T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Background Study

In preparation of the Turkish SCP National Action Plan and Roadmap

Final Draft

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https://cygm.csb.gov.tr/
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Table of Contents

Foreword

Current world economy is based on a structure in which the resources used for production are mostly discarded at the end of their life cycle and are taken out of the economy. Societies are depended on fossil fuel consumption which leads to climate change and environmental pollution. We need environment friendly approaches and Circular Economy proposes this with a model, where production and consumption habits are changing radically.

This new economy model proposes ambitious targets and game changing initiatives. These goals can only be achieved by thinking outside the box; with policies that promote new technologies and are open to opportunities. In order to catch the trends of changing world, we need to develop our own resource-efficient business models that support the Circular Economy and policy tools that encourage these actions.

Sustainable Consumption and Production (SCP) approach is essential for a circular economy and already aligned with the new Circular Economy Action Plan of the European Union adopted in March 2020. SCP is also directly related to the 2030 Sustainable Development Goals of the United Nations to which we attach special importance.

The SwitchMed program implemented by Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) of United Nations Environment Programme Mediterranean Action Plan (UNEP/MAP) aims at supporting SCP practices for a circular economy in the Mediterranean Region. Preparation and implementation of Sustainable Consumption and Production National Action Plans (SCP NAP) by the countries is at the core of the program. Since Turkey is a party to Barcelona Convention targeted by SwitchMed, we started out to develop our SCP NAP as of June 2019 with the support of SCP/RAC.

In order to set a ground for the plan, this baseline report and a road map were prepared in order to evaluate related national regulations and current practices on SCP. Based on the scope and priorities determined, 4 sectors namely food, fisheries and agriculture; housing and construction; consumer goods and manufacturing; and tourism were selected for the study.

More than being just a background study, I believe that this report will serve as an enlightening up-to-date guideline both for relevant experts and possible donors interested in this field and I hope that completion of SCP NAP will lead to several pilot projects in the sectors particularly focused in this study.

I would like to thank everyone who contributed to the report and the SCP/RAC for their support.

Prof. Mehmet Emin Birpınar
Deputy Minister of Environment and Urbanization
Chief Negotiator for Climate Change under the UNFCCC

1 Background

Urgency for switching to sustainable patterns of consumption and production

Material consumption continues to be taken as a proxy for progress and development. Equity and environmental considerations have been dealt with 'after the event' rather than as integral to economic policy. Over the last few decades, these dominant patterns of production and consumption have led to significant environmental degradation and rising inequalities.

Indeed, our "take-make-waste" production and consumption models have had devastating impacts on our planet. The IRP's Global Resources Outlook 2019[1] has found that 90 percent of biodiversity loss and water stress are caused by resource extraction and processing. The rise in resource use has been coupled with growth in waste and emissions, contributing to a series of pressure points including climate change, reduced food security, water scarcity and air pollution.

A modern lifestyle based on current patterns of consumption and production requires a large amount of natural resources, i.e., 25-30 tonnes of materials per capita, per annum. Few countries would be able to satisfy their material needs with domestic resources, and the current level of national material consumption has only been made possible through a record increase in international trade. With respect to environmental impacts associated with resource extraction, however, it is the net-exporting countries that are at the receiving end.[2]

Moreover, the benefits of this type of resource use remain limited to but a few. Inequalities in the material footprint of countries, i.e., in the quantity of materials that must be mobilized globally to meet the consumption of an individual country, are stark. High-income countries maintain levels of per capita material footprint consumption that are 60 per cent higher than upper-middle-income countries and more than 13 times the level of low-income countries.

In order to prevent permanent impacts on the sustainability of natural ecosystems and societies, an urgent shift towards Sustainable Consumption and Production (SCP) models (box 1) is required. In fact, this need was first highlighted at the Rio Earth Summit in 1992; reiterated in the outcomes of the Rio+20 summit, with the adoption of the 10-Year Framework of Programmes[3]; and integrated into the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015 (Sustainable Development Goal 12)[4].

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[1] International Resource Panel (IRC) (2019), Global Resources Outlook 2019: Natural Resources for the Future We Want. A Report of the International Resource Panel, United Nations Environment Programme, Nairobi. Available at: https://www.resourcepanel.org/reports/global-resources-outlook

[2] Wiedmann, T., Schandl, H., Lenzen, M., Moran, D., Suh, S., West, J., and Kanemoto, K. (2013), "The material footprint of nations Supporting Information", PNAS, May 19, 2015 112 (20) 6271-6276. Available at: https://www.pnas.org/content/112/20/6271

[3] https://www.oneplanetnetwork.org/

[4] Available at: https://www.un.org/sustainabledevelopment/sustainable-consumption-production/

Box 1: Working definition of Sustainable Consumption and Production[5].

The working definition of Sustainable Consumption and Production (SCP) used in the context of the SDG12 is: "The use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of future generation."

As illustrated in figure 1, SCP involves a wide set of strategies to be implemented by various categories of stakeholders:

- Policy-makers should adopt regulatory frameworks enabling SCP
- Industries must adopt resource efficiency, cleaner production and circular economy approaches
- Public and private financial actors have to deploy financial instruments that support SCP
- Civil society ought to promote sustainable consumption solutions and demand sustainable products and services
- Knowledge of SCP should be developed and disseminated
- New companies and start-ups should adopt green and circular innovative business models

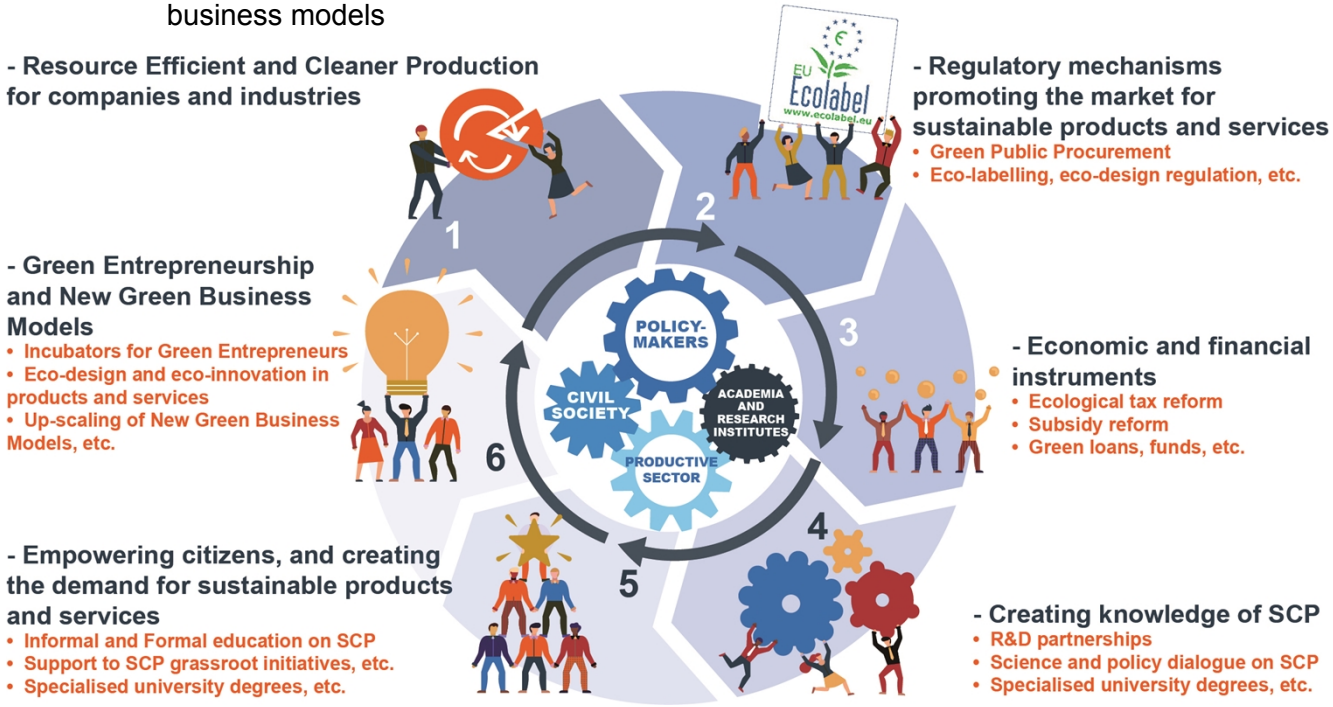

Figure 1. Various strategies and stakeholders involved in SCP.

Further progress needed for Turkey's implementation of SDG 12

The government of Turkey has in every occasion expressed its commitment to work for a sustainable world since the adoption of 2030 Agenda for Sustainable Development

[5] UNEP (2010), ABC of SCP: Clarifying Concepts on Sustainable Consumption and Production. United Nations Environment Programme, Nairobi. Available at: https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=945&menu=1515

including the Sustainable Development Goal 12 (SDG 12). In this sense, Turkey was one of the first countries submitting a Voluntary National Review (VNR) to the High-Level Political Forum (HLPF) in 2016 demonstrating its strong ownership and the progress made to achieve the SDGs. In its 2nd VNR at the HLPF 2018, it was mentioned that further work is needed for SDG 12 indicators (only 10% achieved) among others[6].

Indeed, Turkey hasn't yet fully delivered on the Indicator 12.1.1 having a sustainable consumption and production (SCP) national action plan or mainstreaming SCP as a priority or a target into national policies. While Turkey has a wide set of policy instruments – methodologies, measures or interventions – that are designed and implemented to reduce the environmental impacts of consumption and production patterns[7], still strategic prioritisation of value chains (high-impact sectors) and environmental aspects has to be done. Mix of policy instruments (from regulatory, economic, communicative to voluntary) to tackle these priorities should be identified, developed and existing instruments should be reviewed. This approach would lead to effective management of environmental impacts of economic activities and successful delivery on all SDG goals especially SDG 9, SDG 11, SDG 14. SDG 15 and SDG 17, besides SDG 12.

Box 2: SDG 12 targets.

12.1 Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
12.2 By 2030, achieve the sustainable management and efficient use of natural resources
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

Turkey not a partner country in regional SCP projects

In the Mediterranean region, contracting Parties to the Barcelona Convention, including Turkey, have demonstrated their commitment to support SCP actions by adopting the

[6] Turkey's 2nd VNR 2019 Sustainable Development Goals "Strong Ground towards Common Goals". Available at https://sustainabledevelopment.un.org/content/documents/23862Turkey_VNR_110719.pdf (page 7 and 25)
[7] Ibid. (pages 106-109)

"Sustainable Consumption and Production Regional Action Plan for the Mediterranean" and its Roadmap[8]. The SCP Regional Action Plan is built around the following vision: "By 2027 a prosperous Mediterranean region is established, with non-pollutant, circular, socially inclusive economies based on sustainable consumption and production patterns, preserving natural resources and energy, ensuring the well-being of societies and contributing to clean environment and healthy ecosystems that provide goods and services for present and future generations." It focuses on four priority areas of consumption and production, namely food, fisheries and agriculture, goods manufacturing, tourism and housing/construction.

The SCP Regional Action Plan has been in implementation through regional projects such as the EU funded SwitchMed Programme (see box 3). Unfortunately, Turkey couldn't benefit from these regional projects and could only join as observer.

Box 3: SwitchMed Programme.

The SwitchMed Initiative[9] is funded by the European Union and implemented by the United Nations Industrial Development Organization (UNIDO), the United Nations Environment Programme (UNEP) Economy Division, the United Nations Environment Programme Mediterranean Action Plan (UNEP/MAP) and its Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC). The initiative is carried out in close coordination with the Directorate-General for Neighbourhood and Enlargement (DG NEAR).
The Initiative was launched in 2013 to speed up the shift to sustainable consumption and production patterns in the Southern Mediterranean, notably through the promotion of circular economy approaches. The Programme aims at achieving productive, circular and sharing economies in the Mediterranean by changing the way goods and services are consumed and produced so that human development is decoupled from environmental degradation.
The initiative has three main pillars:
1) Provision of direct support to the private sector i.e. manufacturing SMEs and green entrepreneurs;
2) Creation of an enabling policy environment at the regional and national levels;
3) Facilitation of exchange within the SwitchMed community and connections with regional key stakeholders and initiatives.

This SCP NAP process can become a vehicle for getting more effectively involved with such regional programmes and defining national priorities for SCP actions for presenting them to the potential donors. It is also instrumental to strengthen the institutional capacity of Turkey for adopting the elements of the EU Circular Economy Action Plan - one of the main blocks of the European Green Deal, Europe's new agenda for sustainable growth[10].

[8] The SCP Action Plan was adopted during the Conference of the Parties to the Barcelona Convention (COP19) for the Protection of the Mediterranean Sea against the Pollution held on 9-12 February 2016 in Athens (Greece). Available at https://www.switchmed.eu/en/e-library/regional-action-plan-on-sustainable-consumption-and-production-in-the-mediterranean
[9] More information available at https://www.switchmed.eu/en
[10] https://ec.europa.eu/environment/circular-economy/index_en.htm

1.1 Aim of this background study

This main aim of this study is to inform the SCP NAP development process and formulate SCP project ideas for the roadmap of the initially selected value chain of electrical and electronic equipment (EEE).

The specific goals include:

- Explain how the priority value chains for the SCP NAP are selected;
- Share global and European SCP and Circular Economy policy trends and instruments in priority value chains;
- Take stock of the available environmental policies in place;
- To gather initial list of SCP project ideas in the short listed priority value chains.

1.2 Methodological Approach

While it should be acknowledged that there is no single approach by which national SCP programmes can or should be instituted, the UNEP guidelines[11] present a generic 10-step process that may be used in developing such programmes. These 10 steps are as follows (see figure 2):

1. Establish an advisory group.
2. Conduct a scoping exercise.
3. Set the institutional framework.
4. Select the priority areas.
5. Define objectives and set targets.
6. Select policies and initiatives.
7. Obtain official approval of the programme.
8. Implement the programme.
9. Document, monitor and evaluate the Programme.
10. Sustain and improve the programme

The UNEP in collaboration with the partner countries utilized derivatives of this methodology during the SwitchMed Programme for developing 8 SCP NAPs[12]. The process for the development of the SCP NAP in Turkey took into account the lessons learned regarding the processes followed and the roadmaps adopted. While the process took from 1.5 to 2 years in the SwitchMed countries, the project duration and resources were very limited in Turkey, hence only the planning steps could be partially completed and the development for one of the selected priority value chains could be completed.

[11] UNEP. (2008). Planning for change: Guidelines for National Programmes on Sustainable Consumption and Production of the UN Environment. Available at http://wedocs.unep.org/handle/20.500.11822/7627

[12] https://www.switchmed.eu/policy/

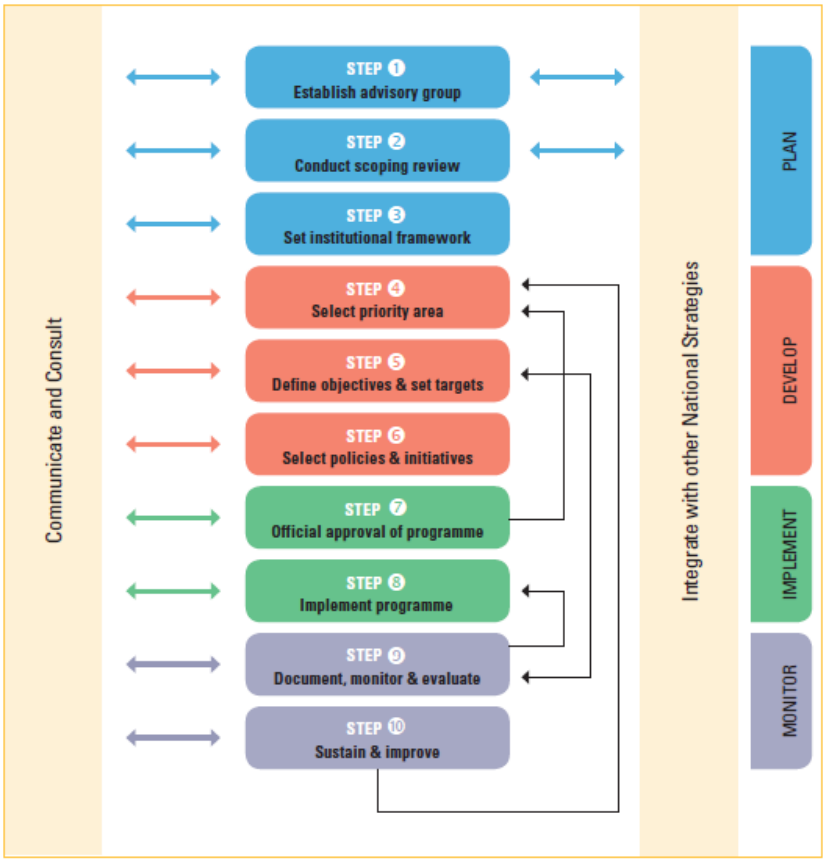

Figure 2. The SCP programme development process[13].

From an SCP perspective, it is absolutely key to the design SCP action plans considering the full life cycle of goods and services. The life cycle spans from extraction of natural resources, manufacturing and packaging, acquisition and use to end-of-life management.

Governments have at their disposal a range of policy instruments that can be used in order to influence consumption and production patterns. Policy tools and instruments may target different stages of a good or service life cycle. Policy tools or instruments are commonly divided into four key categories:

- Regulatory instruments;
- Economic instruments;
- Communicative instruments;
- Voluntary or procedural instruments.

Combinations of policy tools or instruments need to be carefully considered and tailored to prevent environmental burdens being shifted to a different stage in the value chain (see table 1 for an example).

[13] UNEP (2007). Practical Tools for Sustainable Consumption and Production. Promoting Mainstreaming and Implementation at the National Level. p.10. Available at: https://www.oneplanetnetwork.org/sites/default/files/mainstreaming_at_national_level.pdf

Table 1: Definition of life cycle stages and relevant policies in the case of EEE value chains.[14]

Extraction of natural resources	This life cycle stage consists of the selection, extraction and sourcing, including transportation, of natural resources and raw materials needed to create a product. Policies and instruments relevant to this life cycle stage are those focused on minimising environmental and social impacts from the extraction, use and management of raw materials. Examples of such policies include national raw material strategies, renewable material strategies and taxes on raw materials.
Manufacturing and Packaging	This stage includes the product design and manufacturing process, including its packaging and labelling. Related policies aim at greening production processes and promoting environmental technologies, it includes policies to promote the application of cleaner production, the use of environmental management systems in business, the greening of supply chains, corporate social responsibility, environmental accounting and reporting as well as environmental technologies, including renewable energy. Also policies focused on promoting the design, supply and sale of greener/more sustainable products and services. Examples include integrated product policy (IPP) strategies, eco-design policies, ecolabel programmes, policies addressing the retail sector and policies supporting fair trade.
Acquisition & use	This stage covers the useful life of the product, from its distribution from the factory to its disposal. Policies and related instruments are the ones having a direct influence on the decision-making of private consumers, policies aimed at extending the durability and increasing reparability, changing or adjusting the framework conditions, as well as policies promoting sustainable procurement. Examples include consumer policies, green/sustainable public procurement (GPP/SPP) policies, consumer campaigns, and green taxes aimed at consumers.
End-of-life management	This stage refers to end-of-life disposal, whether this consists on reuse, recycling or incineration and disposal. Related policies aim at waste prevention and promoting sustainable waste management practices. Examples include waste management plans, landfill taxes and extended producer responsibility (EPR) schemes. Regulatory and economic measures are commonly employed for this life cycle stage to ensure that different waste types are appropriately handled.

As SCP is about sustainable products and services, policy support for circular business models (see figure 2) require particular attention in the development of SCP NAPs. Indeed, development of sustainable products, services and circular business models sit

[14] SCP/RAC (2014). SCP toolkit for Policymakers in the Mediterranean, p 48. Available at: https://www.switchmed.eu/en/e-library/toolkit-for-scp-policy-makers-in-the-mediterranean

at the heart of leading product policy frameworks[15]. Policy makers can particularly incentivise designed for reuse, repair, and high-quality recycling as well as product-as-a-service or other models where producers keep the ownership of the product or the responsibility for its performance throughout its lifecycle.

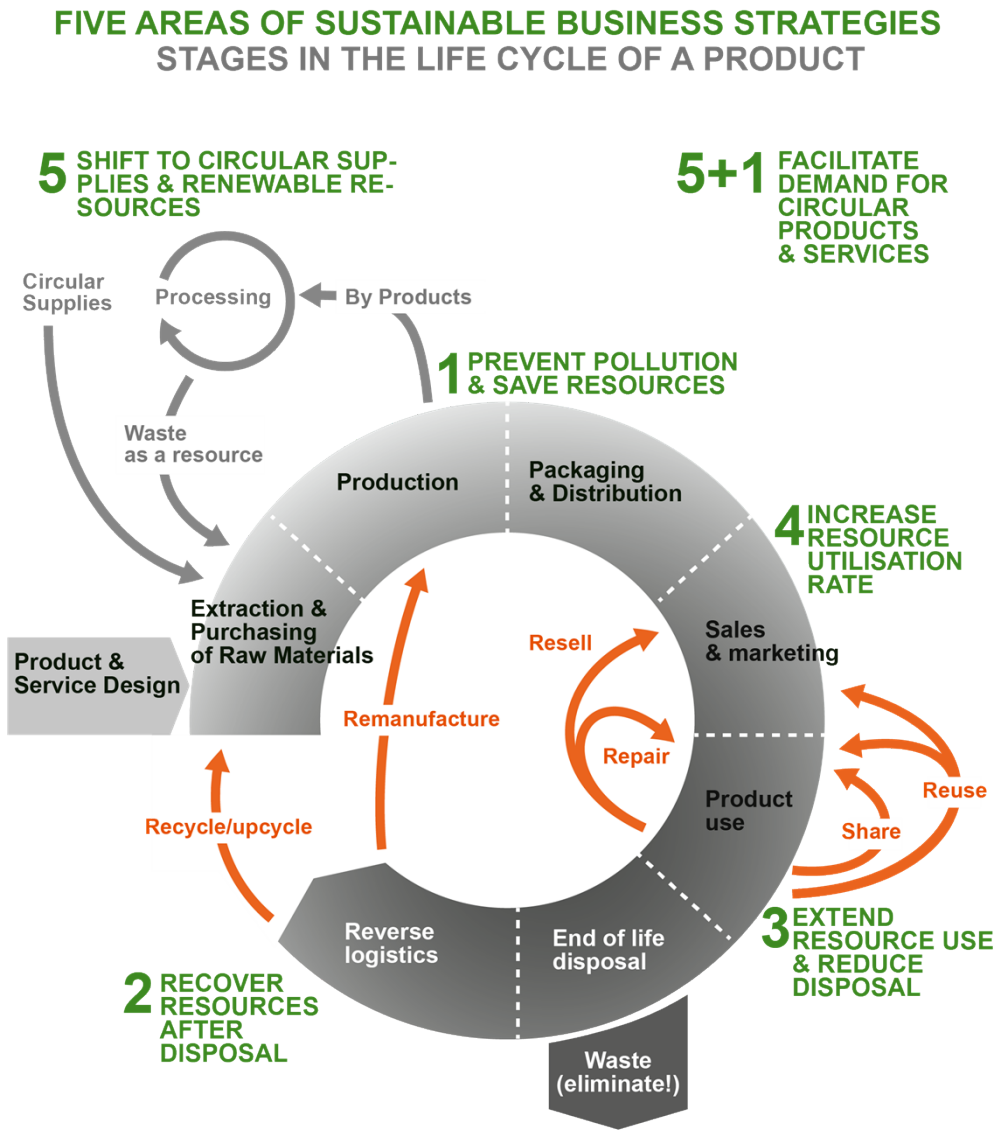

Figure 3: Five sustainable business strategies as the starting point for circular business models[16].

