

Guidelines:

- This Request Submission Form should be completed by the organization requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: <http://unfccc.int/ttclear/support/national-designated-entity.html>
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Chile, Brazil, Mexico and Uruguay
Request title:	Assessment of the current status of the circular economy for developing a roadmap for each requesting country
NDE	Sustainability and Climate Change Agency, Giovanni Calderón, Director, giovanni.calderon@ascc.cl, Santiago, Chile
Request Applicant:	Ministry of the Environment, Guillermo González, Head of the Circular Economy Office, ggonzalez@mma.gob.cl; San Martín 73, Santiago, Chile. Jointly with the Sustainability and Climate Change Agency, Santiago, Chile

Climate objective:

- Adaptation to climate change
- Mitigation of climate change
- Combination of adaptation and mitigation of climate change

Geographical scope:

- Community level
- Sub-national
- National
- Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

This section should answer the question, “what is the problem?” Summarize the climate-change-related problem or its negative impact on the country that the request is trying to respond to.

By 2007, the population of Latin America and the Caribbean numbered 625 million people, and considering the growth expected by 2030, it is estimated that we will need to produce 50% more food, 45% more energy and 30% more water.¹ The present economic context is defined with certain relevant economic indicators such as an economic growth that, according to World Bank, grew by 4.02% between 1961 and 2017 (rising from 1.4 to 80.7 trillion during that period), but this data falls short because it fails to consider the planet's limitations, that is, the consequences for the environment: soil degradation, contamination of bodies of water and increased GHG emissions, all of which contribute to global climate change.²

Global climate change is the process of the warming of the earth, which the IPCC defines as “a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed during comparable time periods.”³ In that context, it is crucial to take measures to help mitigate global climate change, i.e., to direct human action toward reducing sources of greenhouse gas or boosting greenhouse gas sinks, along with acting collectively to adapt to or fight climate change with political will and a wide range of technological measures, because we will not achieve effective mitigation (and adaptation) if the different agents independently put their own interests first.⁴

An example of this situation is what is happening in the solid waste generation sector. There are many factors in the generation of solid waste. The most notable are: industrial development, increase in population, and changes in patterns of consumption. At the same time, the lack of economic incentives for waste management has led to incentives being developed and advanced by governments alone, reducing the opportunity for action through those instruments. A corollary to this is revealed in OECD figures for recovery of recycled materials: no country in Latin America or the Caribbean recovers more than 15% of materials. This is also associated with relevant scarcities in selective collection, composting and recycling of materials, and thermal treatment of waste for recovery of energy.

A circular economy is an industrial model that is restorative by design and proposes that, instead of extracting natural resources, materials that have already been processed can be recovered and reused in various ways, thus protecting natural resources from over exploitation, an issue that is particularly sensitive in Latin America. The objective in this is to keep scarce, valuable resources in circulation for longer periods of time, promoting recycling and avoiding loss of materials. Achieving these objectives requires alternative models of business such as reuse, remanufacturing and product-as-service.

Circular models can be developed and brought to scale within the public and private sectors, but to do so companies must adopt new models of business, build new capacities and adopt new technologies. For this to happen, they must be accompanied by sufficient financing and appropriate legal frameworks, which requires incorporating externalities into their production structures, in keeping with the idea that the one who contaminates is the one who pays.

The scarcity of financial, human and technological resources is a frequent obstacle to good waste management and to implementing innovative technologies. However, we can achieve notable improvement and work toward cities that are cleaner, healthier and more environmentally sustainable, with greater planning and strategies aimed at addressing all aspects of the waste cycle.

Therefore, laying the foundation for a circular economy model in the countries of the region is an opportunity that can be taken through this project. It would involve seeking an assessment that lays the foundations for a roadmap for implementing a circular economy in the countries of the region.

¹ Graziani, P. (2018). Economía circular e innovación tecnológica en residuos sólidos: Oportunidades en América Latina. Caracas: CAF.

² FOMIN, 2017. Más allá del reciclaje: un modelo de economía circular para América Latina y el Caribe.

