) and indirectly (from the impacts of climate change on the region as a whole). The production of coffee is affected by the increasingly frequent droughts and longer duration of the dry season. On the other hand, the increasingly intense winds generate erosion and physical damages to the plants. In extreme cases, wind gusts can even uproot trees, although trees often act as windbreaks for coffee plants. Indirect impacts have to do with the impact of climate change on the attractiveness of the region for eco-tourism. For example, increasing average temperatures and intensifying precipitation patterns may threaten ecosystems such as the cloud forests of Monteverde and Santa Elena, which are key attractions in the region. Another relevant indirect impact has to do with the increase in the prevalence of infectious diseases in the region as a result of the increase in temperature. These impacts may in turn translate into less interest on the part of potential visitors to visit the region, and therefore, a decrease in the arrival of tourists. This would reduce the demand for tourism and educational services offered by Unión Varsan.

Adaptation strategy

The Climate Expert Assessment enabled the identification of the following key issues for COOPAC:

- Support for the planning, coordination and implementation of a new communication and marketing strategy aimed at increasing the number of visitors to the farm, through local and international promotion of its tourism and educational offer.
- Consultative support for the search of sources of financing, to facilitate capital for the company in the implementation of the communication and marketing strategy and changes and improvements in infrastructure for productive processes.

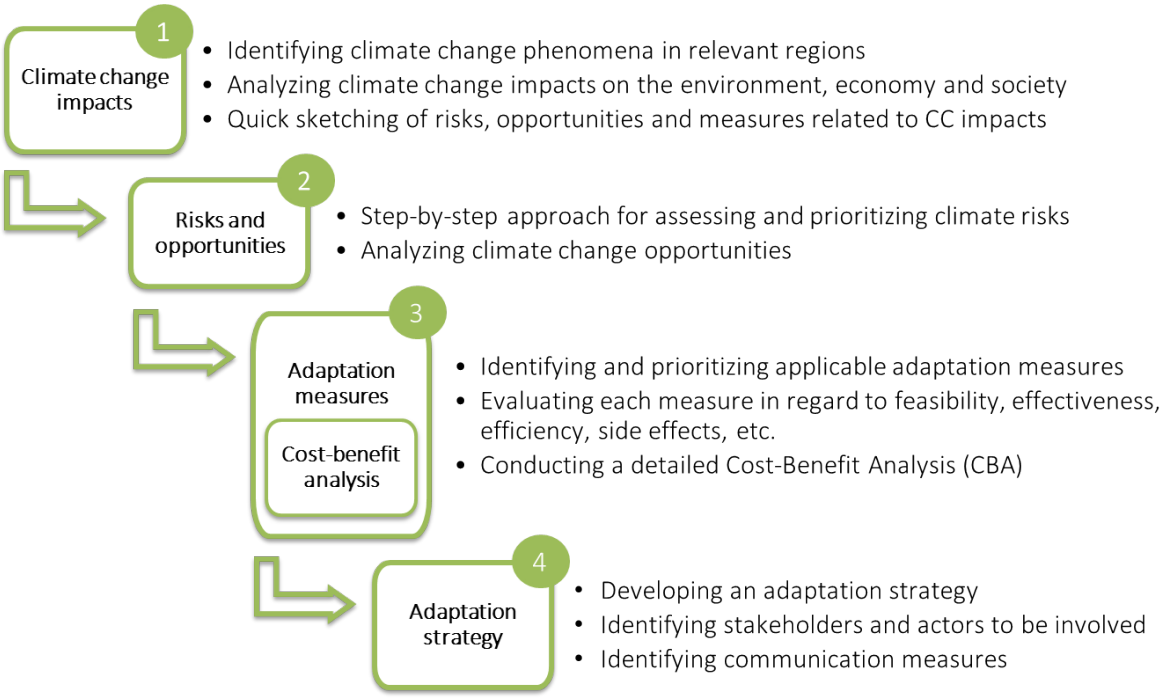
o Tool(s)/method(s)

The Climate Expert Approach

The Climate Expert entails a practical **4-step approach** and **working materials** that help companies analyze climate change **risks and opportunities** and generate strong **adaptation strategies**. It was developed by the GIZ Global Program on Private Sector Adaptation to Climate Change (PSACC).

The Climate Expert is based on an **Excel Tool** that allows companies to fill in and analyse all relevant information for developing an adaptation strategy that fits the characteristics of the company. One of the Tools' key features is a detailed **cost-benefit analysis** (CBA). This method is well-known by

SMEs and allows integrating climate change adaptation into their risk management routines. By working with cost ranges, the CBA takes into account the uncertainties of climate change.



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