Based on the above mentioned elements, for the development of the SCP NAP in Turkey, the following principles were taken into account:

- Focusing on priority environmental and social hot-spots within the life cycle;
- Preventing adverse effects from shifting from one life cycle stage to another;
- Combining various policy instruments to address priority aspects;

[15] EC (2020). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A New Circular Economy Action Plan. For a cleaner and more competitive Europe. Brussels, 11.3.2020. COM(2020) 98 final. Available at https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

[16] Mosangini, G., Tunçer, B. (2020). Circular Economy Business Strategies. Conceptual Framework to Guide the Development of Sustainable Business Models. Available at: https://bit.ly/CB_strategies

- Providing policy support for circular economy business models.

1.3 The Process

In the beginning of 2019, upon kind request of the Republic of Turkey Ministry of Environment and Urbanisation (in short MoEU), the UN Environment Mediterranean Action Plan (MAP) Regional Activity Centre for Sustainable Consumption and Production (in short the SCP/RAC) has started providing technical support in the line with the UN Environment MAP Mid-Term Strategy 2016-2021 (MTS) and the Plan of Work MTS No '6.1: Development of new action plans, programmes of measures, common standards and criteria and guidelines' for the project on the development of the "Turkish National Action Plan and Roadmap for Sustainable Consumption and Production" (in short Turkish SCP NAP).

In the first half of 2019, the initial stage of this technical support was defined as a half-a-year project for the development of a background study for the SCP NAP funded by the Mediterranean Trust Fund (MTF) that was available till 31 December 2019. This project then officially started in June 2019. The SCP/RAC partnered with a local service provider, REC Turkey[17] approved by the MoEU for the development of the study in preparation of the Turkish SCP NAP. REC Turkey was tasked to provide the national perspective, reach out to the stakeholders and co-organise the stakeholder workshops.

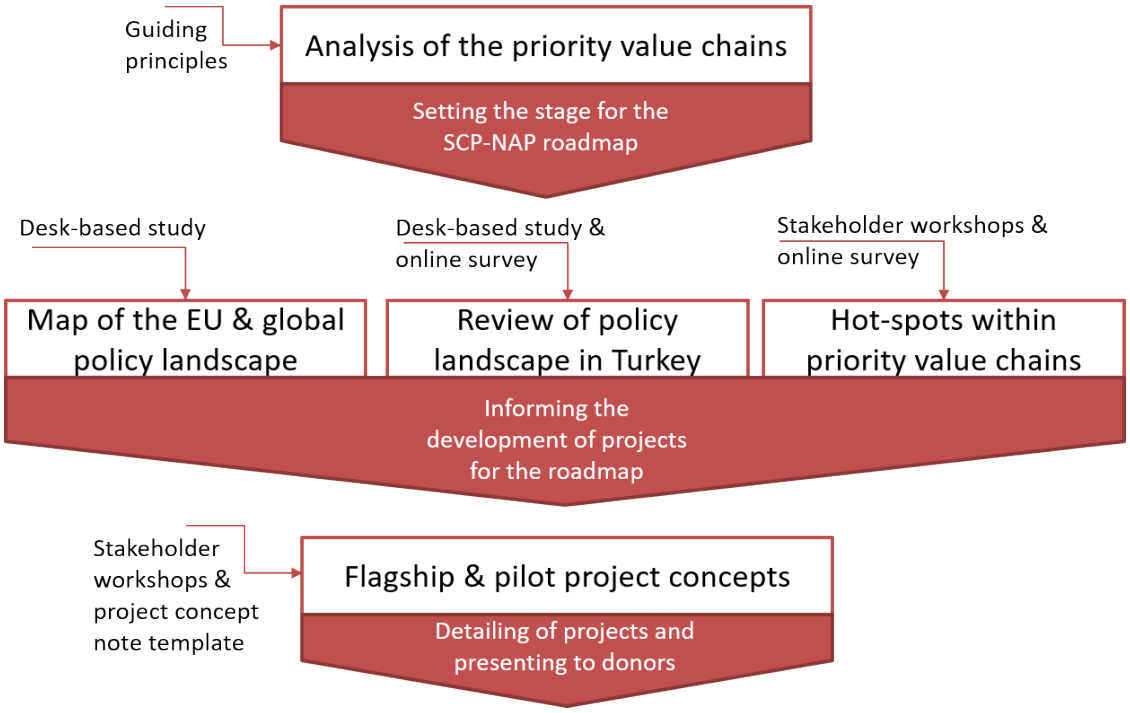

Figure 4: The process steps.

The process design included three main steps of setting the stage, informing the project development and detailing of projects and donors (as shown in figure 4). The following elements were fed into these three stages:

1. Determination of the **priority value chains** and focus areas for achieving SCP patterns and increasing circularity in Turkey;

[17] https://rec.org.tr/

2. Review of international, global and national **policy instruments and good practices**;
3. Preparation of the **draft background study**;
4. Organisation of **2 stakeholder workshops** in Ankara 14-15 October and in Istanbul 20 December (please see **Annex 2** for the agenda and the participants lists) with the participation of more than 100 representatives from governmental organizations, private sector and NGOs in order to provide them with insights on the SCP NAP development process and recent experiences around the globe and in Europe, to verify the short listed priority value chains, to share global and European SCP and Circular Economy policy trends, to take stock of the available environmental policies in place, to identify hot-spots within value chains and to gather recommendations for an initial list of policy actions for priority value chains, but more specifically electrical and electronic equipment (EEE) value chains;
5. Utilisation of **an online survey** for the stakeholders that couldn't take part or fully express their opinion during the workshops, collection and analysis of replies of more than 70 representatives from governmental organizations, private sector and NGOs;
6. Finalisation of the **background study** including **flagship and pilot project concepts** for the EEE value chains.

Subsequently, it is planned to present the project concepts to potential donors for funding in partnership with the stakeholders involved in the concept development.

Moreover, the MoEU and the SCP/RAC will continue with the development of the SCP NAP focusing on another high priority value chain such as housing and construction.

This report comprehensively presents the process and the results of the background study. In chapter 2, guiding principles for the selection of the priority value chains are evaluated at the national and international levels. Then the result of the selection procedure is summarized. Chapter 3 defines the global, EU, and national level policies, regarding the selected high priority value chain, which is Electrical and Electronic Equipment (EEE). The hot-spots and the flagship/pilot projects collected through two workshops and an online survey are also delivered in this chapter. Chapter 4 has the same sub-headings with Chapter 3 presenting the rest of the priority value chains. Recommendations on the governance of the action plan including monitoring and evaluation are given in Chapter 5. Finally, Chapter 6 briefly describes the study and its objective as well as the next steps.

2 Priority value chains

2.1 Guiding principles

The first step in the process is to explore which sectors, product value chains and materials constitute policy priorities for achieving sustainable consumption and production patterns and increasing circularity in Turkey.

A set of 10 guiding principles was used to assess the suggested priority value chains and to choose the high priority ones. The principles were firstly based on alignment with the global and European policy priorities and trends (see Table 2). Secondly, the most recent national sustainable development assessments and policy targets were taken into account. Thirdly, administrative capacities and stakeholders' engagement potential were paid attention.

Table 2: Guiding Principles for the selection of the priority value chains.

Level	No	Guiding Principles
Global	1	Will the priorities facilitate the achievement of the SDG12 and other SDGs?
Global	2	Are they in line with the UNEA-4 decisions? Does it include the 'value retention' approach adopted by the UNEA-4 Ministerial Declaration?
Global	3	Is there high number of hot spots within the respective value chain according to the SCP Hotspot Analysis?
Mediterranean	4	Are the priorities in line with the Mediterranean Strategy for Sustainable Development and the Mediterranean Regional Action Plan on SCP?
European	5	Are they in line with the EU Circular Economy Package and the EU Product Policy Framework contributing to the Circular Economy? Are the Eurostat Circular Economy indicators taken into account when selecting the priorities?
National	6	Are the priorities in line with the Green Economy related strategies and roadmaps prepared for Turkey (such as the National Development Plans)?
National	7	Is there potential within each stage of the life-cycle to create opportunities for social and economic development in Turkey considered?
National	8	Is there potential for key materials utilisation for Circular Economy transition within the respective value chains?
National	9	Is the selection done in confirmation with the organisational structure and capacity of the Ministry of Environment and Urban Planning?
National	10	Are the priorities confirmed by key stakeholders? Key stakeholders are the key public and private institutions and organisations that are considered to be essential for the implementation of SCP practices in Turkey.

2.2 Assessment of the suggested priority value chains

In this section, a brief assessment of the food, fisheries, agriculture, housing and construction, consumer good and manufacturing and tourism value chains from both

international and national perspectives is provided. The Table 1 in **ANNEX 1** provides a much more detailed assessment against each of the guiding principles.

2.2.1 Food, fisheries and agriculture

Evaluation of the Guiding Principles at the International Level

At the international level, the Sustainable Development Goals (SDG) target 12.3 refers to halving per capita global food waste within value chains by 2030, while the SDG target 12.5 asks for implementation of reduction, recycling and reuse measures for this purpose.

Similarly, curbing of food loss and waste was high on the agenda of the 4th United Nations Environment Assembly (UNEA-4) and resolutions no 2, no 9 and no 11 calls for pollution prevention and eco-innovative efforts within food value chains.

Moreover, the Hot Spot Analysis for SCP (SCP-HAT) showed a high percentage of raw material consumption footprint for the food sector in Turkey. This indicates much potential for cleaner production and resource efficiency measures and food waste reduction.

At the European level, the European Commission recently announced that due to an approx. 20% food lost or wasted of the total food produced, a target on food waste reduction will be proposed[18]. This action will address comprehensively the food value chain under the forthcoming EU Farm-to-Fork Strategy. As a major exporting sector to the European Union, Turkey is expected to be affected from these developments.

Moreover, the Regional SCP Action Plan, also adopted by Turkey being one of the contracting party to the Barcelona Convention, states food, fisheries and agriculture as one of the main contributors to pollution generation and environmental pressures on the marine and coastal ecosystems, hence a priority area of action.

Evaluation of the Guiding Principles at the National Level

National Climate Change Action Plan, National Waste Management Action Plan, Integrated Environmental Approximation Strategy, 11th Five-Year Development Plan and National Energy Efficiency Action Plan are the main strategies and roadmaps introducing key objectives and actions regarding SCP in food and agriculture sector in Turkey. The common ground of these national policy documents in the context of food and agriculture is to create an efficient and organized sector which is environmentally, socially and economically sustainable.

Agricultural production and accordingly food security are very critical issues recently in Turkey. Raw materials and food products exported are increasing dramatically. Water scarcity and high raw material prices are the main threads in front of these sectors. At

[18] EC (2020). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A New Circular Economy Action Plan. For a cleaner and more competitive Europe. Brussels, 11.3.2020. COM(2020) 98 final. Page 13. Available at https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

this point life cycle approach could bring resource efficient solutions. Spreading country-wide good agricultural practices like land consolidation, machinery sharing, organic fertilizer utilization, drip irrigation would not only help save costs but also lead to new employment opportunities especially in rural regions.

Food waste is one of the critical challenges in front of Turkey through circular economy transition. Economic loss caused by food waste is over 30 billion Euros in Turkey [19]. Approximately 50% of household waste generated is organic/kitchen waste[20] which can be recovered as energy or fertilizers in case it can be separately collected at source. After implementation of reduction practices, methods like composting and digestion would be best solution alternatives for remaining organic wastes. There are also significant food and raw material losses in the agricultural production stage in Turkey. Reasons for the food losses in agricultural production in Turkey can be listed as fragmented fields, lack of modernization of traditional methods, losses caused by fertilization and pesticides, damages during harvesting and improper maturation practices.

Establishing and implementing common SCP policies is directly under the responsibility of IPPC Branch of Air Management Department of General Directorate of Environmental Management of Ministry of Environment and Urbanization while “Zero Waste and Waste Treatment Department” of the same directorate has also related obligations for the food and agriculture sector.

On the other hand, Ministry of Agriculture and Forestry has been implementing various regulations, support programs and projects on sustainable agriculture to promote efficient use of irrigation water, energy and fertilizer, to reduce greenhouse gas emissions, to help maintain the quality and quantity of soil; to improve food quality and productivity and to reduce the need for labour.

World Wildlife Fund (WWF) Turkey, The Turkish Foundation for Combating Soil Erosion (TEMA) and Nature Conservation Center (DKM) are the other capable stakeholders working for promotion of sustainable agricultural practices, projects protecting resources such as soil and water.

A more detailed evaluation of the food, fisheries and agriculture value chain is provided in **Annex 1**.

2.2.2 Housing and construction

Evaluation of the Guiding Principles at the International Level

At the international level, housing and construction sector has relevance for global climate change mitigation efforts as households consume 29 % of global energy and

[19] AA (2018). Türkiye'de yılda 214 milyar lira gıda israf ediliyor. Available at: https://www.aa.com.tr/tr/dunya/turkiyede-yilda-214-milyar-lira-gida-israf-ediliyor/1089679#

[20] MoEU (2016). Ulusal Atık Yönetimi Eylem Planı (2016-2023). Available at: https://webdosya.csb.gov.tr/db/cygm/haberler/ulusal_at-k_yonet-m--eylem_plan--20180328154824.pdf

consequently contribute to 21 percent of resulting CO_2 emissions. Moreover, the SDG target 12.2 calls for achievement of sustainable management and efficient use of natural resources and green buildings can indeed contribute to this goal. However, there are no direct references from the SDGs to this sector.

Strikingly, the Hot Spot Analysis for SCP (SCP-HAT) showed that construction has largest raw material consumption footprint in Turkey, with 61.3%.

At the European level, construction is mentioned as key product value chain in the new Circular Economy Action Plan of the European Commission. Launch of a new comprehensive Strategy for a Sustainable Built Environment is expected to ensure coherence across the relevant policy areas such as climate, energy and resource efficiency, management of construction and demolition waste, accessibility, digitalisation and skills.

The urbanization rate in the Mediterranean coastal areas is expected to grow to 72% by 2025, increasing significantly the pressure in the environment. The extraction of raw material and production of construction material (cement, bricks, etc.) are directly associated with the deterioration of the natural landscape, with atmospheric emissions (dust, NO_x, SO_2, CO_2, etc.), as well as noise and vibrations. Hence, housing and construction is seen as an area with high potential for delivering significant and cost-effective GHG emission reductions and included as one of the priority sectors in the the Regional SCP Action Plan.

Evaluation of the Guiding Principles at the National Level

National Climate Change Action Plan, 11th Five-Year Development Plan, 11th Five-Year Development Plan, National Energy Efficiency Action Plan and National Waste Management Action Plan are the main strategies and roadmaps introducing key objectives and actions regarding SCP in housing and construction sector in Turkey. Regarding housing and construction, these national policy documents principally intersect each other at the aim of increasing energy efficiency of existing building and future constructions and resource efficiency in the associated sectors like cement, iron-steel and etc.

Since the building and construction is an emerging sector in Turkey, integration of life-cycle approach would significantly support the socio-economic development in various aspects. Researches show that the applications that increase energy efficiency in buildings have positive effects on the happiness, quality of life, economical stress, thermal comfort, social interactions and indoor use of the household[21].

On the other hand, it is a well-known fact that the production of the construction materials such as cement, concrete, brick and etc. are energy intense processes.

[21] HEAL (2018). Sağlıklı binalar, Sağlıklı insanlar. Available at: https://www.env-health.org/wp-content/uploads/2018/09/Healthy-Buildings-_TR.pdf

However, there are various clean production practices available leading to economic savings.

Since Turkey is going through huge urban transformation process construction and demolition wastes are generated in massive amounts. Therefore, recycling and recovery of cement, iron and steel at different levels of the value chain would be very critical for the sector. Another important material worth considering is excavation soil generated from constructions especially in mega projects like airports, bridges or highways in metropolitan cities. Excavation soil can be very valuable based on its rich mineral ingredients. If not so, it can serve as filling material in new constructions.

SCP in housing and construction sector is in line with the responsibilities of the MoEU as having directly related units such as “Department of Energy Efficiency and Installation” of “General Directorate of Vocational Services”, “General Directorate of Infrastructure and Urban Transformation Services” and “General Directorate of Construction Works”.

On the other hand, “Department of Energy Efficiency and Environment” of “Ministry of Energy and Natural Resources” has been providing training for certification of persons to be appointed as energy managers in public institutions, industrial enterprises, organized industrial zones, power generation facilities and buildings.

A more detailed evaluation of the housing and construction priority value chain is provided in **Annex 1**.

2.2.3 Consumer goods manufacturing

Evaluation of the Guiding Principles at the International Level

The manufacturing of goods[22] in a context of strong industrial growth is directly linked with the release of polluting substances in the air, soil and water, contributing to the chemical contamination and eutrophication of the rivers, lakes and seas. It involves processes that are resource intensive (water, energy and raw materials) and are highly pollutant.

In this context, manufacturing sector has its own SDG 9. It includes specific targets for increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

At the UNEA-4, resolutions such as nº1 and nº 4 on sustainable business practices and eco-innovative practices implementing eco-design principles were issued to tackle the environmental impacts from fast moving consumer goods.

[22] Consumer goods in this study include main consumption categories such as manufacturing of clothing and footwear, furnishings, household equipment and routine maintenance in the house, recreation and culture, restaurants and hotels, health and communications.

The SCP-HAT indicated that consumer goods and manufacturing (mining, textiles, chemical products, metal products, trade, other manufacturing) amount to 11.4% of the share of raw material consumption footprint.

At the EU level, the new Circular Economy Action Plan will give priority to addressing key consumer goods such as electronics, ICT and textiles but also furniture and other high impact intermediary products such as steel, cement and chemicals. These product groups were identified based on their environmental impact and circularity potential. The Commission will consider establishing sustainability principles for these products.

It is evident that these upcoming EU policy measures will have direct implications for EEE and textile sectors in Turkey. Hence, both sectors should be given high priority.

Evaluation of the Guiding Principles at the National Level

11th Five-Year Development Plan, National Climate Change Action Plan, National Waste Management Action Plan, Integrated Environmental Approximation Strategy and National Energy Efficiency Action Plan are the main strategies and roadmaps introducing key objectives and actions regarding SCP in consumer goods manufacturing in Turkey. These national policy documents mainly aim at decreasing resource utilization, GHG emissions and waste amounts in manufacturing sector via increasing efficiency like alternative fuel utilization, process efficiency, efficiency in electric motors and etc.

There are several regional and national projects completed in Turkey revealing the potential savings of resource efficiency practices like industrial symbiosis, cleaner production, eco-design, eco-labelling, etc. Solid improvements were achieved such as economic gains like effective investments with short pay-back periods, new product type developments, new initiative establishments; social gains like new staff employments, workforce savings, new organizational collaborations; environmental gains like energy, water, natural source, land recovery and GHG savings.

EEE value chain is one of the clearest and known area in terms of circular economy in Turkey. Thanks to life-cycle approach especially in EEE, raw material extraction by mining would be replaced by recycling which lead to increase of public health. This could also reduce material and energy costs boosting the purchasing power and wealth. Packaging production is another important manufacturing industry in Turkey in terms of implementation of SCP. Practices in manufacturing and acquisition stages like reduction in the weight of the packaging materials, eco-designed packaging or biodegradable packaging would set good implementation examples through life cycle approach. With the “Zero Waste By-law” and “Eco-labelling By-law” taking effect in Turkey implementation practices have been accelerated.

Except for the last year, mobile phone sales are increasing each year in Turkey which means that more WEEE is expected to be generated and more materials might go wasted to the landfills. Beside regular raw materials like aluminium, copper and plastics, rare elements are used commonly in electrical and electronic equipment, especially in mobile phones. Therefore, recycling of these materials become more and more

important at the end of their life time. In Turkey, recycling of WEEE should inevitably substitute not only extraction of materials like fossil fuels, aluminium, copper, ferrous and etc. from mines but also import of valuable and expensive materials like yttrium, lanthanum, lithium and etc.

On the other hand, with the help of eco-design practices in manufacturing and packaging stages of any kind of product, consumer acquisition time might be increased in order to prevent unnecessary procurements and accordingly waste amounts.

Establishing and implementing common SCP policies is directly under the responsibility of IPPC Branch of Air Management Department of General Directorate of Environmental Management of Ministry of Environment and Urbanization while "Zero Waste and Waste Treatment Department" of the same directorate has also related obligations for the consumer goods manufacturing sector. Department has relevant branches like Household Waste, Packaging Waste, Special Wastes (WEEE, Waste Batteries and etc.) and Industrial Waste. Moreover, National Eco-labeling System is under the responsibility of "Environmental Competence Services Department" of "General Directorate for EIA, Permitting and Inspection" of MoEU.

"Department of Productivity Practices" of "General Directorate of Industry and Productivity" of "Ministry of Industry and Technology" have been working on implementation of SCP especially in manufacturing sector since the establishment of "National Productivity Center" in 1965. Environment friendly design of energy related products and energy labelling of household EEE are regulated by "General Directorate for Safety and Supervision of Industrial Products" of "Ministry of Industry and Technology".

TÜBİTAK Marmara Research Center Environment and Cleaner Production Institute, Boğaziçi University Sustainable Development and Cleaner Production Center and Business Council for Sustainable Development Turkey (BCSD Turkey) are other key stakeholders working for promotion of SCP practices in different manufacturing sectors.

A more detailed evaluation of the manufacturing priority value chain is provided in **Annex 1**.

2.2.4 Tourism

Evaluation of the Guiding Principles at the International Level

Sustainable tourism is firmly positioned in the 2030 Agenda. Development and implementation of tools to monitor sustainable development impacts for sustainable tourism is the SDG target 12.b.

In Turkey, according to the SCP-HAT analysis, hotels and restaurants constitute to about 1% of the total the share of raw material consumption footprint.

While the new EU Circular Economy Action Plan includes no direct and particular reference to the sector, the European Commission has announced a new Directive on

Single Use Plastic Products to address the problem of marine plastic pollution that has direct links to coastal tourism activities.

In the Mediterranean region, tourism sector is an important economic activity providing 13% of the employment and constitutes a high priority for achieving a shift to sustainable consumption and production practices. Hence, tourism sector is one of the four key economic sectors addressed by the Regional Action Plan.

Evaluation of the Guiding Principles at the National Level

Tourism is rather a cross-sectional sector compared to the other 3 sectors selected within the scope of this study. National SCP related policies developed for food, buildings and/or manufacturing sectors include direct or indirect measures and actions for tourism sector. National Tourism Strategy and Action Plan, National Climate Change Action Plan, National Waste Management Action Plan, 11th Five-Year Development Plan and National Waste Management Action Plan are the strategies and roadmaps directly or indirectly addressing SCP actions regarding tourism sector in Turkey. These national policy documents mainly focus on sustainable tourism practices like resource and waste management in tourism facilities, protection of natural areas and etc.

Considering high tourism potential of Turkey, life-cycle approach can be helpful to decrease the operational costs like energy, water, food and etc. of the sector. Decreased vacation expenses and sustainable approach by the hotels would result in increased number of tourists. The increase in the number of tourists attaching importance to environmental awareness in recent years increases the interest in international certified hotels. It is not sufficient to meet the demand for tourism sector with only standard hotel services. Conscious consumers expect sustainable approach and responsibility at hotels they choose for holiday or business reasons. Recent surveys and interviews show that, foreign visitors in particular are looking for same environmental sensitivity in their country from the facility they stay in Turkey.

Key materials of the tourism sector are obviously fast moving consumer goods. Food waste and packaging waste are the two important concerns encountered in our touristic regions. According to a sample survey conducted in 2018 among the hotels in touristic regions of Turkey, 70% of the daily waste generated from 24 five star hotels are food waste while the remaining 30% is packaging waste composed by glass, paper, plastic, metal respectively[23] .