³ IPCC (2014): “Glossary, Fifth Assessment Report - Synthesis Report”, IPCC

⁴ IPCC (2014): “Cambio climático 2014 Mitigación del cambio climático Contribución del Grupo de trabajo III al Quinto Informe de Evaluación del Grupo Intergubernamental de Expertos sobre el Cambio Climático”, IPCC

According to an OECD study, introducing policies for setting up a circular economy could have the associated effects of revitalizing the respective economies, affecting reallocation of resources between production sectors and regions.⁵

Past and on-going efforts to address the problem (up to half a page):

This section should answer the question, “what measures have been applied or are being applied to address the problem?” Describe here the prior or current processes, projects or initiatives that have been implemented in the country or region with a view to solving the climate problem described above.

The requesting countries have implemented public policies to make progress in circular economy matters. They are characterized by having standards, policies and programs that help to establish a framework for waste management, extended producer responsibility and promotion of recycling to reduce generation of waste and promote its reuse, recycling or other type of valuation for the purpose of protecting human health and the environment.

In some cases there are programs to promote innovation that allow for co-financing circular economy initiatives in the private sector. Furthermore, in some countries road maps have been drawn up for certain sectors, which incorporate a circular economy.

Specific technology⁶ barriers (up to one page):

This section should answer the questions, “what technological barriers are hindering the national initiatives described above?” and “how would these initiatives supplement the technical assistance of the CTCN?” Based on the statement of the problem and considering the current initiatives described above, describe the specific technological barriers faced by the applicant in identifying, evaluating or applying climate technologies, in order to answer the problem statement. The stated barriers must be limited to the scope of application of the technical assistance requested from the CTCN (described below).

Apart from company size, the following barriers can be identified that are hindering development of a circular economy in Latin America:

Cultural barriers: These are collective (social and business) behaviours that limit the viability of implementing a circular economy and involve such aspects as: separating waste at origin, general acceptance of products with built-in obsolescence, a consumer society and well-being being related to product consumption and an acceptance of a culture of disposable goods (goods that make daily life “easy,” such as containers, pre-prepared or fast food, packaging) and individual containers.

Low percentage of recycling: This is the consequence of a lack of collective (social and business) awareness of the need to redesign products so as to be able to reuse the raw materials contained in the waste from used products (whether through reuse or recycling). The causes vary and include:

- The legal definition of waste and the feasibility of transporting it for a new production process;
- Product price does not internalize the externalities (impacts) incurred in production (such as the extraction of raw materials, transporting them to processing centres, fabrication, packing,

⁵ McCarthy, A., R. Dellink and R. Bibas (2018), “The Macroeconomics of the Circular Economy Transition: A Critical Review of Modelling Approaches”, OECD Environment Working Papers, No. 130, OECD Publishing, Paris. <http://dx.doi.org/10.1787/af983f9a-en>

⁶ “any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change” (Special Report on Technology Transfer, IPCC, 2000)

storage, transportation to production centres, and sale; which involve generation of contaminants, LIW, SIW, emissions, etc.). These factors are not internalized in the product price;

- The low price of virgin raw materials as compared to raw materials obtained from waste, because the purchase price is increased by the cost of the reprocessing needed to obtain a “raw material” that can be used as a product input;
- Insufficient investment in infrastructure for recycling and recovery of waste, innovation and technologies;
- Difficulties in recovering and separating the different components of waste;
- Low cost of access to dumps or waste disposal sites.

Low local manufacturing capacity: given the de-industrialization that characterises the countries of the region, this could involve various factors:

- Lack of industrial development 4.0;
- Lack of an eco-design that facilitates recovery and/or reuse of the different waste components;
- The technical and economic difficulty of separating the different waste components;
- Cost of the waste, i.e., paying transportation costs to the processing location, which complicates achieving a “critical mass” for investing in waste processing plants.
- Availability of infrastructure that allows for fabricating new products based on “recovered” waste.
- A market demand for recycled products should provide commercial viability to related companies. Otherwise there will be no local manufacturing capacity.
- A high cost of intellectual property patents for the required technologies can limit the possibility of establishing companies to engage in recovering individual components of waste.