Establishing and implementing common SCP policies is relevant with the responsibilities of “Zero Waste and Waste Treatment Department” and “Sea and Coastal Management Department” of “General Directorate of Environmental Management”

[23] Kılınç Şahin, S. & Bekar, A. (2018), “Küresel Bir Sorun “Gıda Atıkları”: Otel İşletmelerindeki Boyutları”, Journal of Tourism and Gastronomy Studies, 6(4), p. 1039-1061 Available at: https://jotags.org/2018/vol6_issue4_article53.pdf

On the other hand, Ministry of Culture and Tourism has been implementing a long lasting project (since 2013) with UNDP Turkey on sustainable tourism, namely “Future is in Tourism”. Project aims to strengthen capacity of local tourism actors and NGOs to contribute to the sustainable tourism development through partnerships with public and private institutions. The project will conduct its activities through a grant scheme and training programmes, with a view to develop best practice examples and contribute to knowledge sharing in the area of sustainable tourism implementation (UNDP, 2019).

A more detailed evaluation of the tourism priority value chain is provided in **Annex 1**.

2.3 Selection of the high priority value chains

In the light of the assessment of suggested value chains based on 10 guiding principles given in Section 2.1, firstly, food, fisheries and agriculture, secondly, housing and construction and thirdly, goods manufacturing seem to be high priorities for achieving SCP patterns and increasing circularity in Turkey. The overall picture of the assessment can be seen in figure 5.

Level	Guiding Principles	Food & Agriculture	Buildings & Construction	Consumer Goods & Manufacturing	Tourism
Global	Contribution to achievement of the SDG12 and other SDGs	High	Low	Medium	High
Global	Alignment with the UNEA-4 decisions	High	Medium	High	Medium
Global	In line with the UN Environment SCP Hotspot Analysis	Medium	High	Low	Low
Europe	In accord with the EU Circular Economy Package and the EU Product Policy Framework contributing to Circular Economy	High	High	High	Low
Med.	In line with the Mediterranean Strategy for Sustainable Development and Mediterranean Regional Action Plan on SCP	High	High	High	Medium
National	In line with the Green Economy related strategies and roadmaps prepared for Turkey	High	High	High	Low
National	Potential of the life-cycle to create opportunities for socio-economic development in Turkey	High	Medium	High	Medium
National	Utilisation of key materials for Circular Economy transition in the value chain	High	High	High	Medium
National	Relevant divisions and capacity of the Ministry of Environment and Urbanization	High	High	High	Medium
National	Confirmation by key stakeholders	High	High	High	Medium

Figure 5: Evaluation of Selected Priority Value Chains

Considering global policy priorities, all four chains but mainly food consumption and good manufacturing seem to constitute high priorities for the UN SDGs, UNEA-4 decisions. UNEP SCP Hotspot Analysis tool clearly indicates at construction sector as a priority.

Considering alignment with the European policy priorities, tackling of food waste, shift to circular textile and EEE business practices and mainstreaming of sustainable construction practices are priorities of the new Circular Economy Package, EU Product Policy Framework. On the other hand, no direct reference to tourism value chain is made.

The Mediterranean Strategy for Sustainable Development and the Mediterranean Regional Action Plan on SCP, of which Turkey is a signatory, indicate that all four value chains should be given a high priority.

At the national level, all suggested value chains align well with the recent national sustainable development assessments and policy targets. They are all found to be highly relevant for the implementation of Green Economy related strategies and roadmaps.

Regarding administrative capacities and stakeholders' engagement potential on national SCP related policies, it is identified that Ministry of Environment and Urbanization (MoEU) has relevant divisions and a certain level of capacity for all suggested value chains. There are also other stakeholders than the MoEU like governmental institutions, NGOs, universities and research centres that have engagement potential for mainstreaming SCP practices in the country.

The high priority value chain in focus

Due to limited resources available in this initial stage, based on the previous knowledge and experience of the national service providers and with the prospect of running an effective stakeholder engagement for project concept development, Electrical and Electronic Equipment (EEE) value chains – one of the chains within the consumer goods manufacturing – were selected as the high priority value chain in focus.

Section 3 elaborates on the current status of SCP policies at the global and national levels and presents projects developed in collaboration with public and private stakeholders for the SCP roadmap in EEE value chains.

Box 4: Major facts about Electrical and Electronic Equipment (EEE) value chains.

Global EEE sales are increasing rapidly. The amount of EEE, which was 19.5 million tons in 1990, reached 57.4 million tons in 2010 and exceeded 75 million tons in 2015 (UNU, 2017). In 2016, EEE put on the market reached 10.1 million tons in the EU while 45% of this figure could be collected as WEEE (Eurostat, 2016).

The European Union revised the WEEE Directive in 2012 with very ambitious new targets. With the beginning of new period of the updated Directive, Member States are obliged to ensure that 45% of EEE put on the market are collected. This target was increased to 65% in 2019.

In terms of WEEE collection, situation is even worse in Turkey. For the same year, only 3% of EEE put on the market in Turkey (~763,000 tons) could be collected as WEEE.

There are several key elements in EEE life cycle stages like utilization of raw material, utilization of energy, air and water pollutants, toxic substances, occupational health and safety and etc. For example, the amount of gold contained in annual WEEE generated is around 300 tons. This corresponds to approximately 11% of the gold produced from mines (UNU, 2014). Recovery of critical raw materials (rare earth materials), eco-design measures in manufacturing processes, eco-labels for resource and energy efficiency and proper formal WEEE management are critical issues to be focused in EEE value chains.

3 High Priority Value Chain in Focus: EEE

3.1 State of global and EU policies

The amount of electrical and electronic equipment (EEE) placed on the European market has reached to approx. 12 million tonnes annually i.e. equivalent of 30,000 jumbo jets[24]. There are concerns that EEE products seem to have decreasing lifetimes and that it is becoming increasingly difficult to repair them. Moreover, an increasing number of appliances fail within the first five years of their service life. As these devices are increasingly designed for automated manufacture at lower cost, they are harder to repair at acceptable cost.[25] Therefore, EEE continues to be one of the fastest growing waste streams in the EU, with current annual growth rates of 2%.[26]

Much value is lost when fully or partially functional products are discarded because they are not reparable, the battery cannot be replaced, the software is no longer supported, or materials incorporated in devices are not recovered. In fact, only 35% of waste of electrical and electronic equipment (WEEE) is collected for recycling[27], meaning that much material still ends up in landfill or incineration.

At the EU level, for addressing these environmental aspects, regulatory, economic, communicative and voluntary policy instruments are in place. A mapping of these instruments according to main the life cycle stages of EEE that they are addressing are provided in table 3.

Major **regulatory policy instruments** currently include:

- The directive on Waste from Electrical and Electronic Equipment (WEEE) that sets ambitious targets for the collection and preparation for reuse/recycling of WEEE (see box 5). The Directive incorporates extended producer responsibility requirements so as to incentivise EEE producers to design their products in a way which reduces the amount of material ending up as waste.
- The directive on the Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) that aims to eliminate substances used in EEE products that could be hazardous to human health and the environment, including substances that could hamper recycling.
- The Ecodesign and Energy labelling measures that are in place or being developed for a number of EEE products. Priority product groups are identified by quantitative estimation of the energy saving potential resulting from improvements in the overall energy efficiency for each product group and a qualitative assessment of other environmental impacts.

[24] https://www.dw.com/en/the-eu-declares-war-on-e-waste/a-51108790
[25] https://ec.europa.eu/environment/circular-economy/pdf/sustainable_products_circular_economy.pdf
[26] https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF
[27] http://ewastemonitor.info/

Table 3: Existing and upcoming EU policies enabling circular economy business models within the EEE value chains.

Policy instruments / **Lifecycle stages**	**Extraction of natural resources and sourcing of materials**	**Manufacturing and Packaging**	**Acquisition & use**	**End-of-life**
Regulatory Instruments	-Environmental Impact Assessment (2011/92/EU); Mining Waste Directive (2006/21/EC); Raw Materials Initiative (COM(2008)699);	-Eco-design Directive (2009/125/EC) for energy-related products; -Waste Electrical and Electronic Equipment Directive (WEEE) (2012/19/EU); -Restriction of Hazardous Substances in Electrical and Electronic equipment Directive (RoHS) (2011/65/EU); -Energy labelling Directive (2010/30/EU). - The Commission is expected present a 'Circular Electronics Initiative' mobilising existing and new instruments aiming at longer product lifetimes, and improved collection and treatment of waste.	-Directive on the sale of consumer goods and associated guarantees (1999/44/EC); - Waste Directive (EU) 2018/851), -WEEE Directive (2012/19/EU) targets and provisions on reuse.	-Waste Electrical and Electronic Equipment Directive (WEEE2) (Directive 2012/19/EU, see targets in box below); -Waste Shipment Regulation (EC/1013/2006): Restriction of Hazardous Substances in Electrical and Electronic equipment Directive (RoHS) (2011/65/EU); - Common methodology for the calculation of the quantity of waste electrical and electronic equipment (WEEE) (2017/699); - Implementing Regulation (EU) 2019/290 establishing the format for registration and reporting of producers of EEE to the register.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Economic Instruments	-Funding for R&D and innovation, such as the H2020-funded Biorecover project. PreMa	-Equity support measures such as specialized venture capital funds, green funds and investment guarantee funds.[28] -Industrial symbiosis such as the case of Pécs, Hungary.	-Funding for R&D and innovation, such as the ECORAEE project, to demonstrate viability of re-use process; investment in collection infrastructure, awareness raising campaigns such as "Millor que nou" (Better than new), by the Barcelona City Council, to teach self-reparability of electronics.	-Extended Producer Responsibility (EPR) schemes to be required by Art. 14, 15 and 21 of the Directive (EU) 2018/851).
Communicative Instruments	-Raw materials scoreboard 2018 by the European Innovation Partnership on raw materials.	-Awareness raising campaigns and initiatives such as the EEE Sustainability Action Plan 2025 (ESAP 2025) and the Resource Efficient Business Models in Electricals report by WRAP; -Product environmental footprint (PEF) Guide,	-Scoring System on Reparability by the Joint Research Centre; -Remanufacturing Market Study by the European Remanufacturing Network.	- Best Available Techniques (BAT) Reference Document for Waste Treatment, - Awareness raising campaign such as the "Countering WEEE illegal trade", by the EU-funded research programme FP7.
Voluntary or Procedural Instruments		-Green Public Procurement guidelines (COM (2008); -Ecolabel Regulation (No 66/2010);		-See public-private partnerships in the "good practices" box below.

[28] EU and UNEP (2017), Mainstreaming Eco-innovation in Sustainable Consumption and Production Policies, page 42. URL: http://unep.ecoinnovation.org/wp-content/uploads/2018/03/UNEP_157-Mainstreaming-ecoInnovation_web.pdf

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
		-Voluntary commitments and procedures, such as EU Eco-Management and Audit Scheme (EMAS), a voluntary framework for companies to evaluate, report and improve their environmental performance; the best practice report and the EMAS Sectoral Reference Document on Best Environmental Management Practices (BEMPs) in the EEE manufacturing sector; related IED BREFs and BAT conclusions, such as the BREF on Energy Efficiency.		

Box 5: Electronic waste collection targets set in the WEEE directive.

The Directive 2012/19/EU (WEEE2 Directive) sets a collection target of 4kg/inhabitant per year. The successful implementation of the collection target of the WEEE Directive would mean that in 2020, about 10 million tonnes of WEEE would be separately collected.[29]

Minimum targets applicable by WEEE category from 15 August 2018 are listed in Annex V of the Directive:
(a) for temperature exchange equipment or large equipment (any external dimension more than 50 cm),
— 85 % shall be recovered, and
— 80 % shall be prepared for re-use and recycled;

(b) for screens, monitors, and equipment containing screens having a surface greater than 100 cm^2,
— 80 % shall be recovered, and
— 70 % shall be prepared for re-use and recycled;

(c) for small equipment including IT and telecommunication equipment (no external dimension more than 50 cm),
— 75 % shall be recovered, and
— 55 % shall be prepared for re-use and recycled;

(d) for lamps, 80 % shall be recycled.

The EEE product categories addressed by the EU policies are:

1. Temperature exchange equipment:
Refrigerators, Freezers, Equipment which automatically delivers cold products, Air conditioning equipment, Dehumidifying equipment, Heat pumps, Radiators containing oil and other temperature exchange equipment using fluids other than water for the temperature exchange.

2. Screens, monitors, and equipment containing screens having a surface greater than 100 cm2:
Screens, Televisions, LCD photo frames, Monitors, Laptops, Notebooks.

3. Lamps:
Straight fluorescent lamps, Compact fluorescent lamps, Fluorescent lamps, High intensity discharge lamps – including pressure sodium lamps and metal halide lamps, Low pressure sodium lamps, LED.

4. Large equipment:
Washing machines, Clothes dryers, Dish washing machines, Cookers, Electric stoves, Electric hot plates, Luminaires, Equipment reproducing sound or images, Musical equipment (excluding pipe organs installed in churches), Appliances for knitting and weaving, Large computer-mainframes, Large printing machines, Copying equipment, Large coin slot machines, Large medical devices, Large monitoring and control instruments, Large appliances which automatically deliver products and money, Photovoltaic panels.

5. Small equipment:

[29] EU (2018). WEE Compliance promotion exercise. URL: https://publications.europa.eu/en/publication-detail/-/publication/09c7215a-49c5-11e8-be1d-01aa75ed71a1/language-en)

Vacuum cleaners, Carpet sweepers, Appliances for sewing, Luminaires, Microwaves, Ventilation equipment, Irons, Toasters, Electric knives, Electric kettles, Clocks and Watches, Electric shavers, Scales, Appliances for hair and body care, Calculators, Radio sets, Video cameras, Video recorders, Hi-fi equipment, Musical instruments, Equipment reproducing sound or images, Electrical and electronic toys, Sports equipment, Computers for biking, diving, running, rowing, etc., Smoke detectors, Heating regulators, Thermostats, Small Electrical and electronic tools, Small medical devices, Small Monitoring and control instruments, Small Appliances which automatically deliver products, Small equipment with integrated photovoltaic panels.

6. Small IT and telecommunication equipment (no external dimension more than 50 cm): Mobile phones, GPS, Pocket calculators, Routers, Personal computers, Printers, Telephones

Economic policy instruments involve research, R&D and innovation funds, while the most important is the Extended Producer Responsibility Schemes (EPR). The WEEE directive also modulates financial contributions paid to the EPR schemes by producers for their products based on certain product criteria, including durability, reparability, re-usability, recyclability, or presence of hazardous substances.

Communicative policy instruments mainly include information sharing platforms, awareness raising campaigns and guidelines for waste treatment.

Voluntary policy instruments are majorly public-private partnerships that either facilitate implementation of regulatory instruments or platforms that provide visibility and support to Circular Economy business models and initiatives. Some of these good practices ae listed in box 6.

In the new Circular Economy Action Plan[30], the European Commission announced that a 'Circular Electronics Initiative' mobilising existing and new instruments will be presented. In line with the new sustainable products policy framework, this initiative will promote longer product lifetimes.

Box 6: Good practice voluntary instruments at the European level.

Some examples of good practices when it comes to voluntary instruments with the involvement of the private sector can be found in the European Circular Economy Stakeholder Platform. We find, for example, Circularise, a platform that allows industrial symbiosis without risking competitive advantage, or Social Innovation Repair, that offers repair services for household appliances.

Another example is the Electrical and Electronic Equipment Sustainability Action Plan 2025 (esap 2025), a platform set up by WRAP that is transforming the EEE industry by offering evidence-based guidance and tools. They help businesses to create more durable products and to introduce resource efficient business models.

[30] EC (2020). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A New Circular Economy Action Plan. For a cleaner and more competitive Europe. Brussels, 11.3.2020. COM(2020) 98 final. Available at https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

Finally, another successful industry initiative is the I4R platform provides treatment and recycling facilities and preparation for re-use operators with access to WEEE recycling information in line with the requirements of the WEEE Directive. According to trade association Digital Europe, the platform is welcomed by recyclers as a valuable source of information enabling efficient recycling of EEE, providing significant added value to the industry-supported collection schemes for end of life EEE.

At the global level, the SDGs 3, 8, 11 and 12, in particular targets 3.9. 8.3, 8.8, 11.6, 12.4 and 12.5 relate to the issues associated with e-waste. In 2017, the report "United Nations System-wide Response to Tackling E-waste"[31] identified key findings and recommendations to tackle E-waste in collaboration with the UN entities. In 2018, International Telecommunication Union (ITU) experts prepared and published a "Handbook for the development of a policy framework on ICT/e-waste"[32]. Thereafter, in prospect of the setup of an UN E-waste Coalition and paving the way for greater collaboration in the area of e-waste management, the ITU and six other UN entities signed a Letter of Intent[33]. At the World Economic Forum Annual Meeting in Davos in January 2019, the Platform for Accelerating the Circular Economy (PACE), a public-private collaboration mechanism, in collaboration with the United Nations E-waste Coalition launched the report "A New Circular Vision for Electronics Time for a Global Reboot"[34]. Consequently, at the UNEA-4 in March 2019, a high-level dialogue was organized focusing on the need for a new vision for the electrics and electronics industry, according to the principles of circular economy[35].

Box 7: The case of formalisation of informal e-waste management practices in India.

In India, 95 % of electronic waste from computers, mobile phones or televisions was actually disposed of under conditions harmful to health and environment until recently. To tackle this, Government of India created a strong regulatory framework through the definition of E-waste (Management and Handling) Rules in 2016 and its amendments in 2018.

In the report "Building the Link: Leveraging Formal-Informal Partnerships in the Indian E-Waste Sector (2017)", the GIZ analyses 6 case studies and provides recommendations to successfully formalise actors from the informal waste collection economy in order to increase the amount of e-waste channelled to authorised recyclers. The main one being that additional benefits such as trainings, technical support or social securities should be offered to informal actors in order to offset the price gap between formal and informal transactions.

[31] https://unemg.org/images/emgdocs/ewaste/E-Waste-EMG-FINAL.pdf

[32] The "Handbook for a policy framework on ICT/e-waste" includes a review of existing policy frameworks. Includes examples from Canada (North America), France (Europe), Bhutan (Asia), Colombia (South America) and South Africa (Africa). Available at: https://www.itu.int/en/ITU-D/Climate-Change/Documents/2018/Handbook_Policy_framework_on_ICT_Ewaste.pdf

[33] https://www.itu.int/en/ITU-D/Climate-Change/Pages/ewaste/E-waste-Coalition.aspx

[34] https://pacecircular.org/sites/default/files/2019-03/New%2BVision%2Bfor%2BElectronics-%2BFinal%20%281%29.pdf

[35] https://unemg.org/high-level-dialogue-on-elevating-electrics-and-electronics-to-the-forefront-of-circular-economy-an-integral-and-multi-disciplinary-approach/

"Sanshodhan, an e-waste exchange" it's an Indian start-up that collects e-waste and delivers it to authorized recyclers in line with the E-Waste Management Rules. They also set up a voucher system to incentivize citizens to dispose their e-waste correctly.

3.2 Current policy agenda in Turkey

The existing regulatory, economic, communicative and voluntary policy instruments in Turkey concerning the EEE value chains at each life cycle stage is given in table 4. It was prepared based on not only literature research but also on the inputs collected from representatives of public and private sector by an online survey, and two workshops held in Istanbul and Ankara.

As it could be seen in the table, in Turkey, SCP regulatory instruments for the EEE value chain is stronger compared to economic, communicative and voluntary instruments especially for manufacturing and usage stages. On the other hand, economic instruments are seen mostly for the end-of-life stage. Voluntary and communicative instruments are the areas that need more efforts. When table 3 and table 4 compared, it could be seen that EU has more robust communication and voluntary instruments, that could serve as an example for Turkey.

Turkey mostly aligned its legislation with the related EU directives such as Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS) (2011/65/EU), Energy Labelling Directive (2010/30/EU), Environmental Impact Assessment (2011/92/EU) Mining Waste Directive, Waste Electrical and Electronic Equipment Directive (WEEE2) (2012/19/EU), etc. while some improvements such as up-to-date targets of the new EU WEEE2 Directive have to be carried out.

Table 4: Existing national policies enabling circular economy business models within the value chains of EEE.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Regulatory Instruments	- Mining Law (15.06.1985, 18785) - Mining By-Law (21.09.2017, 30187) - Mining Waste By-law (15.07.2015, 29417) - Environmental Impact Assessment By-law (25.11.2014, 29186) - By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012, 28300)	- By-law on environmentally friendly design of energy-using products (07.10.2010, 27722) - By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012, 28300) - By-Law on Control of Packaging Wastes (27.12.2017, 30283) - By-law on Environmental Permit and Licence (10.09.2014, 29115) - By-law on the restriction of the use of certain hazardous substances in electrical and electronic equipment (30.05.2008, 26891) - By-law on the indication of energy and other source consumption of products by labelling and standard product information (02.12.2011, 28130)	- By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012, 28300) - Law on Consumer Protection (28.11.2013, 6502) - Law on the Protection of Personal Data (24.03.2016, 6698) - Warranty Certificate By-Law (13.06.2014, 29029) - Introduction and Operating Instructions By-Law (13.06.2014, 29029) - By-Law on after-sales services (13.06.2014, 29029) - By-Law on distance contracts (27.11.2014, 29188) - By-law on the indication of energy and other source consumption of products by labelling and standard product information (02.12.2011, 28130)	- By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012, 28300) - Waste Management By-law (02.04.2015, 29314) - By-law on the restriction of the use of certain hazardous substances in electrical and electronic equipment (30.05.2008, 26891)
Economic Instruments	- By-law on Application of Mining Activities (06.11.2010, 27751) - Rare Earth Elements Research Institute (NATEN) Projects (later on)	- EEPLIANT3 Project on Energy Efficiency Compliant Products (2019-2023)	- Market Transformation of Energy Efficient Appliances in Turkey Project (2010-2014) - Awareness raising campaigns and initiatives such as 'Don't Waste, Donate'	- By-law on Recovery Contribution (31.12.2019, 30995) - Extended Producer Responsibility (EPR) schemes required by By-law on WEEE - Funding for R&D and innovation projects by The Scientific and Technological Research Council of Turkey (TÜBİTAK)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Communicative Instruments	- Sustainable Mining Themed Traditional Mining Workshops supported by Ministry of Trade, Ministry of Environment and Urbanization, Ministry of Energy and Natural Resources and Ministry of Agriculture and Forestry		- Training Guideline on E-waste for Students	- Zero Waste By-Law (12.07.2019, 30829) - Municipality Implementation Guideline on By-law on WEEE
Voluntary or Procedural Instruments		- Environmental Labelling By-law (19.10.2018, 30570) - Voluntary Recall Applications - By-law on Market Surveillance and Inspection (02.10.2012, 28429)	- Environmental Labelling By-law (19.10.2018, 30570)	- Informatics Industry Association (TÜBİSAD) Compliance Scheme WEEE Tracking System

3.3 Hot-spots in EEE value chains

In order to inform the development of flagship and pilot projects, hot spots that are priority environmental and social aspects along the life cycle of EEE were discussed with the stakeholders at the workshops and compiled through the online survey. Table 5 presents the key aspects identified by dividing in three levels of importance as primary, secondary and tertiary. The highlighted results are as follows:

- **Raw material utilization in natural resource extraction stage** is of critical importance due to Turkey's external dependence in rare earth materials used in EEE production.
- **Water and energy utilization especially in acquisition and use stage** is highlighted as one of the primary elements since carbon footprint of EEE value chain is mostly arisen from acquisition and use stage (90-95%).
- **Solid wastes and toxic substances resulted in end-of-life management stage** are also considered as significant. Proper disposal or recovery of these materials, which is reported as not satisfactory in Turkey for the time being, is vital in terms of environment and public health.
- **Air pollutants/emissions being released nearly in all life cycle stages of EEE** are also considerable. Improper handling of EEE during its lifecycle would result in ozone depleting substances, greenhouse gas emissions, dioxins and furans.

Table 5: Hot-spots - priority environmental and social aspects along the life cycle of EEE – compiled during the workshops and through the online survey.

	Natural Resource Extraction	Manufacturing and Packaging	Acquisition and Use	End-of-life Management
Raw Material Utilization	Primary	Tertiary		Tertiary
Water Utilization	Tertiary	Tertiary	Primary	Tertiary
Energy Utilization	Tertiary	Primary	Primary	Tertiary
Air Pollutants	Tertiary	Secondary	Secondary	Secondary
Water Pollutants	Tertiary	Tertiary	Tertiary	Tertiary
Solid Wastes	Tertiary	Tertiary	Secondary	Primary
Biodiversity				Tertiary
Toxic Substances	Tertiary	Tertiary	Tertiary	Primary
Worker Health	Tertiary	Tertiary		Tertiary
Fair Wages	Tertiary	Tertiary	Tertiary	

3.4 Projects suggested for the Roadmap

Project ideas provided below were compiled in the first consultation workshop, where mainly governmental officers participated. These project ideas were verified and elaborated in the second consultation workshop by related private sector representatives. Projects are classified in two groups as Flagship Projects and Pilot

Projects. **Flagship Projects** are the ones mainly led by related governmental institutions while **Pilot Projects** could be implemented in a more multi-stakeholder environment ensuring strong private sector participation.

3.4.1 Flagship Projects

Flagship Projects aim to strengthen the capacity of related governmental institutions mainly on compliance with the EU legislation related to the SCP implementation in the EEE value chain. Half of the projects developed by the stakeholders tackle end-of-life stage environmental aspects of the EEE life cycle, in other words tackling WEEE. Other two projects address extraction of raw material and manufacturing stages of EEE. These flagship projects, if implemented, can fundamentally increase resource efficiency within EEE value chains, spread eco-design practices and help maintain the value of raw materials longer in the Turkish economy. Having said that there is still opportunity to explore policy instruments that can encourage circular business models enabling product life-extension and shift of ownership to the producers from consumers.

FP1: Establishment of a national inventory of rare earth elements and sharing of technology to obtain these materials from WEEE
LCA Stage: Extraction of natural resources
Rationale: Turkey has to export valuable WEEE parts like circuit boards to be disposed since required technologies to recover rare earth elements from WEEE are not available in the country.
Objective: To decrease Turkey's dependence on foreign rare earth element resources and increase resource efficiency in EEE sector
Outputs:

1.National inventory of rare earth elements established and disseminated
2.Technology on recovery of rare earth elements from WEEE transferred
3.A pilot study on recovery of rare earth elements from WEEE carried out
Coordinator: Rare Earth Elements Research Institute (NATEN)
Implementing Body: Universities, NGOs, Sectoral Associations
Potential Donor(s): UN, EU, TÜBİTAK
Target Group(s): Ministry of Environment and Urbanization (MoEU), Ministry of Energy and Natural Resources (MoENR), Mineral Research and Exploration (MTA), Recycling Facilities
Duration: 1-2 years

Estimated Budget: €1.0-1.5 million

FP2: Compliance with the new EU EEE eco-design regulations
LCA Stage: Manufacturing and Packaging

Rationale: Current EEE in the market are not designed to last longer or be repaired easily by consumers that lead them to turn into WEEE in a short period of time.
Objective: To establish a background for new legislation enforcing production of more durable and easier to repair EEE.

Outputs:

1.Baseline analysis for different brands, product groups and repair services
2.Regulatory impact analysis of related legislation on different product types carried out
3.Benchmarking and best practices documents for different product types prepared
4.Awareness raised on “right to repair” initiative
Coordinator: Ministry of Industry and Technology (MoIT)
Implementing Body: Universities, NGOs, Sectoral Associations
Potential Donor(s): EU
Target Group(s): Ministry of Environment and Urbanization (MoEU), Producers, Producer Associations, Treatment and Recycling Facilities

FP3: Capacity building for the transposition and implementation of the EU WEEE II Directive
LCA Stage: End-of-life
Rationale: Insufficient WEEE collection in Turkey
Objective: To increase collection and recycling rates of WEEE
Outputs:
1.Baseline and gap analysis reports to set a baseline for revising the current by-law
2.Consumer knowledge increased on WEEE via awareness raising
3.Collection infrastructure improved and widely-distributed
4.Minimum technical specifications of recycling facilities improved
5.Technology of current licenced recycling facilities improved (grant program)
Coordinator: Ministry of Environment and Urbanization (MoEU)
Implementing Body: Universities, NGOs, Sectoral Associations
Potential Donor(s): UN, EU, AFD, TÜBİTAK
Target Group(s): Consumers, Recycling Facilities, Municipalities, MoEU, Producers
Duration: 1-2 years
Estimated Budget: €1.0-1.5 million (~€1.0 million for grant program)

FP4: Registration of informal WEEE sector
LCA Stage: End-of-life
Rationale: Existence of unregistered EEE producers and recycling facilities
Objective: To integrate unregistered EEE producers and accordingly WEEE amounts into the system
Outputs:
1. Unregistered EEE producers decreased
2. Unlicensed facilities improved and registered
3. Number of street collectors decreased
Coordinator: Ministry of Environment and Urbanization (MoEU), Ministry of Trade (MoT), Ministry of Industry and Technology (MoIT)
Implementing Body: MoEU, Recycling Associations, Compliance Schemes
Potential Donor(s): UN, EU, AFD, TÜBİTAK

Target Group(s): Ministry of Environment and Urbanization (MoEU), Ministry of Treasure and Finance (MoTF), Recycling Facilities, Unlicensed Facilities (Scrap Dealers)
Duration: 1 year
Estimated Budget: €1.0-1.5 million

3.4.2 Pilot Projects

Pilot Projects aim to strengthen the capacity of mainly businesses on circular economy practices in the EEE value chain. Three of eight projects generated by the stakeholders tackle manufacturing stage of EEE life cycle. Four projects address acquisition and using aspect of EEE by the citizens. Last project was designed to solve the obstacles in the end-of-life stage. At the end of these projects, new manufacturing processes, economic instruments, criteria/standards and business models would be established for the EEE value chain and these developments could result in positive impacts on businesses, fiscal revenues, environment and citizens.

PP1: Eco-designed product development
LCA Stage: Manufacturing and Packaging
Rationale:
Objective: To manufacture a selected EEE product through more environmental friendly process, technology and material based on an LCA
Outputs:
1. Eco-design criteria set based on life cycle assessment
2. Pilot facility established
3. R&D practices realized

Coordinator: Ministry of Environment and Urbanization (MoEU)
Implementing Body: TÜBİTAK
Potential Donor(s):
Target Group(s):
Duration: >3 years
Estimated Budget: €5 million

PP2: Developing economic tools for SMEs (incentives, tax breaks etc.)
LCA Stage: Manufacturing and Packaging
Rationale: a) The necessity of SME's taking active part in the production of efficient, sustainable and high-quality semi-products for the WEEE recycling sector
b) Almost all of the WEEE recycling companies are at the level of SMEs. They should be supported by the government
Objective: Integration of SMEs into the circular economy model
Outputs: Incentive model and tools developed for WEEE SMEs
Coordinator: Ministry of Industry and Technology (MoIT)
Implementing Body: KOSGEB, Development Agencies
Potential Donor(s): EBRD, IPA
Target Group(s): WEEE SMEs
Duration: 6 months
Estimated Budget: €150,000

PP3: Incentives for university and manufacturing industry cooperation
LCA Stage: Manufacturing and Packaging
Rationale: The necessity of increasing the standards of WEEE recycling facilities to semi-product acceptance criteria
Objective: To increase the usage of secondary raw materials in the production of EEE
Outputs: WEEE Recycling Facilities at the desired standards established
Coordinator: University
Implementing Body: TGV, SMEs
Potential Donor(s): H2020, Horizon Europe
Target Group(s): WEEE Recycling Facilities
Duration: 36 months
Estimated Budget: €3.5 million

PP4: Examination of EEE by raw material types utilization and life cycle analysis
LCA Stage: Acquisition & Use
Rationale:
Objective: To reveal the environmental impacts of lifetime of EEE and determining the priority elements
Outputs:
1. Eco-design criteria determined
2. Product group determined for LCA
3. The results of LCA assessed

Coordinator: Ministry of Environment and Urbanisation (MoEU), Ministry of Industry and Technology (MoIT), Ministry of Energy and Natural Resources (MoENR), Sectoral NGOs, Recycling facilities
Implementing Body: Sector, Ministry of Environment and Urbanisation (MoEU)
Potential Donor(s): TÜBİTAK, UNEP
Target Group(s):
Duration: 2 years
Estimated Budget: ₺ 1.5 million

PP5: Establishment of national environmental label criteria and awareness for EEE
LCA Stage: Acquisition & Use
Rationale: To help consumers to know about the sustainable and environment-friendly products
Objective: To increase the number of sustainable and environment-friendly products in production and consumption. To ensure that the consumers prefer environment-friendly alternatives
Outputs:
1. Public awareness increased,
2. Carbon footprint lowered,
3. Efficient utilization of environment-friendly resources
4. Legal infrastructure developed,
5. Standards defined,
6. Incentive and audit mechanism developed

Coordinator: Ministry of Environment and Urbanisation (MoEU),
Implementing Body: Ministry of Industry and Technology (MoIT) (Production), Ministry of Trade (MoT), Turkish Standard Institute (TSI)
Potential Donor(s): a) EU, EBRD, TSKB, AFD for coordination; b) Ministry of Labour and Social Security (MoLSS) (SGK discount), Development Agencies, Ministry of Energy and

Natural Resources (MoENR), Ministry of Environment and Urbanisation (MoEU) (discount in environmental tax), Ministry of Trade (MoT) (discounts in taxes), KOSGEB
Target Group(s): EEE Producers and Importers, subsidiary industry
Duration: 3 years
Estimated Budget: € 1 million

PP6: Establishing domestic and green procurement criteria for EEE
LCA Stage: Acquisition & Use
Rationale: Increasing demand for environment-friendly products
Objective: To transform existing public and private procurement standards into more sustainable ones
Outputs:
1. Green procurement criteria determined
2. Regulation and scoring system established
3. Part of public procurement realized via green procurement

Coordinator: MoEU, MoTF, Public Procurement Authority (KİK)
Implementing Body: Public Procurement Authority (KİK)
Potential Donor(s): EU
Target Group(s): Governmental Institutions, Producers and Importers
Duration: 2 years
Estimated Budget: €300.000

PP7: Development of repair ateliers/cafes for reuse
LCA Stage: End-of-life
Rationale: Rapid WEEE generation
Objective: To promote reuse instead of recycling via adding value to old/broken EEE and to reduce demand for new EEE and accordingly raw material
Outputs:
1. Repairable (or worth to be repaired) product groups identified based on product type, energy efficiency class, age etc.)
2. Aging figures by product type established
3. Statistics on geographical sales, waste amounts and recycling by product types
4. Cost-benefit analysis and identification of feasible locations for repair ateliers
5. Web-based portal established
6. Trainers for repairing and awareness raising
7. Logistical services for delivering repaired products

Coordinator: MoEU, MoIT, MoT, Local Authorities
Implementing Body: Local Authorities, NGOs
Potential Donor(s): Global Producers, Producer Associations, Government, Local Authorities
Target Group(s): Citizens (Consumers)
Duration: 12-18 months / 18-30 months (w/ pilot applications)
Estimated Budget: ₺3 million / ₺6 million (w/ pilot applications)

4 Other High Priority Value Chains

This main focus of the SCP NAP background study is the EEE value chain, while a brief review of other priority value chains was also done in order to prepare the ground for the coming stages. The review of each value chain included the current policy agenda at the EU level and in Turkey as well as stakeholder views concerning hot-spots and potential projects. in a practical format. The information was collated through desk-based review, stakeholder workshops and the online-survey. This section presents it in a practical format.

4.1 Food, fisheries and agriculture

4.1.1 State of global and EU policies

The food sector is the EU's biggest sector in terms of employment and contribution to GDP, with over 17 million businesses involved in producing, processing, transporting and selling food. The 'food system' uses many natural resources, such as land, water, nutrients and energy for food production. Subsequent processing, packaging, transportation and refrigeration use further energy, cause emissions and use materials. Food and drink production is linked with many environmental effects, including biodiversity loss, water and air pollution, and greenhouse gas emissions.

A mapping of European regulatory, economic, communicative and voluntary policy instruments to tackle main environmental aspects within food value chains are provided in table 6.

The main policy dealing with agriculture and food security in Europe is the common agricultural policy (CAP). One of its objectives is to help tackle climate change and the sustainable management of natural resources, however many experts in the field argue that this policy needs to be revised, as it is falling short on this area. The main claims in this sense are that this policy is not aligned with policies dealing with processing, distribution and consumption of food, and there is no cohesive policy to guide the transition to a sustainable food system. It favours large holdings instead of small agro-ecological farms and it doesn't take externalities into account. (More information on the box 8 Expert Policy Recommendations for Sustainable Food value chains below.)

Regarding food packaging, the EU has issued directives and guidelines to phase out the use of single-use plastics. Each member state will have to set recycling targets in the coming years and report the progress achieved to the Commission (see box 9).

While the food value chain is responsible for significant resource and environmental pressures, an estimated 20% of the total food produced is lost or wasted in the EU. Food waste has been identified as one of the priority issues in the Circular Economy strategy, so the EU is using a variety of tools to tackle it.

Box 8: Expert policy recommendations for sustainable food value chains.

Several experts argue that the current CAP is not effective when it comes to food sustainability and that a policy reform is required. Some examples of reports and policy papers presenting recommendations are:

• IPES FOOD (2019). "Towards a common Food Policy for the European Union". URL: http://www.ipes-food.org/_img/upload/files/CFP_FullReport.pdf
This report describes the reasons why a change in the current food system is needed and lays down the new objectives of the future system.

• University of Pisa (2018). "A transition towards sustainable food systems in Europe. Food policy blue print scoping study". URL: https://www.ifoam-eu.org/sites/default/files/food_policy_report_clean19-5-18.pdf
This study assesses EU food policies and provides a policy toolbox for an effective policy mix on sustainable food systems.

• IPCC (2019) report: "Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems". URL: https://www.ipcc.ch/report/srccl/
This report stresses how better land management and reducing GHG emissions in the food sector can contribute to tackling climate change.

• IEEP (2019) report: "Net-zero agriculture in 2050: How to get there?". URL: http://www.arc2020.eu/wp-content/uploads/2019/03/IEEP_NZ2050_Agriculture_report_screen.pdf
This report provides different scenarios for climate change mitigation depending on the approach chosen in agriculture (focus rather on efficiency or land use, etc.)

Box 9: Food waste and packaging recycling targets

• Directive (EU) 2018/851 on Waste sets a food waste reduction target of 30 % by 2025 and 50 % by 2030 for all EU member states.

• Directive (UE) 2018/852 on Packaging waste establishes the following recycling targets for packaging:

	- Until end of 2025:	- Until end of 2030:
Plastic:	50%	55%
Glass:	70%	75%
Paper and cardboard:	65%	70%

• Directive (EU) 2019/904 on Single Use Plastics establishes that:

- From 2025 on :	- From 2030 on:
PET bottles will contain at least 25% recycled plastic	All bottles will contain at least 30% recycled plastic
77% of single-use plastic bottles must be collected	90% of single-use plastic bottles must be collected

4.1.2 Current policy agenda in Turkey

A mapping of regulatory, economic, communicative and voluntary policy instruments that are implemented in Turkey are provided in table 7.

Table 6: Existing and upcoming EU policies enabling circular economy business models within the food, fisheries and agriculture.

Policy instruments / **Lifecycle stages**	**Extraction of natural resources and sourcing of materials**	**Manufacturing and Packaging**	**Acquisition & use**	**End-of-life**
Regulatory Instruments	- The common agricultural policy (CAP) - Legislative proposal for the CAP beyond 2020, with a greater focus on environmental aspects (see box 4 below for policy recommendations). - The common fisheries policy (CFP), which has proven to improve stocks.	- Directive (EU) 2019/904 (or SUP directive) on the reduction of the impact of certain plastic products on the environment. - Directive (UE) 2018/852 amending Directive 94/62/EC on packaging and packaging waste (see box 5 below for targets).		- Directive (EU) 2018/851 amending Directive 2008/98/EC on waste, includes a "food waste hierarchy" and measures to tackle food waste at each step of the food supply chain (see box 5 below for targets). - Decision on a common methodology and minimum quality requirements for the uniform measurement of levels of food waste (not yet into force).
Economic Instruments	- Funding for R&D and innovation on Food security and sustainable agriculture is one of the priorities for the Horizon 2020 work programme.			
Communicative Instruments	- The EU Green Public Procurement guidelines on Food and Catering services include measures to source from organic farming and integrated production.	- The EU Green Public Procurement guidelines on Food and Catering services include measures to avoid single-use plastics. Recommended criteria can be found at the GPP Product Sheet.	- The EU is considering measures to improve understanding of expiration date marking.	- EU guidelines on food donation and Examples of practices (May 2019) adopted by member states. - Awareness raising campaigns and initiatives (see best case box below)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Voluntary or Procedural Instruments	- EMAS Sectoral Reference Document on Best Environmental Management Practice in the Agriculture sector (2018) - The Greening the Blue Economy report, by the Union for the Mediterranean, compiles a collection of case studies regarding fisheries.	- JRC report on Best Environmental Management Practice in the Food and Beverage Manufacturing Sector (2018) - Sectoral Reference Document on Best Environmental Management Practice in the Food and Beverage Manufacturing Sector (2017) - The brochure A time to act (2015) collects actions taken by the food and drink industry to reduce GHG emissions and improve efficiency.	- The EU Ecolabel is a voluntary scheme that evaluates the life cycle of the product, allowing consumers to easily identify environmentally friendly and good quality products.	- A number of countries are putting in place voluntary commitments to fight food waste. The Horizon 2020 project REFRESH has established a 5-step model to deliver a successful food waste voluntary agreement.

Table 7: Existing national policies enabling circular economy business models within the Food, Fisheries & Agriculture value chain.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Regulatory Instruments	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - 2 Official Control By-Laws - 2 Hygiene Control By-Laws - Turkish Food Codex (TGK) By-Laws - Turkish Food Codex (TGK) Communiqués - Surface Water Quality By-Law (30.11.2012, 28483) - By-Law on the Quality and Treatment of Drinking Water Resources (06.07.2019, 30823) - By-Law on Protection of Drinking-Potable Water Basins (28.10.2017, 30224) - By-Law on Control of Water Use in Irrigation Systems and Reduction of Water Losses (16.02.2017, 29981) - By-Law on Control of Water Losses in Drinking Water Supply and Distribution Systems (08.05.2014, 28994)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - 2 Official Control By-Laws - 2 Hygiene Control By-Laws - Turkish Food Codex (TGK) By-Laws - Turkish Food Codex (TGK) Communiqués - Surface Water Quality By-Law (30.11.2012, 28483) - By-Law on the Quality and Treatment of Drinking Water Resources (06.07.2019, 30823) - By-Law on Protection of Drinking-Potable Water Basins (28.10.2017, 30224) - By-Law on Control of Water Use in Irrigation Systems and	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - 2 Official Control By-Laws - 2 Hygiene Control By-Laws - Turkish Food Codex (TGK) By-Laws - Turkish Food Codex (TGK) Communiqués - Zero Waste By-Law (12.07.2019, 30829) - Agricultural Products Licensed Warehouse Law (17.02.2005, 25730) - Environmental Label By-Law (19.10.2018, 30570)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Zero Waste By-Law (12.07.2019, 30829) - Communiqué on Code of Good Agricultural Practices to Prevent Nitrate Pollution in Waters caused by Agricultural Activities (11.02.2017, 29976) - By-Law on the Monitoring of Greenhouse Gas Emissions (17.05.2014, 29003) - By-Law on the Protection of Water Against Agricultural Nitrate Pollution (23.07.2016, 29779) - Packaging Waste Control By-Law (27.12.2017, 30283) - Waste Management By-Law (02.04.2015, 29314)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
	- PEFC Turkey Label Standard - Law on Breeding of Olives and Inoculation of Wilds (07.02.1939, 4126) - By-Law on Breeding of Olives and Inoculation of Wilds (03.04.1996, 22600) - Fresh Vegetable Fruit Cold Chain Law - Soil Conservation and Land Use Law (19.07.2005, 25880) - Agricultural Reform Law on Land Arrangement in Irrigation Areas (01.12.1984, 18592)	Reduction of Water Losses (16.02.2017, 29981) - By-Law on Control of Water Losses in Drinking Water Supply and Distribution Systems (08.05.2014, 28994) - Turkey Label PEFC standard - Law on Breeding of Olives and Inoculation of Wilds (07.02.1939, 4126) - By-Law on Breeding of Olives and Inoculation of Wilds (03.04.1996, 22600) - By-Law on Registration and Approval Procedures of Food Premises (17.12.2011, 28145) - By-Law on the Registration Procedures and Best Practices for Production of Food Contact Materials (03.08.2012, 28373)- IPPC Communiqué in the Textile Industry (14.12.2011, 28142)		
Economic Instruments	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects - Organic Agriculture Law (03.12.2004, 25659)	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects - Organic Agriculture Law (03.12.2004, 25659)	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects - Organic Agriculture Law (03.12.2004, 25659)	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects - Organic Agriculture Law (03.12.2004, 25659)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
	- By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Administrative sanctions defined in Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - Tree cutting penalties/Illegal building penalties in Law on Breeding of Olives and Inoculation of Wilds (07.02.1939, 4126) and By-Law on Breeding of Olives and Inoculation of Wilds (03.04.1996, 22600)	- By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Administrative sanctions defined in Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - Financial supports to clean production/industrial symbiosis in line with the priorities of Development Agencies (in the past)	- By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Packaging Waste Control By-Law (27.12.2017, 30283)	- By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Packaging Waste Control By-Law (27.12.2017, 30283)
Communicative Instruments	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Packaging Waste Control By-Law (27.12.2017, 30283) - Ministry of Industry and Technology Clean Production Information Platform	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Packaging Waste Control By-Law (27.12.2017, 30283) - Ministry of Industry and Technology Clean Production Information Platform	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Technical Assistance for Water Ambassadors Education and Awareness Raising Project (Public Spot) - Packaging Waste Control By-Law (27.12.2017, 30283)	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Packaging Waste Control By-Law (27.12.2017, 30283) - Zero Waste By-Law (12.07.2019, 30829)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
			- Packaging Waste Information System	
Voluntary or Procedural Instruments	- EMAS Label - Field Days	- EMAS Label - Field Days - Sectoral Associations	- EMAS Label - Field Days - Zero Waste By-Law (12.07.2019, 30829) - PEFC logo utilization	- EMAS Label - Field Days - Zero Waste By-Law (12.07.2019, 30829) - Virtual water and water footprint studies

4.1.3 Hot-spots and projects suggested

The public and private stakeholders indicated during the workshops and through the online survey that the food value chain hot-spots (i.e. the environmental aspects that have the highest priority to tackle) are

- Raw material, water, energy utilisation and emissions to air at the resource extraction phase,
- Energy and raw material utilisation and emissions to water during manufacturing,
- Water use during consumption, and
- Food waste at the end-of-life phase (see figure 6).

It has to be noted that the stakeholder composition wasn't representative for the whole food, fisheries and agriculture chain. A more comprehensive consultation has to be carried out in the next phase.

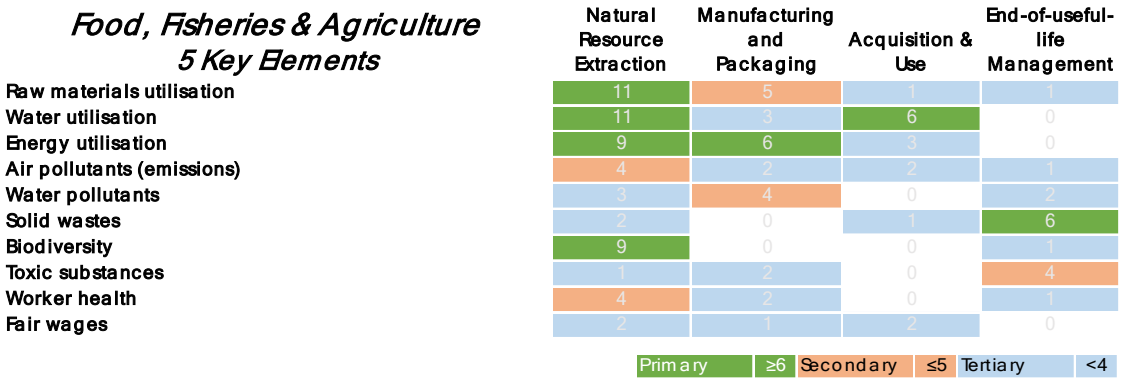

Figure 6: Hot-spots within food value chains.