In particular, according to the bibliography⁷ on potential barriers that hinder adoption of a circular economy in the business model of small and medium enterprise, barriers can be grouped as follows:

Cultural environment: This consists of the philosophy, habits and behaviours of the company (management and employees) as regards implementing circular economy business practices.

Lack of capital: This is cited extensively as one of the most significant barriers to small and medium businesses adopting a circular economy. Changing from a linear economy to a circular production/business model requires a series of actions such as distribution planning, inventory management, planning of production and management of an inverse logistics network, all of which requires time and investment on the part of the company.

Insufficient effective legislation: This has to do with the provision of financing for opportunities, training, effective tax policy, legislation and regulations, which are widely known to be significant barriers to the realization of environmental investment. The lack of a concrete, consistent and strict legislative framework usually keeps small and medium businesses from considering integrating green solutions into their operations. For example, European waste legislation does not contain any definition or consistent classification of waste, which limits options for its reuse.

There is also a lack of signals from the market (low price of raw materials) to promote an efficient use of resources. Externalities (environmental costs) are not integrated into the product prices. Companies

⁷ Rizos, V.; Behrens, A.; van der Gaast, W.; Hofman, E.; Ioannou, A.; Kafyeke, T.; Flamos, A.; Rinaldi, R.; Papadelis, S.; Hirschnitz-Garbers, M.; Topi, C. Implementation of Circular Economy Business Models by Small and Medium-Sized Enterprises (SMEs): Barriers and Enablers. Sustainability 2016, 8, 1212.

buy cheaper raw materials instead of recycled ones, because the latter can often require supplemental processing costs.

Lack of information: on the benefits of a circular economy and of environmental legislation. Many companies are unaware or lack a clear understanding of the significance of the concept of a circular economy. A successful transition to a circular economy can only be made through a collective effort; it requires exchange and dissemination of knowledge and innovation among the different stakeholders in the value chain. However, companies frequently keep information confidential, hindering its dissemination and the development of circular economy models.

Administrative burden: entailed in green business practices, such as monitoring and reporting environmental performance, which can be considered complex and not very accessible for small and medium businesses.

Lack of technical knowledge and technologies: can keep small and medium businesses from converting their linear business model to a circular one. Linear technologies are widely established in current business practices, obstructing the economy in its current form. Converting business operations (business-as-usual) will require integrating new, sustainable technologies of production and consumption (in the fields of eco-design, clean production and life-cycle analysis) into the present linear business models, and competent professionals trained to manage them. Another bottleneck is the growing complexity of mixed materials in new products, which further complicates managing them through the present recycling infrastructure.

Lack of support from the network of providers and consumers: This mainly has to do with the dependence among small and medium businesses on the involvement of their providers and clients in sustainable activities. Successful implementation of a circular economy requires the collaboration of all parties (actors or links) in the supply chain. Transition to a circular economy requires a change in the lifestyles and behaviour of consumers. The public response (of individuals) is generally difficult to predict because it depends heavily on social norms and external conditions.

Sectors:

Please indicate the main sectors related to the request:

- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Coastal zones | <input checked="" type="checkbox"/> Early Warning and Environmental Assessment | <input type="checkbox"/> Human Health | <input checked="" type="checkbox"/> Infrastructure and Urban planning |
| <input type="checkbox"/> Marine and Fisheries | <input checked="" type="checkbox"/> Water | <input checked="" type="checkbox"/> Agriculture | <input checked="" type="checkbox"/> Carbon fixation |
| <input checked="" type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input checked="" type="checkbox"/> Industry | <input checked="" type="checkbox"/> Renewable energy |
| <input checked="" type="checkbox"/> Transport | <input checked="" type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

- | | | | |
|---|---|---|--|
| <input checked="" type="checkbox"/> Communication and awareness | <input checked="" type="checkbox"/> Economics and financial decision-making | <input checked="" type="checkbox"/> Governance and planning | <input type="checkbox"/> Community based |
| <input type="checkbox"/> Disaster risk reduction | <input type="checkbox"/> Ecosystems and biodiversity | <input type="checkbox"/> Gender | |

Technical assistance requested (up to one page):

Based on the problem statement, the prior and present initiatives, and the technological barriers, describe the technical assistance being requested. This should clearly contribute to the mitigation of or adaptation to climate change based on the problem statement, and to overcoming the specific technological barriers.