The suggested projects address all indicated hot-spots and are mainly concentrated on the upstream activities (see table 8) that can be attributed to the participants' profiles.

Table 8: Suggested projects enabling circular economy business models within the food, fisheries & agriculture value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Conservation and Sustainable Use of Pastures Project	- Ministry of Agriculture and Forestry	Extraction of Natural Resources	> €1,000,000	> 3 years
2	Project for Prevention and Management of Food Wastes	- Ministry of Agriculture and Forestry - Ministry of Environment and Urbanization - Municipalities - Restaurants/ Hotels/ Shopping Malls - Citizens	Extraction of Natural Resources End-of-life	€100,000 - €1,000,000	1-3 years
3	Determination of Type and Potential of Agricultural	- Ministry of Agriculture and Forestry - TAGEM	End-of-life	< €100,000	< 1 year

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
	Waste to be Used in Energy Supply in Turkey	- TÜBİTAK MAM Institute of Energy			
4	Project for Collection and Disposal of Packaging of Plant Protection Products Used in Agricultural Production	- Ministry of Agriculture and Forestry - Ministry of Environment and Urbanization - NGOs (Plant protection products producers and exporters) - Plant protection products dealers - Agricultural Chambers - Agricultural Credit Cooperatives - Producers	End-of-life	> €1,000,000	> 3 years
5	Project on Promotion of Smart Agriculture	- Ministry of Agriculture and Forestry - Farmers - BGOs	Acquisition & Use	€100,000 - €1,000,000	> 3 years
6	Project on Incorporation of all Raw Vegetables and Fruits into Cold Chain	- Ministry of Agriculture and Forestry - Ministry of Trade	Manufacturing and Packaging Acquisition & Use	> €1,000,000	> 3 years
7	The Project for Determining the Most Impactful Sector within the Food Industry and the Size of Improvement Capacity	- Ministry of Agriculture and Forestry - Ministry of Environment and Urbanization	Manufacturing and Packaging	€100,000 - €1,000,000	
8	The Project for Assessment of Agricultural Sectors and Preparation of National Action Plan in Transition to Green Economy	- Ministry of Agriculture and Forestry - NGOs - Universities - Agricultural Chambers	Extraction of Natural Resources	€100,000 - €1,000,000	
9	Awareness Raising Project for Producers and Consumers in Agricultural Pollution	- Ministry of Agriculture and Forestry - NGOs - Universities - Agricultural Chambers	End-of-life	> €1,000,000	
10	Project for Sustainable Use of Biomass to Assist the Development of Turkey's Economy Towards Green Growth (on-going)	- TAGEM - UNIDO	End-of-life		

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
11	Project for Establishment of Turkey Office of PEFC	- Ministry of Agriculture and Forestry - PEFC Central Office - TSE Standard Preparation Center		€100,000 - €1,000,000	
12	Project on Capacity Building on Efficient Livestock Breeding in the Eastern Anatolia Region (DAP)	- Universities - Agricultural Chambers - NGOs - Municipalities - Provincial Directorates of Agriculture and Forestry			< 1 year
13	Zero Waste Management System for Food Processing Industry	- Ministry of Agriculture and Forestry - Catering/Hotels			
14	Project on improving the life quality and number of farmers to ensure the continuity of production by implementing new developments				> 3 years
15	Project on EU Common Agricultural Policies				
16	Project for New Variety Development (cereals, forage crops)				
17	Project on Good Agricultural Practices				
18	Project on Organic Production				

4.2 Housing and construction

4.2.1 State of global and EU policies

The construction sector has large potential for circular economy given the scale of material use, value contained in buildings, labour intensiveness and long-term effect of measures. Overall the construction sector provides 18 million direct jobs and contributes to about 9% of the EU's GDP. Buildings are responsible for approximately 40% of energy consumption and 36% of CO_2 emissions in the EU, making them the single largest energy consumer in Europe. It is estimated that greater material efficiency could save 80% of those emissions[36]. Buildings also account for approximately one third

[36] Hertwich, E., Lifset, R., Pauliuk, S., Heeren, N., IRP, (2020), Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future.

of water consumption. Construction and demolition waste (CDW) accounts for approximately 35% of all waste generated in the EU with very significant life cycle impacts, particularly associated with extraction and processing stages. The level of recycling and material recovery of CDW varies greatly (between less than 10% and over 90%) between EU Member States.[37]

A mapping of European regulatory, economic, communicative and voluntary policy instruments to tackle main environmental aspects within housing and construction value chains are provided in table 9.

To boost energy performance of buildings the EU has established a legislative framework that includes the Energy Performance of Buildings Directive (EPBD) (2010/31/EU) and the Energy efficiency directive (2012/27/EU). Both directives were amended in 2019 as part of the Clean energy for all Europeans package. EU countries have 1-2 years to transpose the new directives into national law.

The EPBD requires new public buildings to be a Nearly Zero-Energy Building (NZEB) as of January 2019, every new building across the EU to be a NZEB by the end of 2020, and to achieve decarbonisation of the building stock by 2050. Turkey has committed to a less ambitious short-term target by joining the Zero Carbon Buildings for All. This multi-partner global initiative entails national and local policies to make new buildings 100% zero carbon by 2030 and existing buildings by 2050.

Research and innovation programmes such as H2020 are supporting projects focusing in 3 areas: accelerating deep renovations, improving cost-effectiveness of NZEBs and developing smart building technologies.

As part of the new Circular Economy Action Plan, the EC announced that a new comprehensive Strategy for a Sustainable Built Environment will be launched to exploit the potential for increasing material efficiency and reducing climate impacts. This Strategy will ensure coherence across the relevant policy areas such as climate, energy and resource efficiency, management of construction and demolition waste, accessibility, digitalisation and skills. It will promote circularity principles throughout the lifecycle of buildings.[38]

Box 10: Sustainable buildings targets

- The Energy Performance of Buildings Directive (EPBD) (2018/844) requires new public buildings to be to be a Nearly Zero-Energy Building (NZEB) as of January 2019, and every new building across the EU by the end of 2020. It also states that "Each Member State shall establish a long-term renovation strategy, a roadmap with measures and domestically established measurable progress indicators, with a view to the long-term 2050 goal of reducing greenhouse gas emissions in the Union by 80-95 % compared to 1990".

[37] https://ec.europa.eu/environment/circular-economy/pdf/sustainable_products_circular_economy.pdf
[38] https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

- The revised Energy efficiency directive (2018/2002) states that “Member States should set their national indicative energy efficiency contributions taking into account that the Union's 2030 energy consumption has to be no more than 1 273 Mtoe of primary energy and/or no more than 956 Mtoe of final energy.”

- Regarding demolition waste, there aren’t specific targets yet. Directive (EU) 2018/851 on Waste states that “Member States shall take measures to promote selective demolition in order to enable removal and safe handling of hazardous substances and facilitate re-use and high-quality recycling by selective removal of materials, and to ensure the establishment of sorting systems for construction and demolition waste at least for wood, mineral fractions (concrete, bricks, tiles and ceramics, stones), metal, glass, plastic and plaster”. (...) “By 31 December 2024, the Commission shall consider the setting of preparing for re-use and recycling targets for construction and demolition waste and its material-specific fractions”.

Box 11: Sustainable buildings good practices

• The H2020 Energy Efficiency research and innovation programme has supported 24 building-related projects focusing in 3 areas: accelerating deep renovations, improving cost-effectiveness of NZEBs and developing smart building technologies. One example is the InDeWag project, which has developed Water Flow Glazing (WFG) technology consisting of glazings with circulating water inside a transparent façade. This system captures the solar radiation and utilizes it for different purposes such as heating, cooling and domestic hot water. Similar good practice reports are available here.

• In terms of GPP good practices, some examples are the carbon negative student facilities as part of a campus redevelopment in Nottingham (England), the Urban regeneration of the Vila d’Este neighbourhood (Portugal) and the low carbon, circular economy approach to concrete procurement adopted by Zurich (Switzerland). More good practice cases can be found here.

• One-stop-shops (OSS) are easily accessible tools for overcoming market fragmentation on both demand and supply side. They can offer holistic renovation solutions for building owners, covering evaluation of energy use, advice on interventions and access to finance and contractors. Some successful cases are Maison de l’habitat durable (Lille, France), Oktave (Region Grand Est, France) and Reimarkt OSS (Netherlands).

• The Union’s European Structural and Investment Funds (ESIFs) and the European Fund for Strategic Investments (EFSI) seek to improve the availability of finance for energy efficiency investments, mostly through grant-based funds. However, experts such as the Policy Learning Platform on Low-Carbon Economy recommend to move towards more sustainable financial instruments and revolving funds, such as loans, equity and guarantees.

At the global level, the research paper “Accelerating Building Decarbonization: Eight Attainable Policy Pathways to Net Zero Carbon Buildings For All” (2019) suggests mix of policy instruments that can enable development of zero carbon buildings that is regardless of location or development status. The report identifies eight pathways countries can take to reach zero carbon buildings by reducing energy demand and cleaning energy supply.

Table 9: Existing and upcoming EU policies enabling circular economy business models within the housing and construction value chain.

Policy instruments / **Lifecycle stages**	**Extraction of natural resources and sourcing of materials**	**Design and Construction**	**Acquisition & use**	**End-of-life**
Regulatory Instruments		- Environmental Impact Assessment of the effects of certain public and private projects on the environment (2011/92/EU);	- The revised Energy performance of buildings directive (EPBD) (2018/844) and the revised Energy efficiency directive (2018/2002) include specific provisions and measures to support national governments achieve a decarbonised building stock by 2050. - The EPBD requires that all new buildings must be nearly zero-energy buildings (NZEB) as of 31 December 2020. The low amount of energy that NZEB require comes mostly from renewable energy sources.	- Directive (EU) 2018/851 revising waste, Revised waste legislative framework (2018) reinforced rules and new obligations on separate collection of construction and demolition waste (see box 10 for more information). - President-elect Von der Leyen also announced plans for a "New Circular Economy Action Plan" which would focus on the sustainable resource use, "especially in resource-intensive and high-impact sectors such as textiles and construction".
Economic Instruments	- Funding for Research & Demonstration and innovation, such as the Horizon 2020 programme for Energy Efficiency, which has Buildings as one of the main areas. *For example,* The H2020 Funded project "Bioclimatic approaches for improving energy performance in buildings in Africa and Europe" aims to study the performance of a selection of European and African bioclimatic building		- Under the EPBD, EU countries can provide a list of national measures for funding opportunities to finance renovations that make buildings energy efficient. - EU countries have to submit long-term renovation strategies (LTRS) that foster investments	

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and Construction	Acquisition & use	End-of-life
	designs, local construction materials and techniques to determine how they could be utilized to increase the energy performance, living quality and sustainability of buildings. The project seeks to enable adaptation of local materials and techniques to current building design and construction practices, and to investigate how sustainable supply chains of local materials could be established to cope with fast construction paces.		in the renovation of buildings. These strategies will as of 2019 form a key part of EU countries' integrated national energy and climate plans (NECPs). - The Union's European Structural and Investment Funds (ESIFs) and the European Fund for Strategic Investments (EFSI) seek to improve the availability of finance for energy efficiency investments. See box 11 for policy recommendations. - One-stop-shops (OSS) offer holistic renovation solutions for building owners. They have been advocated by the European Commission through both the 'Smart financing for smart buildings' initiative and the recast EPBD, where they are expected to become key tools for the energy transition (see good practices box below).	

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and Construction	Acquisition & use	End-of-life
			- H2020 includes Smart Buildings as one of their R&D topics, such as the project "Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource"	
Communicative Instruments	-The European Climate Foundation commissioned a report to assess different pathways to reduce CO_2 emissions from the cement and concrete industry.	- This year's World Green Building Week aims to raise greater awareness of the carbon emissions from all stages of a building's lifecycle, and therefore encourage the construction industry to decarbonise all the supply chain, instead of focusing only on the operational phase emissions.	- The Building Stock Observatory was established in 2016 and aims to provide stakeholders with comprehensive knowledge on Europe's building stock. It contains a database, a data mapper and factsheets for monitoring and statistics on the energy performance of buildings across Europe. - Energy performance certificates provide information for consumers on buildings they plan to purchase or rent. They include an energy performance rating and recommendations for	

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and Construction	Acquisition & use	End-of-life
			cost-effective improvements. Under the Energy Performance of Buildings Directive (2018/844) all EU countries have established independent control systems for energy performance certificates and inspection.	
Voluntary or Procedural Instruments	- ECTP is a construction stakeholders-led European Technology Platform. In its publication "Energy Efficient Buildings Public Private Partnership Project Review 2018" they present the progress of a portfolio of 168 projects which demonstrate scientific and technological excellence across the whole value chain. The section "Advance materials and nanotechnology" presents 5 projects with new materials that reduce operational energy and pollution (p. 14). - In Europe, the most common labels for sustainable wood materials are the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC).	- Level(s), the first framework of indicators for measuring sustainability of buildings, is being tested in more than 130 projects through Europe and it will be launched around summer 2020. It focuses on six 'hotspots' for environmental impact through the whole building life cycle: greenhouse gas emissions, resource efficiency, water use, health and comfort, resilience and adaptation to climate change, and cost and value. The report: "Taking action on the total impact of the construction sector" details the impact	- Build Up is the European portal for energy efficiency in buildings. The web portal targets professionals working in the building sector (public or private) to exchange best working practices and knowledge and to transfer tools and resources. - The European innovation partnership on smart cities and communities (EIP-SCC) is an initiative supported by the European Commission that aims to improve urban life through more sustainable integrated solutions and addresses city-specific challenges from different policy areas such as energy, mobility	- Industry engagement has led to the adoption of the EU Construction and Demolition Waste Protocol and Guidelines (2018). - Voluntary industry-wide recycling protocol for construction and demolition waste (2016). Dissemination actions have been implemented in order to assist Member States and private practitioners in adopting it in their construction market. - See examples of public-private partnerships concerning End of life in page 17 of the EeB PPP Project review (2018).

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and Construction	Acquisition & use	End-of-life
		achieved so far and presents some good practices. - Voluntary commitments and procedures, such as the EMAS Sectoral Reference Document on Best Environmental Management Practices (BEMPs) for the building and construction sector (2012), which according to EMAS website, is currently following the legal process for its adoption by the European Commission. -- Construction 21 is a social networking platform that started as part of an EU project. Its objective is to help professionals discover and develop new ways of sustainable building.	and ICT. Several policies and initiatives are in place to tackle energy challenges. The development of SmartBuildings, with technologies enabling demand side management of energy is growing and will be key to improve energy efficiency. - At the global level, the Zero Carbon Buildings for All Initiative unite leaders across sectors in a strong international coalition to decarbonize the building sector by 2050, same target than the EU (see good practices box 11). - The "Buying green - Handbook on GPP" (2016) includes buildings as one of the key sectors. - New/revised EU Green Public Procurement criteria (2016) integrating circular economy	

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and Construction	Acquisition & use	End-of-life
			requirements for office building design, construction and maintenance. Recommended criteria can be found at the GPP Working document and the Procurement practice guidance document. Other relevant GPP criteria concerning paints, sanitary tapware and furniture can be found here. - The LEIPZIG CHARTER on Sustainable European Cities, where Member States commit to improve energy efficiency of buildings. “This concerns both existing and new buildings. The renovation of housing stock can have an important impact on energy efficiency and the improvement of a resident’s quality of life” (2007, page 4).	

Table 10: Existing national policies enabling circular economy business models within the housing and construction value chain.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Regulatory Instruments	- Construction Products By-Law (305/2011 / EU) (10.07.2013, 28703) - By-Law on Occupational Health and Safety in Construction Works (05.10.2013, 28786) - Mining Law (15.06.1985, 18785) - Mining By-Law (21.09.2017, 30187) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Persistent Organic Pollutants By-Law (14.11.2018, 30595) - By-Law on Registration, Evaluation, Authorization and Restriction of Chemicals (23.06.2017, 30105) - Turkey Earthquake Building Regulations (18.03.2018, 30364) - By-Law on Fire Protection of Buildings (19.12.2007, 26735)	- Construction Products By-Law (305/2011 / EU) (10.07.2013, 28703) - By-Law on Occupational Health and Safety in Construction Works (05.10.2013, 28786) - By-Law on the Construction Products Criteria (26.06.2009, 27270) - Law on Building Control (13.07.2001, 24461)	- Construction Products By-Law (305/2011 / EU) (10.07.2013, 28703) - By-Law on Waterproofing in Buildings (27.10.2017, 30223) - By-Law on Energy Performance of Buildings (05.12.2008, 27075) - By-Law on Green Certificate for Buildings and Settlements (23.12.2017, 30279) - By-Law on Fire Protection of Buildings (19.12.2007, 26735) - By-Law on the Noise Protection of Buildings (31.05.2017, 30082) - Green Buildings and Green Building Certificate	- By-Law on Control of Excavation, Construction and Demolishing Wastes (18.03.2004, 25406)
Economic Instruments	- Mining Law (15.06.1985, 18785)		- Fines arising from Customs Union Agreement - Law on the Amendment of Some Law and Law Decree for the Development of Industry and Supporting Production (01.07.2017, 30111)	
Communicative Instruments	Electronic Mining Operations Management Information System (E-Mining)			

Voluntary or Procedural Instruments	İstanbul Mineral Exporters' Association (İMİB) Turkish Miners Association (TMD) Turkish Association of Economic Geologists (MJD)		Green Procurement	

4.2.2 Current policy agenda in Turkey

A mapping of regulatory, economic, communicative and voluntary policy instruments that are implemented in Turkey are provided in table 10.

4.2.3 Hot-spots and projects suggested

The public and private stakeholders indicated during the workshops and through the online survey that the housing and construction value chain hot-spots (i.e. the environmental aspects that have the highest priority to tackle) are

- Building material extraction and water use with emissions to air at the phase of building materials withdrawal,
- Energy and raw material utilisation and emissions to air during construction of buildings,
- Energy and water utilisation during use of buildings, and
- Construction and demolition waste at the end-of-life phase (see figure 7).

It has to be noted that the stakeholder composition wasn't representative for the whole housing and construction chain. A more comprehensive consultation has to be carried out in the next phase.

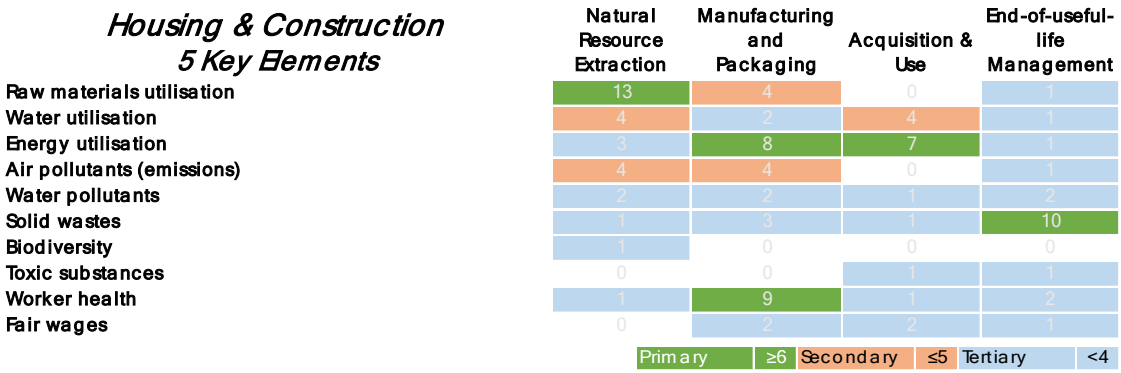

Figure 7: Hot-spots within housing and construction value chains.

The suggested projects address all indicated hot-spots and cover all life cycle phases, mainly focusing on eco-design strategies that can enable coverage of as many hot-spots as possible (see table 11).

Table 11: Suggested projects enabling circular economy business models within the housing & construction value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Project for Constructing Environmentally Friendly Buildings	- Ministry of Environment and Urbanization - İMSAD - Companies in the sector of construction	Manufacturing and Packaging Acquisition & Use	> €1,000,000	> 3 years

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
		products and construction			
2	Project for Recycling of Construction and Demolition Waste	- Ministry of Environment and Urbanization - Municipalities - İMSAD - Private Sector	Acquisition & Use End-of-life	> €1,000,000	> 3 years
3	Insulation Campaign to Increase Energy Efficiency in Buildings	- Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization - Ministry of Treasury and Finance - İZODER - Banks - Households	Acquisition & Use	> €1,000,000	> 3 years
4	Investigation of Raw Material Supply Opportunities for Production Through Urban Transformation	- Ministry of Environment and Urbanization - İMSAD - İZODER - Universities, etc.	End-of-life	> €1,000,000	> 3 years
5	Project for Developing Sustainable Waste Collection and Disposal Systems for Buildings, Similar to the "Zero Waste" logic (easy to implement by households)	- Municipalities - Ministry of Environment and Urbanization - Ministry of Industry and Technology - Households - İMSAD - Authorized facilities for waste disposal - Water Administrations	End-of-life	€100,000 - €1,000,000	> 3 years
6	Project on modern design criteria and technical specifications of the products	- MMO - TTMD - MTMD - ISKID - ISKAV And sectoral NGOs	End-of-life	€100,000 - €1,000,000	1-3 years
7	Determination of Type and Potential of Forestry Waste to be Used in Energy Supply in Turkey	- Ministry of Agriculture and Forestry - General Directorate of Forestry	End-of-life	< €100,000	< 1 year

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
		- TÜBİTAK MAM Institute of Energy			
8	Determination of Type and Potential of Urban Waste to be Used in Energy Supply in Turkey	- Ministry of Environment and Urbanization - Municipalities - TÜBİTAK MAM Institute of Energy	End-of-life	< €100,000	< 1 year
9	Project for Technical Capacity Building in the Field of Construction Products	- Ministry of Trade - Ministry of Environment and Urbanization - İMSAD	Manufacturing and Packaging	< €100,000	1-3 years
10	Identification of Alternative Camelina Types Suitable for Biodiesel TAGEM 181 R&D / 34 (ongoing)	- TAGEM - Private Sector	End-of-life		
11	Project for Finding and Storing Natural Water Resources, and its Efficient and Economical Use	- Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization - Ministry of Agriculture and Forestry	Extraction of Natural Resources Manufacturing and Packaging		
12	Project for Energy-certified Building Construction for Energy Efficiency (new public buildings to be built as a pilot)	- Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization - Ministry of Industry and Technology - Municipalities - Contractors Association	Acquisition & Use End-of-life		
13	Green Procurement Project	- Public Procurement Authority - Ministry of Environment and Urbanization - Ministry of Transport and Infrastructure			
14	Project on Integration of the Life Cycle Cost into the Public Procurement	- Public Procurement Authority - Ministries procuring in the			

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
		scope of Law of Public Procurement Law No. 4734			

4.3 Consumers goods and manufacturing

4.3.1 State of global and EU policies

As mentioned in section 2, the new Circular Economy Action Plan will give priority to key consumer goods such as electronics, ICT and textiles but also furniture and other high impact intermediary products such as steel, cement and chemicals. These product groups were identified based on their environmental impact and circularity potential. The European Commission will consider establishing sustainability principles for these products. In addition, progress towards circular business strategies will be monitored[39].

While EEE value chains were covered in detail in section 3, among other consumer goods value chains, given the importance of the sector and the export relationship to the EU countries, textiles were selected as the focus for this section.

Linear fashion value chains have particularly high material and water use and contribute heavily to climate change, eutrophication, droughts and biodiversity loss. In fact, the fashion industry is the second largest industrial polluter after aviation, accounting for up to 10% of global pollution[40]. The intensity of the environmental impacts mainly depends on the type of fibres put into production as well as the socio-economic contexts underlying the production, distribution, use, and end-of-life phase.

A mapping of regulatory, economic, communicative and voluntary policy instruments that are implemented and upcoming at the EU level for the textile value chains are provided in table 12.

4.3.2 Current policy agenda in Turkey

A mapping of regulatory, economic, communicative and voluntary policy instruments that are implemented in Turkey are provided in table 13.

[39] https://www.eea.europa.eu/publications/circular-economy-in-europe

[40] Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., Gwilt, A. (2020). *The environmental price of fast fashion*. Nature reviews earth & environment, April 2020 (1), 189-200. Available at: https://shop.aalto.fi/media/filer_public/53/dc/53dc45bd-9e9e-4d83-916d-1d1ff6bf88d2/sustainable_fashion_in_a_circular_economyfinal.pdf

Table 12: Existing and upcoming EU policies enabling circular economy business models within the textiles value chains.

Policy instruments / Life cycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Regulatory Instruments	- The Textile Regulation (EU) No 1007/2011 on fiber names and related labelling and marking of the fiber composition of textile products. This contributes to have a common categorisation of textile materials, which will help in the transition to the circular economy. - The Registration, Evaluation, Authorisation and Restriction of Chemical substances (REACH) Regulation (EC) No 1907/2006 sets standards for chemical substances incorporated in textiles. - The Biocides Regulation (Regulation (EU) No 528/2012)10, which establishes the regulatory framework for the use of biocidal products.	- The EU flagship initiative on the garment sector (European Parliament resolution of 27 April 2017) calls on Member States and textile manufacturers to increase funding for research and development, including in the field of clothes recycling. It also called for the Commission to propose binding legislation on due diligence obligations for supply chains in the garment sector and stressed the right of consumers to be informed on the sustainability, compliance with human rights and environmental credentials of garment industry products. - Based on the new Circular Economy Action Plan, the EU Eco-design Directive (2009/125/EC) will be widened to include textiles and circularity principles; requirements for uptake of secondary raw materials and management of hazardous chemicals will be set.	- Based on the new Circular Economy Action Plan, requirements will be set for providing consumers with repair and reuse services.	- The Waste Framework Directive (EU) 2018/851 (amending Directive 2008/98/EC) specifically refers to textiles. The directive calls for end-of-waste specific criteria for textiles to be developed and for the introduction of separate collection of textile waste. - Currently France is the only EU Member State to have an Extended producer responsibility (EPR) law for clothes, in place since 2006. Elsewhere, companies such as H&M run voluntary collection schemes. Based on the new Circular Economy Action Plan, implementation of EPR will be mandatory for textiles. - The Waste Framework Directive (2008/98/EC) requires that the Member States set up separate waste collection for textiles by 2025 - Based on the new Circular Economy Action Plan, the EU Eco-design Directive (2009/125/EC) will be widened to include textiles and circularity principles; requirements for uptake of secondary raw materials and management of hazardous chemicals will be set.

Policy instruments / Life cycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Economic Instruments	- A call offering funding for R&D and innovation on "Innovative textiles – reinventing fashion" is part of the Horizon 2020 work programme.	- The Smart Specialization Platform has "Smart Regional Investments in Textile Innovation" as a thematic area. The RegioTex initiative aims to invest in new technologies that would respond to key economic, social and environmental issues. - Based on the new Circular Economy Action Plan, incentives and support to product-as-service models, circular materials and production processes will be provided.		EU funding for multinational research projects through H2020. Examples of such projects: - RESYNTEX is an H2020 research project which aims to produce secondary raw materials from unwearable textile waste. - Trash2Cash was an EU funded H2020 research project which aimed to create new regenerated fibers from pre-consumer and post-consumer waste. It was also pioneering a whole new way of developing materials.
Communicative Instruments			- The EU Green Public Procurement guidelines on Textile Products and Services. The final criteria can be found at the GPP Technical report. - The report "Environmental impact of textile and clothes industry" states that the product use phase is the most polluting. The report gives recommendations to target consumers. - The report "IMPRO-Textiles" analyses the factors to change consumer behaviour. An	

Policy instruments / Life cycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
			example of good practice is the "I prefer 30º" campaign. - EU's LIFE Programme funds initiatives such as AskREACH, an app that provides consumers with information regarding the presence of potentially hazardous chemicals in the textile supply chain.	
Voluntary or Procedural Instruments	- EMAS Sectoral Reference Document on Best Environmental Management Practice in the Retail Trade sector (2015) and the Best practice report (2013) include mentions to the textile sector. - Different voluntary environmental labelling schemes exist in the market. They include the ISO 14024 "Type I" EU Eco-label (valid as of 5 December 2020), the Nordic Swan and the Blue Angel. Other standards such as Global Organic Textile Standard (GOTS) address environmental and social criteria along the supply chain. German Ministry of Development has very recently released the Green Button label that has a governmental watch-dog function regarding 26 social and environmental criteria within textile value chains.		- The EU Ecolabel is a voluntary scheme that evaluates the life cycle of the product, allowing consumers to easily identify environmentally friendly and good quality products. Some of the Ecolabel's criteria include the restriction of hazardous substances and durability. With the currently developing sustainable product policy framework, circularity will be more embedded into the Ecolabel context.	-There is a strong push within the industry to make every phase of production more sustainable, with big companies leading investing in new technologies and business models.

Table 13: Existing national policies enabling circular economy business models within the textiles value chains.

Policy instruments / Lifecycle stages	**Extraction of natural resources and sourcing of materials**	**Manufacturing and Packaging**	**Acquisition & use**	**End-of-life**
Regulatory Instruments	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Surface Water Quality By-Law (30.11.2012, 28483) - By-law on Registration, Evaluation, Authorization and Restriction of Chemicals (23.06.2017, 30105) - By-Law on Biocidal Products (31.12.2009, 27449)	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Environmental Law (11.08.1983, 18132) - IPPC Communiqué in the Textile Industry (14.12.2011, 28142) - Energy Efficiency Law (02.05.2007, 26510) - By-Law on the Energy and Other resource Consumptions of Products by Labelling and Standard Product Information (02.12.2011, 28130) - National Energy Efficiency Action Plan - 11th Development Plan - Turkish Industrial Strategy	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Environmental Law (11.08.1983, 18132) - IPPC Communiqué in the Textile Industry (14.12.2011, 28142) - Eco-design Communiqués	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Environmental Law (11.08.1983, 18132) - By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012, 28300) - By-Law on Control of Waste Batteries and Accumulators (31.08.2004, 25569) - Waste Management By-Law (02.04.2015, 29314)
Economic Instruments	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132)	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132) - Rewarding Resource Efficiency Projects - Environmental Contribution	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132)	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132) - Deposit/Award Mechanisms for Consumer Within the Scope of 5R

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
		- City Gas Contribution		
Communicative Instruments	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report - Textile specific institutions such as BUTEKOM, and other NGOs.	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report - Eco-labelled Products	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report
Voluntary or Procedural Instruments	- Environmental Label By-Law (19.10.2018, 30570)	- Environmental Label By-Law (19.10.2018, 30570) - Efficiency-enhancing Suggestion Mechanism for Staff	- Environmental Label By-Law (19.10.2018, 30570) - Customer demand and Obligation - Green Procurement	- Environmental Label By-Law (19.10.2018, 30570) - Green Procurement

4.3.3 Hot-spots and projects suggested

The public and private stakeholders indicated during the workshops and through the online survey that the hot-spots within consumer goods manufacturing[41] value chains are:

- Raw material and water utilisation at the resource extraction phase,
- Energy use and emissions to water during manufacturing,
- Energy use during consumption, and
- Solid waste generation at the end-of-life phase (see figure 8).

Though, this assessment has to be done with the specific stakeholders and experts of a particular consumer goods value chain such as textiles in order to have a sound base for project development.

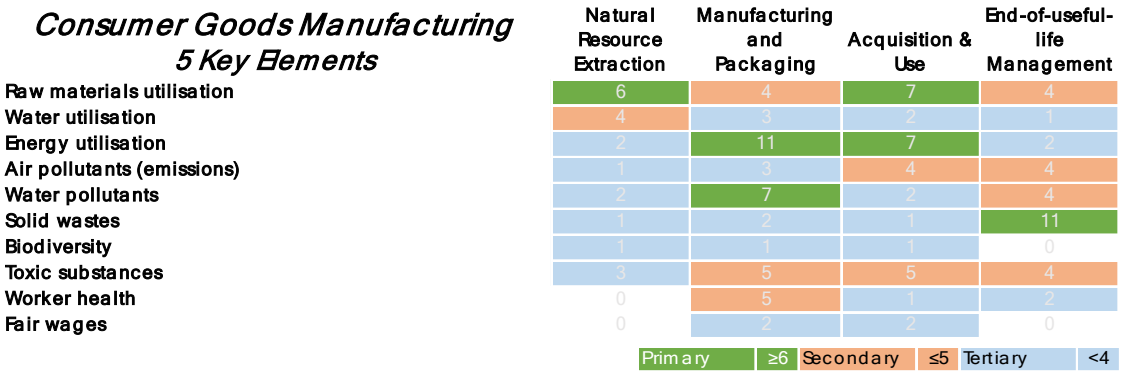

Figure 8: Hot-spots within consumer goods value chains.

The suggested projects within consumer goods manufacturing chains are given in table 14. Like in the case of hot-spots, the projects cover various consumer goods product chains (i.e. not only textiles).

Table 14: Suggested projects enabling circular economy business models within the Consumer Goods Manufacturing value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Project on Recovering Electricity, Heat, Valuable Chemicals (PE, PP, DME) from Potential Waste Types	- Municipalities - Ministry of Environment and Urbanization - TÜBİTAK MAM Institute of Energy	End-of-life	€100,000 - €1,000,000	> 3 years
2	Establishment and Promotion of Green OIZs	- Ministry of Industry and Technology - Ministry of Environment and Urbanization	Manufacturing and Packaging	€100,000 - €1,000,000	1-3 years

[41] Note that the survey didn't particularly focus on the textile value chains but consumer good manufacturing in general.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
3	Recovery of Critical Raw Materials from Electronic Waste	- TÜBİTAK - Recycling Sector - Ministry of Environment and Urbanization - NATEN	End-of-life	> €1,000,000	> 3 years
4	Project for Determining the Discharge Standards Based on Receiving Environment	- Ministry of Environment and Urbanization - Ministry of Agriculture and Forestry - General Directorate of Water Management - Sector Representatives	Manufacturing and Packaging	€100,000 - €1,000,000	1-3 years
5	SCP Communication Strategy	- All public institutions - Universities - NGOs - Municipalities	End-of-life	€100,000 - €1,000,000	1-3 years
6	SCP Sample Grant Projects	- All public institutions - Universities - NGOs - Municipalities	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life	> €1,000,000	> 3 years
7	Eco-labelling of EEE	- Ministry of Energy and Natural Resources - Ministry of Industry and Technology - Professional Chambers - Professional NGOs	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life	> €1,000,000	> 3 years
8	Project for Determining and Applying New Environmental Label Criteria for Product and Service Groups	- Ministry of Industry and Technology - Ministry of Trade - Ministry of Culture and Tourism - TÜBİTAK MAM Institute of Energy - Sector Leaders	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life	€100,000 - €1,000,000	
9	Consumer Awareness Raising Project via Energy Label (pop-up tabs on shopping sites	- Ministry of Industry and Technology	Manufacturing and Packaging	€100,000 - €1,000,000	

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
	regarding the product's energy label and content)	- Association of E-Commerce Operators (ETİD)	Acquisition & Use		
10	Impact Assessment Project for the Impacts of the Energy Efficiency Legislation in Force currently and in the future (Reflections of the Legislation and Practices of Energy Efficient Products)	- Ministry of Industry and Technology - Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization	Manufacturing and Packaging	€100,000 - €1,000,000	
11	Improving the scope of the Environmental Label Criteria determined for the Textile/Ceramic/Paper products	- Ministry of Industry and Technology - Ministry of Trade - Ministry of Culture and Tourism - TÜBİTAK MAM Institute of Energy - Sector Leaders	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life		1-3 years
12	Improving the Scope of the Environmental Label Criteria Determined for the Tourism Sector	- Ministry of Industry and Technology - Ministry of Trade - Ministry of Culture and Tourism - TÜBİTAK MAM Institute of Energy - Sector Leaders	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life		1-3 years
13	Promotion of Resource Efficiency/Energy Efficiency Practices in Industry	- Ministry of Industry and Technology - Ministry of Environment and Urbanization - Ministry of Energy and Natural Resources TÜBİTAK MAM - Institute of Environment and Clean Production	Manufacturing and Packaging		> 3 years
14	Controlling Scrap Used in Steel Production	- Ministry of Environment and Urbanization - Ministry of Energy and Natural Resources - Ministry of Trade	Acquisition & Use End-of-life		1-3 years

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
		- Turkish Steel Producers Association			
15	Determination of Clean Production Potential in Industry (Yeast and Iron-Steel Industry)	- Ministry of Industry and Technology - TÜBİTAK MAM - Institute of Environment and Clean Production - Industry of Iron-Steel - Industry of Yeast (Pakmaya)	Manufacturing and Packaging		
16	Improvements in the Scope of Discounts for Purchasing Energy Efficient Products or Incentives for the Use of High Efficiency Motors in Production	- Consumers - High Level Managers in the Company	Acquisition & Use		
17	Training Project for Solid Waste Disposal in Facilities in the EAP Region	- Ministry of Agriculture and Forestry - Agricultural Chambers - Universities			< 1 year

4.4 Tourism

4.4.1 State of global and EU policies

Attracting nearly a third of international tourism, the Mediterranean has been the largest global destination for more than 40 years. International arrivals have grown from 58 million in 1970 to 306 million in 2012, with a forecast of 500 million international arrivals by 2030.[42]

The pressure from especially mass tourism activities has to be managed to avoid climate change, biodiversity loss, high amounts of water and energy consumption, wastewater pollution and food waste generation.

A mapping of regulatory, economic, communicative and voluntary policy instruments that are implemented at the EU level are provided in table 15.

[42] SCP/RAC (2014). SCP toolkit for Policymakers in the Mediterranean, p 48. Available at: https://www.switchmed.eu/en/e-library/toolkit-for-scp-policy-makers-in-the-mediterranean

Table 15: Existing and upcoming EU policies enabling circular economy business models within the tourism value chain.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and service delivery	Acquisition & use	End-of-life
Regulatory Instruments	For this life stage, relevant regulatory instruments are the same as for the agriculture, food and drink production, textile manufacturing and construction, which are included in previous tables.	- The Communication, 'Europe, the world's No. 1 tourist destination – a new political framework for tourism in Europe' COM/2010/0352. set out a new strategy and action plan for EU tourism. This identified the promotion of sustainable tourism as one of the four priorities. -The Agenda for a sustainable and competitive European tourism COM/2007/621 proposes solutions to the challenges of sustainable tourism. -The European Strategy for more Growth and Jobs in Coastal and Maritime Tourism COM/2014/086 invites Member States to take a series of measures to strengthen sustainability (pages 5-8). - The Commission staff working document on Nautical tourism includes a section on Circular	For this life stage, relevant regulatory instruments are the same as for food and drink production and construction, which are included in previous tables.	- The Waste Framework Directive (EU) 2018/851 (amending Directive 2008/98/EC) concerns waste from accommodation and food services. - Tourism is one of the main sources of marine litter. The Marine Strategy Framework Directive 07/06/2017 (MFSD) requires Member states to set targets and indicators for reducing marine litter.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and service delivery	Acquisition & use	End-of-life
		Boating Economy. - Other relevant regulatory instruments for this life stage are the same as for food and drink production and construction, which are included in previous tables.		
Economic Instruments		- To diversify the EU tourism offer, the European Commission offers co-funding through the COSME programme to sustainable transnational tourism products. - The Interreg Europe programme funds sustainable tourism projects such as DESTI-SMART, Delivering Efficient Sustainable Tourism with Low-carbon Transport Innovations. The overall objective of DESTI-SMART is the combined improvement of transport and tourism polices at tourist destinations. - The European Commission published a Guide on EU Funding		

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and service delivery	Acquisition & use	End-of-life
		for the tourism sector (2016) to support sustainable and innovative products.		
Communicative Instruments		- The Virtual Tourism Observatory aims to support policy makers develop better strategies. It provides access to a broad collection of information, data and analysis on current trends in the tourism sector, including figures on the sector's economic and environmental impact. - EDEN is an initiative that promotes sustainable tourism in a bi-annual format. It's based on national competitions that culminate in the selection of a 'destination of excellence' for every country that takes part.	- The European Commission has developed a European Tourism Indicators System (ETIS) as a simple method for measuring sustainability performance. It is a management tool, a monitoring system and an information tool. - Sustain-T, Sustainable Tourism through Networking and Collaboration, is an EU funded project which aims to enhance the sustainability performance of EU micro and small enterprises in the tourism sector through capacity-building. As main outputs, it has developed learning materials and self-audit tools.	- The WRAP program provides ideas to minimise food waste in restaurants and hotel kitchens.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Design and service delivery	Acquisition & use	End-of-life
Voluntary or Procedural Instruments	- EMAS Sectoral Reference Document on Best Environmental Management Practice in the Tourism sector (2016) and the Best practice report (2013) provide guidance to improve environmental performance for all organisations in the sector, from tour operators to restaurants and campsites.		- The EU Ecolabel for Tourist Accommodation ((EU) 2017/175) provides efficient guidelines for hotels and camping sites looking to lower their environmental impact. The criteria focus on environmental hotspots such as the over-consumption of water and energy, waste management and the use of toxic substances. - Other important certification schemes are Travelife, the Green Key and the Global Sustainable Tourism Council (GSTC).	

4.4.2 Current policy agenda in Turkey

Tourism sector is affected by almost all the policy instruments implemented in other priority value chains i.e. food, construction, consumer goods. Due to low-level stakeholder involvement at the workshops and in the online survey (one representative from the Ministry of Culture and Tourism), it wasn't possible to have an effective sketch of other specific policy instruments in place in Turkey.

4.4.3 Hot-spots and projects suggested

The stakeholders surveyed mentioned that the major hot-spot is the raw material utilisation during extraction phase, most probably referring to the construction of hotels and facilities for tourists. Many other aspects were highlighted as tertiary (see figure 9).

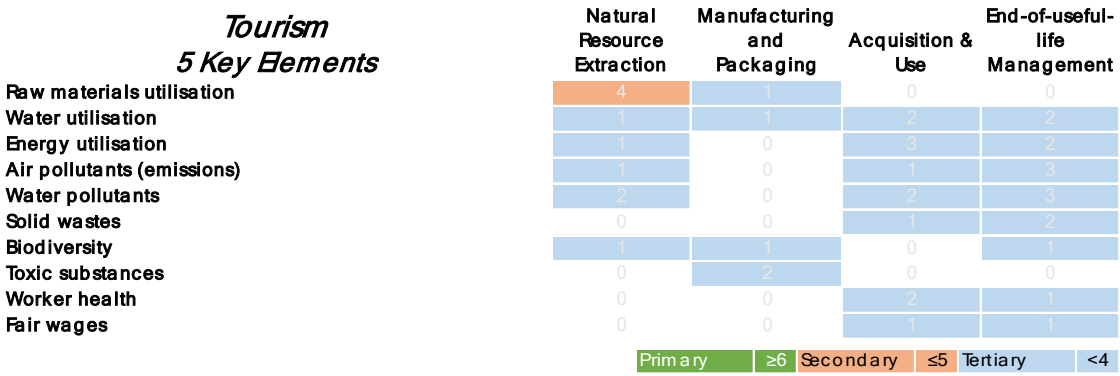

Figure 9: Hot-spots within tourism value chains.

Two projects were suggested one referring to efficient cold-chain logistics and another one regarding the eco-labelling of sustainable tourism products (see table 17).

Table 17: Suggested projects enabling circular economy business models within the Tourism value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Annual Periodic Maintenance of all Cold Storage Equipment (Cold Storage Rooms, Logistics Tools, Refrigerated Display Cabinet, Food Processing Areas Cooling Equipment)	- Ministry of Agriculture and Forestry	Acquisition & Use End-of-life	> €1,000,000	1-3 years
2	Ecolabel Project in the Tourism Sector	- Ministry of Environment and Urbanization, Eco-label Department - TÜBİTAK MAM Institute of Environment and Clean Production	End-of-life		

5 Recommendations

5.1 Recommendations for the Governance of the Action Plan

The development of the SCP NAP in Turkey commenced with the leadership and the coordination of the SCP/RAC and 10YFP[43] National Focal Point at the Ministry of Environment and Urbanisation. In this first phase, it was suggested to set up an Advisory Group for the coordination among various Ministries. In preparation of the first stakeholder workshop, invites were sent for the Advisory Group to acquire representatives from relevant General Directorates of various Ministries including the Ministry of Industry and Technology, Ministry of Energy and Natural Resources, Ministry of Agriculture and Forestry, Ministry of Tourism and Culture and also to the Presidency of the Republic of Turkey

In the next phase, it is recommended to maintain high level support and commitment in order to ensure the effectiveness of the Advisory Group. Engagement of private sector and non-governmental organisations can be strengthened for strong support along the value chains, effective launch and implementation.

The UNEP provides main action points for setting an inter-ministerial coordination mechanism that are as follows and could be of relevance also for the next phase in Turkey:

- Integrate with existing appropriate mechanisms or committees where possible;
- Ensure strong cross ministerial representation;
- Ensure high-level commitment;
- Allocate sufficient resources, staffing and capacities to design and implement coherent policies;
- Develop a clear governance structure or system, defining roles and responsibilities;
- Make links with existing regional and international mechanisms.[44]

Furthermore, UNEP suggests to devise mechanisms for inter-ministerial coordination. Organising national roundtables, policy review forums, systemic analysis of challenges and opportunities are a few of these mechanisms. In the first phase, the stakeholder workshops could be taken as pilots and the lessons learned can be reviewed to improve the mechanisms for the next phase.

Another key recommendation is to develop visions and key targets for the key value chains. In the first phase, due to the limited time frame of the project, development of a collectively agreed vision and key results couldn't take place. However, often the NAPs include a clear direction that also inform the project development.

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[43] https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/one-planet-network/10yfp-10-year-framework-programmes

[44] UNEP (2007). Practical Tools for Sustainable Consumption and Production. Promoting Mainstreaming and Implementation at the National Level. p.10. Available at: https://www.oneplanetnetwork.org/sites/default/files/mainstreaming_at_national_level.pdf

Last but not least, it is recommended to develop the next steps of the SCP NAP process in coordination with the efforts of strengthening the institutional capacity of Turkey for transitioning to circular economy in line with the new EU Circular Economy Action Plan. As the priority product chains and principles behind the SCP NAP are the same, alignment of both processes can save resources, avoid repetitive or contradictory efforts and ensure better stakeholder communications.

5.2 Recommendations for Monitoring and Evaluation

The progress of the Turkish SCP NAP can be reported to the 10YFP Secretariat[45] as part of the Republic of Turkey's progress for the SDG 12, target 12.1 on national policies and instruments for sustainable consumption and production. Regular global reporting can include progress in key value chains as well as individual policy instrument development and implementation. Comparison with the global targets and other nations' progress can provide input for adjustment of the vision and roadmap elements.

In addition, the SCP NAP progress can be evaluated using the set of SCP indicators developed as part of the Regional Action Plan on Sustainable Consumption and Production in the Mediterranean (2016 – 2027). These were developed as part of the EU funded SwitchMed Programme[46] and adopted by the Contracting Parties to the Barcelona Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean at their COP20 in December 2017. The indicators – which encompass six thematic areas and a set of macro-indicators – were selected among existing international indicators or new indicators for the Sustainable Development Goals (SDGs).

During COP21 of the Barcelona Convention held in December 2019, the Contracting Parties requested SCP/RAC to integrate the set of SCP indicators into the Mediterranean Sustainability Dashboard[47] for monitoring the implementation of the Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD). The SCP Action Plan is an integral part of the MSSD Objective 5 "Transition towards a Green and Blue Economy", which identifies the promotion of and support to green businesses as key in the transition towards a more circular economy.