The description of the technical assistance should be structured as follows:

- General objective
- Sets of activities that the technical assistance is to execute
- Products that the technical assistance is to deliver

Bear in mind that the CTCN facilitates technical assistance; it is not a project financing mechanism.

1. General objective

The general objective of the technical assistance is to perform an assessment of the circular economy, revealing who are the key actors/interested parties and characterizing gaps and deficits, to serve as input for the collaborative construction of a roadmap on this issue, to serve as a management tool for the future implementation phase.

2. Specific objectives:

- Identify the value of a circular economy to the country's sustainable development. Establish what value the various actors in the economy recognize in a circular economy, how a circular economy would impact companies and the country, as regards the competitive position and relative evolution of participation in markets, vigour in exports, innovative performance, competitors.
- Prepare a strategic assessment of the country's present competitive performance in terms of a circular economy. Establish the baseline for the country as regards a circular economy, reporting the degree to which the countries involved have adopted a circular economy and cases of success and of failure, incorporating existing sector roadmaps.
- Identify the updated map of the ecosystem of sector actors and assets, such as companies that use networks, associations, equipment and technological capacities in their processes, R&D and other specific capacities, promotional and regulatory agencies. Identify the generic value chain for a circular economy.
- Identify and characterise needs, challenges, gaps and threats in the country to the adoption of a circular economy as an economic model.
- Identify and characterise strengths and opportunities the country has for adopting a circular economy as its economic model. Compare the level of industry competitiveness with and without a circular economy.

- Know the international situation (benchmarking) of the circular economy in the world, which countries are emphasizing its adoption, what strategy they have used in adopting it, what benefits it has brought them, what problems it has caused, to whom does it make most sense, what are the lessons learned. Consider available international experience such as the Finish, German, Austrian, Danish, Japanese and Spanish roadmaps and others.
- Know national and international success cases.
- Know the main trends in technology and frontier developments, for example, the development of new products and/or innovation in processes, platforms, certifications, etc.
- Identify potential country-wide and region-wide projects.

Expected timeframe:

The timeframe foreseen for the requested technical assistance is estimated at 6 to 12 months.

Anticipated gender and other co-benefits from the technical assistance:

Describe the activities linked to the issue of gender, as well as the co-benefits foreseen in that and other areas (for example, related to biological, economic, social or cultural diversity) that the technical assistance will likely generate.

At the CTCN website you will find guidelines for the issue of gender (a document translated into Spanish):

<https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development>

For further information, please follow the link below:

<https://www.ctc-n.org/technology-sectors/gender>

From the gender perspective, it is possible to obtain benefits from the process itself and from the expected results. The former has to do with the fact that each element to be developed within the assessments must consider the active inclusion of women in each phase, ensuring that their participation is considered incidentally at all decision levels, and ensuring dignity and respect for women.

Now, the challenge will be to incorporate the gender perspective cross-sectionally. The challenge will lie in evaluating how this assessment (with a circular economy baseline and the subsequent roadmap) can generate economic, social and environmental implications when disaggregated by men and women. Other co-benefits that this experience could generate have to do with other indicators: economic (growth, diversification, competitiveness, profitability); social (inclusion of excluded groups, generation of cultural capital, citizen participation); and environmental (effects on generation of waste, emissions, environmental burden on ecosystems).

Once the project is being implemented, the expected results and impact from a gender perspective must be established. This involves including appropriate gender indicators in the follow-up and evaluation process.