During the 2020-2021 biennium, also at the request of COP21, the list of SCP indicators will be reviewed, its database updated and factsheets for each of the selected indicators will be prepared, with the support of SwitchMed Programme. The set of SCP indicator fact sheets under development will facilitate communication on progress achieved on the strategic objectives of the SCP Action Plan.

[45] www.oneplanetnetwork.org

[46] https://switchmed.eu/policy/regional-action-plan-sustainable-consumption-production/

[47] Information on the Mediterranean Sustainability Dashboard is available at the Mediterranean Observatory on environment and sustainable development managed by Plan Bleu: http://planbleu.org/en/ressources-donnees/mediterranean-observatory-environment-and-sustainable-development

6 Concluding Words

This background study has been the first step for the development of a SCP NAP bringing the government of Turkey closer to fulfilling its commitment to the SDG 12. As this study has identified and stakeholder dialogues have shown, while there are many SCP relevant policy instruments are in place, strategic prioritisation of value chains and identification of hot-spots and stakeholder oriented policy interventions can bring unprecedented benefits for effective management of natural resources, eco-innovative and competitive industry development.

This initial process gave stakeholders the opportunity to acquire insights about the recent SCP trends and the contemporary Circular Economy (CE) agenda. However, it has also become clear that there is much appetite and need for more in-depth briefings and exchanges on SCP policy processes and Circular Economy policy instruments in support of eco-innovative initiatives of the private sector. The stakeholders have as well expressed their wish for networking and exchanging on their needs, challenges and experiences concerning SCP and CE practices. In this regard, it has to be reflected what resources can be allocated and what tools can be put in place to formalise knowledge building and exchange platforms.

For the next phase of the SCP NAP, a follow-up of the analysed value chain and the other key value chains is needed. The flagship and pilot projects in EEE value chains shall be developed further and presented to potential donors for acquiring resources to start with their implementation. Furthermore, another key value chain shall be analysed in collaboration with stakeholders for devising projects and the roadmap. Based on the experience of the initial phase, stronger engagement of both public and private stakeholders and participation of potential donors much earlier in the process of identification of hot-spots and projects can be done. Lastly, development of an overarching SCP / CE vision for the value chain / sector and setting of key targets can better inform the project development.

Annex 1: Detailed Assessment of the Priority Value Chains

Table 1: Assessment of the priority value chains for achieving SCP patterns and increasing circularity in Turkey.

	Food, fisheries and agriculture	**Housing and construction**	**Consumer goods and manufacturing**	**Tourism**
Contribution to achievement of the SDG12 and other SDGs	Direct relevance to SDG target 12.3 "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" and 12.5 "By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse" by tackling food packaging.	Relevance to SDG target 12.2 is "By 2030, achieve the sustainable management and efficient use of natural resources". Especially because households consume 29 % of global energy and consequently contribute to 21 percent of resultant CO_2 emissions.	Direct relevance to SDG target 12.5 "By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse" and 12.8 "By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and life. SDG 9.4 "By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities".	Direct relevance to SDG target 12.b "Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products".
	High	**Low**	**Medium**	**High**
Alignment with the UNEA-4 decisions (whose implementation will be monitored by UN	Direct relevance to the UNEA resolution UNEP/EA.4/RES.1 on "Innovative Pathways to Achieve Sustainable Consumption and Production ", RES.2 on "Promoting sustainable practices and innovative solutions for	Direct relevance to UNEP/EA.4/RES.5 on "Sustainable Infrastructure".	Direct relevance to resolutions UNEP/EA.4/RES.1 on "Innovative Pathways to Achieve Sustainable Consumption and Production ", UNEP/EA.4/RES.4 on "Addressing environmental challenges through sustainable	Relevance to resolutions UNEP/EA.4/RES.1 on "Innovative Pathways to Achieve Sustainable Consumption and Production " and UNEP/EA.4/RES.4 on "Addressing environmental

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
Environment)	curbing food loss and waste", RES.9 on "Addressing Single-use Plastic Products Pollution", RES.10 on "Innovations on biodiversity and land degradation" and RES. 11 on "Protection of the Marine Environment from Land-Based Activities".		business practices" and UNEP/EA.4/RES.7 on "Environmentally Sound Management of Waste".	challenges through sustainable business practices"
	High	**Medium**	**High**	**Medium**
In line with the UN Environment SCP Hotspot Analysis	Food and beverages, fisheries and agriculture amount to 17.1% of the share of raw material consumption footprint.	The SCP Hotspot Analysis indicates that construction has the largest raw material consumption footprint in Turkey, with 61.3% of the share, while final demand is 8.7%.	The SCP Hotspot Analysis indicates that consumer goods and manufacturing (mining, textiles, chemical products, metal products, trade, other manufacturing) amount to 11.4% of the share of raw material consumption footprint.	The SCP Hotspot Analysis indicates that hotels and restaurants amount to 0.9% of the total the share of raw material consumption footprint.
	Medium	**High**	**Low**	**Low**

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
In accord with the EU Circular Economy Package and the EU Product Policy Framework contributing to the Circular Economy and the Eurostat Circular Economy indicators	Taking into consideration that the EU action plan for the Circular Economy requires Member States to take specific measures to tackle food waste and marine litter. Direct relevance to the "'Waste to energy' strategy, that sets long-term recycling targets for municipal waste and packaging waste, and to reduce landfill waste. One of the priority areas is Food Waste. The EU will develop a common methodology to measure food waste and define relevant indicators. It will create a platform involving Member States and stakeholders in order to support the achievement of the SDG targets on food waste, through the sharing of best practice and the evaluation of progress made over time. Food waste is one of the indicators set up by the European Commission to	Taking into consideration that one of the priority areas of the EU Circular Economy Action Plan is "construction and demolition". - The Commission will take a series of actions to encourage recovery of critical raw materials, and prepare a report including best practices and options for further action. Waste generation, recycling rates, and use of secondary raw materials are some of the indicators set up by the European Commission to monitor the progress towards a circular economy.	The New Circular Economy Plan gives priority to electronics, ICT and textiles but also furniture and high impact intermediary products such as steel, cement and chemicals. The Commission adopted an EU Strategy for Plastics in the Circular Economy addressing issues such as recyclability, biodegradability, the presence of hazardous substances of concern in certain plastics, and marine litter. Another key area is "Critical raw materials", including electronic waste. Waste generation, recycling rates, and use of secondary raw materials are some of the indicators set up by the European Commission to monitor the progress towards a circular economy. There is a binding target to reduce landfill to maximum of 10% of municipal waste by 2035.	The EU Circular Economy Action Plan doesn't address tourism directly.

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	monitor the progress towards a circular economy.		A common EU target for recycling 70% of packaging waste by 2030; There are also recycling targets for specific packaging materials: Paper and cardboard: 85 % Ferrous metals: 80 % Aluminium: 60 % Glass: 75 % Plastic: 55 % Wood: 30 %	
	High	**High**	**High**	**Low**
In line with the Mediterranean Strategy for Sustainable Development and the Mediterranean Regional Action Plan on SCP	Direct relevance to objective 2 of the Strategy "Promoting resource management, food production and food security through sustainable forms of rural development". The SCP Regional Action Plan establishes this as a priority area.	Direct relevance to objective 3 of the Strategy "Planning and managing sustainable Mediterranean cities" The SCP Regional Action Plan establishes this as a priority area	Direct relevance to objective 5 of the Strategy "Transition towards a green and blue economy". The SCP Regional Action Plan establishes this as a priority area	Tourism contributes indirectly to all of the objectives. The SCP Regional Action Plan establishes this as a priority area.
	High	**High**	**High**	**Medium**
In line with the Green Economy related	Direct relevance to National Climate Change Action Plan: All the objectives regarding	Direct relevance to National Climate Change Action Plan: All the objectives regarding buildings	Direct relevance with 11th Five-Year Development Plan: Target - 2.2 Competitive Manufacturing	National Tourism Strategy and Action Plan: Under Section 3.16 - Eco-tourism Regions, it is aimed

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
strategies and roadmaps prepared for Turkey	agriculture sector and waste sector, such as food security, agricultural efficiency, soil protection and etc. are directly related. Waste Sector Objective A1.1. Reduce the quantity of biodegradable wastes admitted to landfill sites, taking year 2005 as a basis, by 75% in weight till 2015, by 50% till 2018 and by 35% till 2025. Direct relevance to National Waste Management Action Plan: Section 5.2: The primary objective is to reduce the amount of household waste (mostly food waste), increase the efficiency of source separation, increase the amount of waste directed to recovery and reduce the amount of waste sent to the landfill. Relevance to Integrated Environmental Approximation Strategy: Section 5.2: Incentives, awareness raising and specific national strategies are needed to be set for biodegradable waste reduction.	sector, such as energy efficiency, renewable energy utilization and etc. are directly related. Relevance with 11th Five-Year Development Plan: Under Target - 2.2 Competitive Manufacturing and Productivity, the main objective in the non-metallic mineral products sector is set to reduce input costs and supply risks particularly energy, and to improve sustainable production, efficiency and competitiveness. Under Target - 2.4 Livable Cities and Sustainable Environment of 11th Five-Year Development Plan, housing is one of the sectoral policy areas focused. The main objective is to ensure that everyone, especially those with low incomes, have access to adequate, livable, durable, safe, inclusive, economically affordable, sustainable, climate change resistant, basic infrastructure services. Quality, robustness, accessibility, energy efficiency and disaster resistance standards will be developed in	and Productivity of the Plan offers a critical perspective to increase Turkey's international competitiveness and to ensure sustainable economic development by creating high value-added. The sectoral prioritization approach has been adopted to accelerate the technological renewal that will make the productivity increase dynamic and to ensure the structural transformation in the manufacturing industry considered as the dynamics of stable growth. Chemistry, Pharmaceuticals, Automotive, Rail System Vehicles and Electric and Electronic Equipment are the selected manufacturing sectors through this approach. Two productivity targets set in the plan for the manufacturing industry are the index of production per hour worked and number of employees per enterprise. First one is aimed to be increased from 113.4 (2018) to 126 (2023) while second one is from 11 (2018) to 12.9 (2023).	that Eco-tourism Management Plan will be prepared for four touristic regions determined. Management plans that will ensure sustainable use of the area will be prepared considering the balance between conservation and use that lead to planning activities. Physical development plans for the development of ecotourism will be prepared in accordance with the decisions of the Management Plans. National Climate Change Action Plan: It doesn't address tourism directly however the objectives in the building sector are relevant for the tourism sector as well. Relevance to National Waste Management Action Plan: Section 5.2: Promotion of biomethanisation utilization for the organic waste generated in touristic regions and hotels directly address SCP in tourism. Under Target - 2.2 Competitive Manufacturing and Productivity of

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	Under Target - 2.2 Competitive Manufacturing and Productivity of 11th Five-Year Development Plan, agriculture is one of the Priority Development Areas determined. The main objective is to create an efficient and organized agricultural sector which is environmentally, socially and economically sustainable, has increased its international competitiveness with its production structure that considers supply and demand balance as well as adequate and balanced nutrition of the people of the country and has solved the infrastructure problems. Some of the SCP related targets set in the plan for the agriculture sector are the agricultural lands consolidated and equipped with on-farm pressured irrigation system and. First one is aimed to be increased from 8.2 (2018) to 8.5 (2023) million ha while second one is from 40 (2018) to 200 (2023) thousand ha/year.	housing production and will be observed at every stage. Direct relevance to National Energy Efficiency Action Plan includes actions (Section 3.2.2 - Building Sector & Section 3.2.3 - Industry Sector) aimed at increasing energy efficiency in housing and construction related sectors such as cement, iron-steel to extend sustainable environment friendly structures and making existing structures more efficient. Alternative fuel utilization, process efficiency, efficiency in electric motors, waste heat recovery and etc. are some of the focused areas for the actions. Direct relevance to National Waste Management Action Plan: Section 5.5: Actions regarding maximum recovery in the construction and demolishing waste recovery plants and ensuring reuse of residual materials where it's possible are directly related. Actions regarding establishment of collection	National Climate Change Action Plan: All the objectives regarding industry sector, such as renewable energy, energy efficiency, and cleaner production are directly related. Direct relevance to National Waste Management Action Plan: Section 5.6: Not only special wastes generated like Waste Electrical and Electronic Equipment (WEEE), Waste Batteries, Waste Tires and etc. but also all manufacturers of these products are needed to be registered for a sustainable monitoring from collection to disposal. Necessary collection infrastructure should be extended and consumer awareness should be raised. Number of recycling/recovery facilities on special wastes is needed to be increased. Incentive mechanisms should be established for the utilization of recycled/recovered materials.	11th Five-Year Development Plan, tourism is one of the Priority Development Areas determined. Contribution to economic and social development by considering protection-use balance has been shown as one of the main objectives of country tourism. Some of the SCP related policies set in the plan for the tourism sector are as follows; Within the framework of sustainable tourism approach; legislation will be made to increase the number of environment friendly tourism facilities and to improve their qualifications. Studies will be carried out to determine the impacts of climate change on the tourism sector. Digitalization rates in tourism and the susceptibility of the sector to digitalization will be researched. Collecting and analysing the big data for product development, promotion and marketing in tourism sector will be carried out.

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	Direct relevance to National Energy Efficiency Action Plan includes actions (Section 3.2.6 – Agriculture Sector) on sustainable agricultural production. In order to ensure resource efficiency in sustainable agricultural production; manure, plant nutrients, plant growth regulators, bioactive microorganisms, high quality planting will reduce the direct and indirect energy inputs in the production and use of harvesting materials. The use of renewable energy sources (solar, wind, geothermal, biomass) in agricultural production processes will be encouraged in order to benefit from the advantages of distributed energy systems by providing on-site and local resources of the energy needed in sustainable agricultural production and to reduce energy costs and environmental impacts of agricultural production.	system for the construction and demolishing waste and improvement of vehicle tracking system for collection are also related.	Relevance to Integrated Environmental Approximation Strategy: Section 5.2: Recycling/recovery facilities on refrigerators, air conditioners, televisions and monitors are needed to be established. Packaging wastes will be reused, recycled, recovered and new packaging will be produced in such a way as to minimize environmental damage during the management and disposal phases that cover these processes. Direct relevance to National Energy Efficiency Action Plan includes actions (Section 3.2.3 - Industry Sector) aimed at increasing energy efficiency in manufacturing via alternative fuel utilization, process efficiency, efficiency in electric motors, waste heat recovery and etc.	Technology supported projects will be developed to increase visitor experience. National Waste Management Action Plan: It doesn't address tourism directly however the objectives (i.e. expansion of smart meter systems in hotels) under the energy sector (Section 3.2.4) are relevant for the tourism sector as well.

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	High	High	High	Low
Potential of the life-cycle to create opportunities for socio-economic development in Turkey	Agricultural production and accordingly food security are very critical issues recently in Turkey. Raw materials and food products exported are increasing dramatically. Water scarcity and high raw material prices are the main threads in front of these sectors. At this point life cycle approach could bring resource efficient solutions. Spreading country-wide good agricultural practices like land consolidation, machinery sharing, organic fertilizer utilization, drip irrigation would not only help save costs but also lead to new employment opportunities especially in rural regions. One of the comprehensive projects on sustainable agriculture in Turkey, namely "Utilization of Renewable Energy (RE) Resources and Increasing Energy Efficiency (EE) in the Southeast Anatolia Region (GAP) Project - GAPGREEN" is being implemented by the Southeast	Since the building and construction is an emerging sector in Turkey, integration of life-cycle approach would significantly support the socio-economic development in various aspects. With the implementation of life cycle assessment in buildings and construction sector, will affect the material selection in the construction process, which ensure thermal and noise insulation, natural lightning and air conditioning, etc. While all of these are related with energy efficiency of a building, researches show that the applications that increase energy efficiency in buildings have positive effects on the happiness, quality of life, economical stress, thermal comfort, social interactions and indoor use of the household (HEAL, 2018). On the other hand, it is a well-known fact that the production of	There are several regional and national projects completed in Turkey revealing the potential savings of resource efficiency practices like industrial symbiosis, cleaner production, eco-design, eco-labeling, etc. For example, between 2011 and 2014, "Industrial Symbiosis Project in Iskenderun Bay" was implemented by Technology Development Foundation of Turkey (TTGV) in order to increase the industrial collaboration and solidarity between companies for the purpose of achieving environmental, social and economic improvement in the Iskenderun Bay. Implementation cost of 8 pilot projects is $6,965,000 while annual net saving is $6,370,546 with a pay-back period of 1.1 years. In addition, social gains expected from the projects can be listed as 21 new staff employed, 3,500 man-day/year workforce saving, 10 new product type developed, 6	Turkey is the 10th most popular tourist destination in the world and attracted more than 38.6 million tourists in 2017. Total turnover of the tourism industry that same year was USD 26 billion. By the end of 2017, there were 12,856 registered accommodation facilities with a total bed capacity of 1,482,492. With its favorable location, existing potential, mega projects, and ambitious targets set for 2023, the tourism sector continues to grow at a rate that outstrips its bed capacity. The tourism sector has set annual targets of 50 million tourist arrivals and revenues of USD 50 billion by 2023 (IO, 2018). Considering high tourism potential of Turkey, life-cycle approach can be helpful to decrease the operational costs like energy, water, food and etc. of the sector. Decreased vacation expenses and sustainable approach by the hotels would

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	Anatolia Regional Development Administration with the technical support of the United Nations Development Programme (UNDP) since 2008. During the first phase of the Project, following the identification of the regional potential in renewable energy and energy efficiency, through a participatory process involving both national and regional actors, a regional Renewable Energy and Energy Efficiency (REEE) Strategy and Action Plan was developed. Within the scope of the GAP REEE Action Plan, both economic and social issues were approached on sectoral and horizontal axes in line with the principle of integrity, through a series of activities such as increasing the employment opportunities in the RE and EE sectors, improving the physical and knowledge infrastructure, creating public awareness in the fields of RE and EE, and	the construction materials such as cement, concrete, brick and etc. are energy intense processes. However, there are various clean production practices available leading to economic savings. For instance, a cement factory in Turkey having a sludge drying plant and alternate fuel feeding plant may result in an annual saving of 730,000 and 380,000 TL respectively (NC, 2015). According to the reports on circular economy potential of cement sector by Turkish Cement Manufacturers Association (TCMA), it is possible for cement sector to use to 7 million tons of additional fuel produced from 28 million tons of municipal waste in Turkey. This will result in savings of ~3 million tons of fossil fuel import and 7% of CO_2 emissions. In addition, this will support municipalities' budget as the lifetime of the landfill areas will increase (TCMA, 2019).	new initiatives established, 27 organizations participated and 5 universities contributed. Other expected results of the over 500 industrial symbiosis applications are 6,500 m^3/year water saving, 276,250 tons/year natural resource substituted, 33.580 MWh/year energy produced/saved, 36.700 tons/year CO_2 reduction, 45.000 m^2 land recovery. (TTGV, 2014). Thrace Development Agency (TDA) analyzed clean production potential of various manufacturing sectors in the research called "Industrial Symbiosis Potential of the Thrace Region". According to the analysis results, the prominent sectors with high potential in cleaner production are manufacture of food products and beverages, manufacture of textiles, manufacture of plastic and rubber products and base metals industry. These sectors are also in line with the prominent sectors in terms of water consumption, wastewater and waste generation, and	result in increased number of tourists. The increase in the number of tourists attaching importance to environmental awareness in recent years increases the interest in international certified hotels. It is not sufficient to meet the demand for tourism sector with only standard hotel services. Conscious consumers expect sustainable approach and responsibility at hotels they choose for holiday or business reasons. Recent surveys and interviews show that, foreign visitors in particular are looking for same environmental sensitivity in their country from the facility they stay in Turkey. For example, there are currently 20 hotels having LEED certificate in Turkey and 83% of these hotels claim that customer satisfaction has been significantly increased since they had been certified. In addition, LEED-certified hotels outperform their competitors in terms of room prices, occupancy rates, operational profitability, brand value and marketing

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	implementing pilot projects in line with the sectoral priorities (UNDP, 2014).		greenhouse gas emissions (TDA, 2016). EEE value chain is one of the most clear and known area in terms of circular economy in Turkey. Thanks to life-cycle approach especially in EEE, raw material extraction by mining would be replaced by recycling which lead to increase of public health. This could also reduce material and energy costs boosting the purchasing power and wealth. For example, in order to obtain 1 kg of ferrous, copper or gold, respectively 200 kg, 200 kg and 240 million kg of mining activity is necessary while same amount of can be obtained by 2 kg, 13 kg and 100.000 kg of WEEE recycling (BSH, 2011)[48]. Packaging production is another important manufacturing industry in Turkey in terms of implementation of SCP. Practices in manufacturing and acquisition stages like reduction in the weight	power. The actions such as locating the building centrally and close to public transport, reducing water, fuel and electricity and accordingly GHG emissions, utilization of low, simple and environment friendly, recyclable and/or reusable materials in the interior, and utilization of technologies such as cogeneration, trigeneration, photovoltaic panels and etc. that the tourism sector taken would set good examples for other sectors (TIM, 2017). In this manner, potential increase in foreign currency inflow which would result in increase in the value of national currency may lead to higher purchasing power of the public.

[48] WEEE 2020 Raw Material Partnership, Bosch Siemens Home Appliances Group

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
			of the packaging materials, eco-designed packaging or biodegradable packaging would set good implementation examples through life cycle approach. As an example, packaging of the product affects the consumers' purchasing decision. When making decisions about packaging, many companies take into account the customer's giving importance to re-use and environmental friendliness (TU, 2014). Fast-Moving Consumer Goods (FMCG) / Consumer Packaged Goods (CPG) company in Turkey reported that they saved approximately 2.5 million TL in 2016 with various packaging projects such as boxing reduction, reduction of thickness of plastic packaging, pallet efficiency studies. In addition, they aim to use 20% less paper in boxes, 20% less plastics in flexible packages and 50% less packaging waste in 2024 ensuring less amount of waste sending to the landfills. They also believe sustainable production	

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
			will support sustainable consumption habits (Ülker, 2019). According to the survey results of one of the producer responsibility organizations in Turkey namely, TÜKÇEV, when developing packaging materials, it can be taken into consideration that environmental protection and multifunctional approaches will be embraced by consumers. The results of the survey indicate that consumers will support sectoral efforts for environmental protection (TÜKÇEV, 2012). With the "Zero Waste By-law" and "Eco-labeling By-law" taking effect in Turkey these implementation practices have been accelerated.	
	High	**Medium**	**High**	**Medium**
Utilisation of key materials for Circular Economy transition in the value chain	Food waste is one of the critical challenges in front of Turkey through circular economy transition. Economic loss caused by food waste is over 30 billion Euros in Turkey (TGDF, 2018). Approximately 50% of household	Since Turkey is going through huge urban transformation process construction and demolition wastes are generated in massive amounts. Therefore recycling and recovery of cement, iron and steel at different levels of	Except for the last year, mobile phone sales are increasing each year in Turkey which means that more WEEE is expected to be generated and more materials might go wasted to the landfills. Beside regular raw materials like	Key materials of the tourism sector are obviously fast moving consumer goods. Food waste and packaging waste are the two important concerns encountered in our touristic regions. According to a sample survey conducted in

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	waste generated is organic/kitchen waste (MoEU, 2016) which can be recovered as energy or fertilizers in case it can be separately collected at source. After implementation of reduction practices, methods like composting and digestion would be best solution alternatives for remaining organic wastes. There are also significant food and raw material losses in the agricultural production stage in Turkey. Reasons for the food losses in agricultural production in Turkey can be listed as fragmented fields, lack of modernization of traditional methods, losses caused by fertilization and pesticides, damages during harvesting and improper maturation practices.	the value chain would be very critical for the sector. In 2017, a comparative life cycle analysis and evaluation of the impacts of different Turkish cements and concretes on LEED certified buildings were conducted by Boğaziçi University. Results showed that substitution of clinker with limestone decreases GHG emissions due to reduced amounts of fuel and raw material used in manufacturing stage. Moreover substitution of fossil fuel with refused derived fuel (RDF) also result in decrease in GHG emissions. Blast furnace stag and fly ash utilization in concrete instead of cement and construction and demolition waste instead of aggregate have also significant impacts on GHG resulted from manufacturing (BU, 2017). Another important material worth considering is excavation soil generated from constructions especially in mega projects like airports, bridges or highways in	aluminum, copper and plastics, rare elements are used commonly in electrical and electronic equipment, especially in mobile phones. Therefore recycling of these materials become more and more important at the end of their life time. In Turkey, recycling of waste electrical and electronic equipment should inevitably substitute not only extraction of materials like fossil fuels, aluminum, copper, ferrous and etc. from mines but also import of valuable and expensive materials like itrium, lanthanum, lithium and etc. On the other hand with the help of eco-design practices in manufacturing and packaging stages of any kind of product, consumer acquisition time might be increased in order to prevent unnecessary procurements and accordingly waste amounts.	2018 among the hotels in touristic regions of Turkey, 70% of the daily waste generated from 24 five star hotels are food waste while the remaining 30% is packaging waste composed by glass, paper, plastic, metal respectively. In these hotels, main reasons of generating food waste are revealed as guests taking more food on their plates than able to eat, over preparation, inadequate portion control techniques, poor quality of food and lack of employee training (MSKU, 2018).