In general, the project envisions the following benefits from implementation of a circular economy:

- Reduced use of resources needed per unit produced;
- Reduction of the quantity of waste produced. This allows for extending the useful life of final waste disposal sites;
- Reduction of the quantity of energy consumed. Reuse of raw materials reduces the amount of energy required to obtain an element that can be re-used in preparing the same or another product. (If it is not recycled, mineral must be extracted and refined and the raw material

prepared for fabricating the final product, with all the externalities associated with mining and industrial tasks.);

- Development of new businesses and generation of new job positions. Latin America presently has a low rate of recycling and increasing the present rate will create the need to hire more personnel for the various tasks required in the different links of the value chain of each product prepared;
- Promotion of innovation, because it is necessary to change the production model and update the production infrastructure, equipment and technologies, to process what is today considered waste (future raw material);
- Mitigation of and adaptation to climate change.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entities	Strategic coordination nationwide
Request Applicant	Technical counterpart in the technical assistance
Ministries of the Environment (such as the Circular Economy Office)	As the main counterpart, the Ministry of the Environment, through its Circular Economy Office, will be responsible for the project's activities nationwide
Production Development Agencies	Technical counterpart in the technical assistance. A public sector working commission will be formed and led by Chile's production development agency, CORFO.
Companies and Trade Associations	Companies, as key actors, will be invited to be part of working groups to validate and legitimize the information that will constitute the assessment.
Civil Society Organizations	Validate and legitimize the information based on the actors' degree of involvement in the circular economy.
Universities or Institutes of Technology	Validate and legitimize the information based on the actors' degree of involvement in the circular economy.

Alignment with national priorities (up to 2000 characters including spaces):

Reference document (please include date of document)	Extract (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	Having an assessment of the present status of the circular economy in each country will allow for preparing a roadmap to advance the matter and thereby contribute to their climate commitments defined through their Nationally Determined Contributions (NDC).

Technology Needs Assessment	The results of the technical assistance will allow for an assessment in each country by sector, to direct the implementation of technological strategies.
National Adaptation Plans	Sector adaptation plans in effect in the applicant countries are linked to the characterization of gaps and deficits detected in the technical assistance.
Mitigation measures appropriate for each country	The gaps identified in the assessment will help in establishing, in each sector, new mitigation measures appropriate for each country.
Add here other relevant documents	Legislation on waste management, the producer's extended responsibility and promotion of recycling are often the starting point for establishing the assessment in each country.

Development of the request (up to 2000 characters including spaces):

The development of this request originated in the convergence of the interest shown by the CTCN in having the countries of Latin America jointly develop instances of technical assistance in the matter of a circular economy with the interest that the region's countries now have in successful public policies and private experiences that can lead to a circular economy.

The request is led by Chile, through the Sustainability and Climate Change Agency, a national designated entity that made arrangements with the Ministry of the Environment's Office of Circular Economy to be the entity requesting the technical assistance. At Climate Week held in Montevideo, Uruguay, during the week of August 20 of this year, a preliminary draft of the request was delivered to the national designated entities of the requesting countries. A work meeting was subsequently held, with the presence of the CTCN team and NDEs of Mexico, Colombia, Uruguay, Brazil and Chile.

Background documents and other information relevant for the request:

http://portal.mma.gob.cl/wp-content/uploads/2015/06/Presentacion-LEY-REP-20920_Junio_2016.pdf

http://portal.mma.gob.cl/wp-content/uploads/2016/07/ccps_13072016_alta.pdf

http://consultaciudadanas.mma.gob.cl/mma-epac/app/home_ciudadano?execution=e1s2

<http://programaaltaley.cl/hoja-de-ruta/>

http://www.codesser.cl/bases/PEN040_ANEXO_N5_HOJA_DE_RUTA.pdf

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms⁸.

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support

⁸ Please see:

https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name: Giovanni Calderón, Director, Sustainability and Climate Change Agency

Date: 19-11-2018

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE name: Giovanni Calderón, Director, Sustainability and Climate Change Agency (Chile)

Date: 19-11-2018

Signature:

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG.

The CTCN is available to answer all questions and provide guidance on the application process.