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
		metropolitan cities. Excavation soil can be very valuable based on its rich mineral ingredients. If not so, it can serve as filling material in new constructions.		
	High	**High**	**High**	**Medium**
Relevant divisions and capacity of the Ministry of Environment and Urbanization	Directly under the responsibility of IPPC Branch of "Air Management Department" of "General Directorate of Environmental Management" Related with the responsibilities of "Zero Waste and Waste Treatment Department" of "General Directorate of Environmental Management"	SCP in housing and construction sector is in line with the responsibilities of the MoEU as having directly related units such as "Department of Energy Efficiency and Installation" of "General Directorate Of Vocational Services", "General Directorate of Infrastructure and Urban Transformation Services" and "General Directorate of Construction Works".	Directly under the responsibility of IPPC Branch of "Air Management Department" of "General Directorate of Environmental Management" "Zero Waste and Waste Treatment Department" of "General Directorate of Environmental Management" has relevant branches like Household Waste, Packaging Waste, Special Wastes (WEEE, Waste Batteries and etc.), Industrial Waste National Eco-label system is under responsibility of "Environmental Competence Services Department" of "General Directorate for EIA, Permitting and Inspection"	Relevant with the responsibilities of "Zero Waste and Waste Treatment Department" of "General Directorate of Environmental Management" Indirectly relevant with the responsibilities of "Sea and Coastal Management Department" of "General Directorate of Environmental Management"
	High	**High**	**High**	**Medium**

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
Confirmation by key stakeholders	Ministry of Agriculture and Forestry has been implementing various regulations, support programs and projects on sustainable agriculture to promote efficient use of irrigation water, energy and fertilizer, to reduce greenhouse gas emissions, to help maintain the quality and quantity of soil; to improve food quality and productivity and to reduce the need for labor. Some of the projects are namely, "Sustainable Land Management and Climate Friendly Agriculture", "Agricultural Land Protection Program for Environmental Purposes", "Rural Development Investment Support Program" (UNDP, 2019). WWF Turkey works for sustainable and efficient use of natural resources in food production. In addition to efforts to promote and expand sustainable agricultural practices, projects protecting resources such as soil and water are being implemented. Projects on sustainable agriculture are	"Department of Energy Efficiency and Environment" of "Ministry of Energy and Natural Resources" has been providing training for certification of persons to be appointed as energy managers in public institutions, industrial enterprises, organized industrial zones, power generation facilities and buildings. BCSD Turkey's Declaration on energy efficiency in buildings (EEB) has been opened for signature in 2013 in order to promote efforts for energy efficiency in private sector buildings. Currently 27 entities have signed the declaration and new signatories, number of good examples and practices increase every year. Additionally, keeping in mind that shopping centers also consume significant amounts of energy, a cooperation protocol has been signed with Council of Shopping Centers Turkey (AYD) in 2016 within the scope of EEB activities. With the signature of this protocol, energy efficiency activities aimed at shopping	"Department of Productivity Practices" of "General Directorate of Industry and Productivity" of "Ministry of Industry and Technology" has been working on implementation of SCP especially in manufacturing sector since the establishment of "National Productivity Center" in 1965. Environment friendly design of energy related products and energy labeling of household EEE are regulated by "General Directorate for Safety and Supervision of Industrial Products" of "Ministry of Industry and Technology". TÜBİTAK Marmara Research Center and Boğaziçi University carry out the "Project on the Development of National Life Cycle Assessment Database" on behalf of the Ministry of Science, Industry and Technology. The project envisages the establishment of energy, domestic and industrial water supply processes constituting the core of the National LCA	Ministry of Culture and Tourism has been implementing a long lasting project (since 2013) with UNDP Turkey on sustainable tourism, namely "Future is in Tourism". Project aims to strengthen capacity of local tourism actors and NGOs to contribute to the sustainable tourism development through partnerships with public and private institutions. The project will conduct its activities through a grant scheme and training programmes, with a view to develop best practice examples and contribute to knowledge sharing in the area of sustainable tourism implementation (UNDP, 2019).

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	conducted in cooperation with public institutions particularly the Ministry of Agriculture and Forestry, agriculture and food companies and NGOs (WWF, 2019). TEMASTA (TEMA Sustainable Agricultural Network) was designed as an internet platform to gather stakeholders of sustainable agriculture and engage them in sharing information and contacts to hence provide opportunities for trade and co-operation. It was developed under the "Connecting Sustainable Agriculture Networks in Turkey and in the EU" project led by a long-established NGO TEMA and with the co-operation of Both Ends, with the aim of connecting the different Sustainable Agricultural Networks, encouraging co-operation and disseminating good agricultural practices, organic agriculture and other eco-friendly agricultural activities (TEMA, 2019).	centers are improved considerably (BCSD, 2019).	Database. The main reason is the use of technologies and energy carriers such as petroleum, natural gas, coal, lignite in the water/electricity generation directly or after their conversion in all the industry branches. At the same time, all environmental assessment analyses show that the majority of the environmental impacts resulting from industrial activities, in particular, climate change and carbon/water footprint, result from water and energy consumption and the availability of this energy. Therefore, water and energy processes at the core of the National LCA Database will be used both to assess the direct environmental impact and to add new manufacturing sectors' production processes to the database after their creation (NCPC, 2019). Business Council for Sustainable Development Turkey (BCSD Turkey) is an important stakeholder implementing projects on SCP and circular	

	Food, fisheries and agriculture	Housing and construction	Consumer goods and manufacturing	Tourism
	Nature Conservation Center (DKM) is another key stakeholder working for to develop better agricultural management systems for the conservation of soil and water, to establish good practices and design integrated solutions which take into account environmental, economic and social forces (DKM, 2019).		economy. Turkey's Circular Economy Platform - Turkey Materials Marketplace (TMM), which is run by BCSD Turkey, is an open, digital marketplace, aimed to use secondary raw materials of the material from one industry to another industry. The project is funded under the "Near Zero Waste" program, which supports the European Bank for Reconstruction and Development (EBRD) waste reduction projects. Until July 2019, more than €350,000 was granted to TMM members' circular economy projects. Today TMM is having member of over 80, containing materials over 100 systems (BCSD, 2019).	
	High	**High**	**High**	**Medium**

Key:
High: There is high-level relevance.
Medium: There are some references.
Low: There are no references.

Annex 2: Agendas and Participants Lists of the SCP NAP Workshops in Ankara and Istanbul

Workshop 1 – Day 1 - Agenda **14.10.2019, Monday** **Mövenpick Hotel, Ankara**		
Time	**Discussion points**	**Lead & Speakers**
09:00	Registration	
09:30	Meeting Opening • Welcome remarks • SCP Approach	 MoEU FP SCP/RAC
10:00	Global SCP NAP Experiences and European Sustainable Consumption and Production Policies • One Planet Network and Sustainable Development SCP Target Framework Programs • SwitchMed Initiative and Implementation of SCP Policies South Mediterranean Countries • EU SCP Policy Priorities and the EU Circular Economy Strategy	Charles-Arden-Clarke*, Head of 10YFP Secretariat, Economy Division, UN Environment Luc Reuter*, Consumption and Production Unit, Resources and Markets Branch, Economy Division, UN Environment Maria Rincon-Lievana*, Policy Officer, European Commission Directorate-General for Environment, Circular Economy and Green Growth, Sustainable Production, Products and Consumption Alessandra Sensi*, Head of Sector Environment and Blue Economy, Water and Environment Division, Secretariat of the Union for the Mediterranean **Live online connection*
11:00	Coffee Break	
11:20	Approach for Development of a SCP-NAP in Turkey and Priority Value Chains • Core Framework based on Circular Economy Business Models • SCP-NAP Outline and Foreseen Roadmap Format • Guiding principles for selection • Priority value chains suggested	Burcu Tunçer, Team Leader, SCP/RAC Onur Akpulat, Senior Consultant, REC Turkey
12:30	Lunch	
13:30	Harvesting of Current SCP Policies in Priority Value Chains • State of SCP Policies globally and the in the EU in Priority Value Chains	Workshop moderated by the SCP/RAC & REC

	• General Overview of National Policies • SCP Priority Aspects	
16:00	Coffee Break	
16:15	Focus on the Selected Value Chains: Electric Electronic Equipment (EEE) • EEE value chains • SCP Priority Aspects	Onur Akpulat, Senior Consultant, REC Turkey
16:30	Lessons Learned from Implementation of WEEE Regulatory Framework • Formal-Informal Partnerships for successful policy implementation • Global cases	Morton Hemkhaus, Project Manager, Adelphi (GIZ partner) *(live online connection)*
16:50	Review of Next Days Agenda	
17:00	Closure of the Day	

Workshop 1 – Day 1 – Participant List
14.10.2019, Monday
Mövenpick Hotel, Ankara

	Name-Surname	Institution
1	Abdullah ALKAYA	MoEU, General Directorate of Infrastructure and Urban Transformation Services
2	Abdüssamet AYDIN	Ministry of Agriculture and Forestry General Directorate of Agricultural Reform
3	Agah Reha TURAN	Presidency of the Republic of Turkey, Directorate of Strategy and Budget, General Directorate of Sectors and Public Investments, Information and Communication Technologies Department
4	Alper Acar	Delegation of the European Union to Turkey
5	Aşina Kübra ASLAN	MENR, General Directorate of Mining and Petroleum Affairs
6	Ayşe CEBE	MENR, General Directorate of MTA, Department of Environmental Research
7	Çiğdem GÖKÇE	Public Procurement Authority, Department of Institutional Development and Research
8	Çiğdem KURTAR	Ministry of Agriculture and Forestry, General Directorate of Food and Control, Department of Food Control
9	Demirhan KÜÇÜK	MoEU, General Directorate of Environmental Management, Department of Zero Waste and Waste Processing
10	Derya ÖZÇELİK	MoAF, General Directorate of Agricultural Research and Policies (TAGEM), Department of Administrative Affairs and Coordination
11	Ece DİNSEL	MoEU, General Directorate of Environmental Management, Department of Zero Waste and Waste Processing
12	Emrah ŞIK	TÜBİTAK MAM Environment and Clean Production Institute
13	Erdoğan KARACA	MoEU, General Directorate of Environmental Management, Climate Change and Adaptation Department
14	Gülnur ÖLMEZ	MoAF, General Directorate of Water Management, Water Quality Department, Surface Waters Quality Working Group

15	Hande MERTYÜREK	The Union of Chambers and Commodity Exchanges of Turkey (TOBB), Department of EU, Environmental Directorate
16	Hasan KILIÇ	MoEU, General Directorate of Infrastructure and Urban Transformation Services
17	Hilal DURUKAN	Turkish Standards Institute (TSE)
18	Mehmet ARIK	MoAF, General Directorate of Livestock
19	Mehmet ERGÜN	Turkish Standards Institute (TSE)
20	Melik Hüseyin HAMİDİOĞULLARI	MoIT, General Directorate/Department of Industrial Safety and Control, Energy Efficiency Branch
21	Meryem ARSLAN	MoEU, General Directorate of Environmental Management, Department of STY
22	Nail BIYIK	MoAF, General Directorate of Agricultural Enterprises Plant Production Department
23	Osman KÜRTÜL	MENR General Directorate of Energy Affairs
24	Ömer ULUTAŞ	MoEU General Directorate of EIA, Monitoring and Auditing, Department of Environmental Qualification Services Environmental Management System and Environmental Label Branch
25	Özcan TUTUMLU	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Department of Consumption and Consumer Products
26	Özkan ÖZKARA	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Electronics and Semiconductors Industry Department
27	Rabia KUTLU	MoAF, General Directorate of Food and Control, Department of Food Enterprises and Codex
28	Recep KAYA	MENR Rare Earth Elements Research Institute
29	Rıza ALAGÖZ	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Basic Metal Industry Department
30	Rukiye KELEŞ	MoAF General Directorate of Plant Production, Department of Good Agricultural Practices and Organic Farming
31	Selin ENGİN	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Department of Productivity Practices
32	Serpil ERKUL	Ministry of Agriculture and Forestry, General Directorate of Plant Production, Department of Field and Horticulture
33	Şeyma ÇELLÜ GÜRGAH	Culture and Tourism Ministry
34	Tamer ERAKMAN	MoEU, General Directorate of Professional Services, Department of Building Materials
35	Türkan BİLGİN TIRPANCI	Ministry of Agriculture and Forestry General Directorate of Agricultural Reform
36	Yeliz ÇETİN	TÜBİTAK MAM Energy Institute
37	Nazan ÖZYÜREK	MoEU, General Directorate of Environmental Management, Department of Air Management
38	Önder GÜRPINAR	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office
39	Sezin ÇALIK ÇEPE	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office

40	Burcu TUNCER	SCP/RAC
41	Onur AKPULAT	REC Turkey
42	Gözde ODABAŞ	REC Turkey

Workshop 1 – Day 2 – Agenda **15.10.2019, Tuesday** **Mövenpick Hotel, Ankara**		
Time	**Discussion points**	**Lead & Speakers**
09:00	Introduction to the Day	
09:30	Country Practice 1: SCP in Arçelik Value Chain	Zeynep Özbek Environment Manager, Sustainability and Corporate Affairs Arçelik Household Appliances Inc.
10.15	Country Practice 2: SCP in Vestel Electronics Value Chain	Çağlar Ebeperi Design Architect Vestel Household Appliances Inc.
11:00	Coffee Break	
11:20	Working Groups on EEE Value Chains (Part 1) • Harvesting of Current SCP Policies in Turkey • Priority Aspects	Workshop moderated by the SCP/RAC & REC
12:30	Lunch	
13:30	Working Groups on EEE Value Chains (Part 2) • Drafting Operational Objectives and Key Policy Actions	Workshop moderated by the SCP/RAC & REC
14:30	Coffee Break	
14:45	Working Groups on EEE Value Chains (Part 3) • Drafting Recommendations for Projects	Workshop moderated by the SCP/RAC & REC
15:45	Next Steps	MoEU FP SCP/RAC
16:15	Closure of the Event	

Workshop 1 – Day 2 – Participant List **15.10.2019, Tuesday**

Mövenpick Hotel, Ankara		
	Name-Surname	**Institution**
1	Abdullah ALKAYA	MoEU, General Directorate of Infrastructure and Urban Transformation Services
2	Aşina Kübra ASLAN	MENR, General Directorate of Mining and Petroleum Affairs
3	Ayşe CEBE	MENR, General Directorate of MTA, Department of Environmental Research
4	Çiğdem GÖKÇE	Public Procurement Authority, Department of Institutional Development and Research
5	Çiğdem KURTAR	Ministry of Agriculture and Forestry, General Directorate of Food and Control, Department of Food Control
6	Gülnur ÖLMEZ	MoAF, General Directorate of Water Management, Water Quality Department, Surface Waters Quality Working Group
7	Hande MERTYÜREK	The Union of Chambers and Commodity Exchanges of Turkey (TOBB), Department of EU, Environmental Directorate
8	Hasan KILIÇ	MoEU, General Directorate of Infrastructure and Urban Transformation Services
9	Hilal DURUKAN	Turkish Standards Institute (TSE)
10	Koray TUÇDAN	Ministry of Agriculture and Forestry, General Directorate of Fisheries and Aquaculture
11	Mehmet ARIK	MoAF, General Directorate of Livestock
12	Mehmet ERGÜN	Turkish Standards Institute (TSE)
13	Melik Hüseyin HAMİDİOĞULLARI	MoIT, General Directorate/Department of Industrial Safety and Control, Energy Efficiency Branch
14	Meryem ARSLAN	MoEU, General Directorate of Environmental Management, Department of STY
15	Nail BIYIK	MoAF, General Directorate of Agricultural Enterprises Plant Production Department
16	Ömer ULUTAŞ	MoEU General Directorate of EIA, Monitoring and Auditing, Department of Environmental Qualification Services Environmental Management System and Environmental Label Branch
17	Osman KÜRTÜL	MENR General Directorate of Energy Affairs
18	Özkan ÖZKARA	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Electronics and Semiconductors Industry Department
19	Recep KAYA	MENR Rare Earth Elements Research Institute
20	Rıza ALAGÖZ	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Basic Metal Industry Department
21	Selin ENGİN	Ministry of Industry and Technology, General Directorate of Industry and Productivity, Department of Productivity Practices
22	Yeliz ÇETİN	TÜBİTAK MAM Energy Institute
23	Çağlar EBEPERİ	Vestel Household Appliances Inc.
24	Pırıl ERDEM	Vestel Household Appliances Inc.

25	Zeynep ÖZBEK	Arçelik Household Appliances Inc.
26	Önder GÜRPINAR	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office
27	Sezin ÇALIK ÇEPE	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office
28	Burcu TUNCER	SCP/RAC
29	Onur AKPULAT	REC Turkey
30	Gözde ODABAŞ	REC Turkey

Workshop 2 – Agenda
20.12.2019, Monday
Point Barbaros Hotel, İstanbul

Time	Discussion points	Lead & Speakers
09:30	Registration	
09:30	Meeting Opening	MoEU FP SCP/RAC
10:15	Global SCP NAP Experiences Regarding SCP Goals	Fabienne Pierre*, 10YFP Secretariat, One Planet Network, Economy Division, UN Environment **Live online connection*
11:00	Approach for Development of a SCP-NAP in Turkey and Priority Value Chains ● Core Framework based on Circular Economy Business Models ● SCP-NAP Outline and Foreseen Roadmap Format ● Priority value chains suggested ● Outputs of Scoping Workshop and Early Results of the Survey	Rıfat Ünal Sayman, Director, REC Turkey Burcu Tunçer, Team Leader, SCP/RAC Onur Akpulat, Senior Consultant, REC Turkey Gözde Odabaş, Expert, REC Turkey
11:30	Coffee Break	
11:45	Focus on the Selected Value Chains: Electric Electronic Equipment (EEE) ● EEE value chains ● SCP Priority Aspects ● Suggested Flagship and Pilot Projects	Rıfat Ünal Sayman, Director, REC Turkey Onur Akpulat, Senior Consultant, REC Turkey
12:30	Lunch	
13:30	Working Groups on EEE Value Chains ● Preparing Concept Notes for the Flagship and Pilot Projects	Workshop moderated by the SCP/RAC & REC Turkey

15:30	Next Steps for Developing SCP NAP	MoEU FP SCP/RAC
16:00	Closure of the Event	

Workshop 2 – Participant List
20.12.2019, Monday
Point Barbaros Hotel, İstanbul

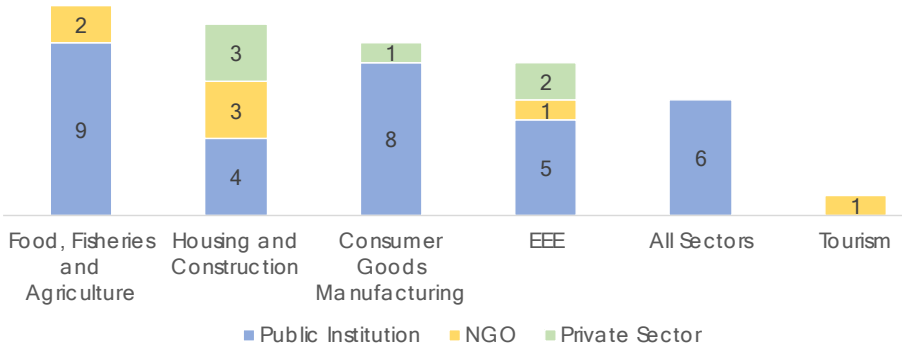
	Name-Surname	Institution
1	Ahmet ÇELEBİ	Electronic Devices Manufacturers Association (ECİD)
2	Aykan GÜRCÜ	Informatics Industry Association (TÜBİSAD)
3	Aysun TUNCER	İstanbul Provincial Directorate of Industry and Technology
4	Bahar ÖZAY	SDSN Turkey
5	Berk GÜNGÖR	Istanbul Chamber of Industry (İSO)
6	Burcu OTMAN BEKTAŞ	ESCARUS – TSKB Sustainability Consultancy
7	Cansu BATIR	Arçelik Household Appliances Inc.
8	Çağlar EBEPERİ	Vestel Household Appliances Inc.
9	Dilek TEMEL	The Union of Chambers and Commodity Exchanges of Turkey (TOBB), Durable Consumer Goods Council
10	Ece ÖMÜR	Netherlands Consulate General
11	Elif KARA	Lighting Equipment Manufacturers Association (AGİD)
12	Emine CAN	The Union of Chambers and Commodity Exchanges of Turkey (TOBB), Durable Consumer Goods Council
13	Esra EKEN TORUNOĞLU	Exitcom Recycling
14	Hakan ERKAN	Turkish Solar Energy Industry Association (GENSED)
15	Haluk ONAY	Informatics Industry Association (TÜBİSAD)
16	Hasan ÖNEL	MoEU, General Directorate of Environmental Management, Department of Zero Waste and Waste Processing, Special Waste Streams Branch
17	Meral KALENDER UYGAN	İstanbul Provincial Directorate of Environment and Urbanisation
18	Merdiye MUTLU	BSH Household Appliances San. Ve Tic. Inc.
19	Münevver BAYHAN	Business Council for Sustainable Development Turkey (BCSD Turkey)
20	Neyran AKYILDIZ	Worldwide Fund for Nature (WWF Turkey)

21	Nisa DEMİRCİ	Electric and Electronic Equipment Recycling and Waste Management Association (ELDAY)
22	Pırıl ERDEM	Vestel Household Appliances Inc.
23	Saadet AYGEN YILDIRIM	İstanbul Provincial Directorate of Environment and Urbanisation
24	Seval MALA	Electric and Electronic Equipment Exporters Association (TET)
25	Ufuk IŞIK	Recycling Industrialists Association (GEKSANDER)
26	Uğur IŞIK	Akademi Çevre Integrated Waste Management Industry Inc.
27	Zeki POYRAZ	The Union of Chambers and Commodity Exchanges of Turkey (TOBB), Air conditioning Council
28	Zeynep AKKAYA	Lighting Equipment Manufacturers Association (AGİD)
29	Nazan ÖZYÜREK	MoEU, General Directorate of Environmental Management, Department of Air Management
30	Önder GÜRPINAR	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office
31	Sezin ÇALIK ÇEPE	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office
32	Mehmet Metin ÇİÇEK	MoEU, General Directorate of Environmental Management, Department of Air Management, Integrated Pollution Prevention and Control Branch Office
33	Burcu TUNCER	SCP/RAC
34	Rifat Ünal SAYMAN	REC Turkey
35	Onur AKPULAT	REC Turkey
36	Gözde ODABAŞ	REC Turkey

Annex 3: Synopsis of the online survey results

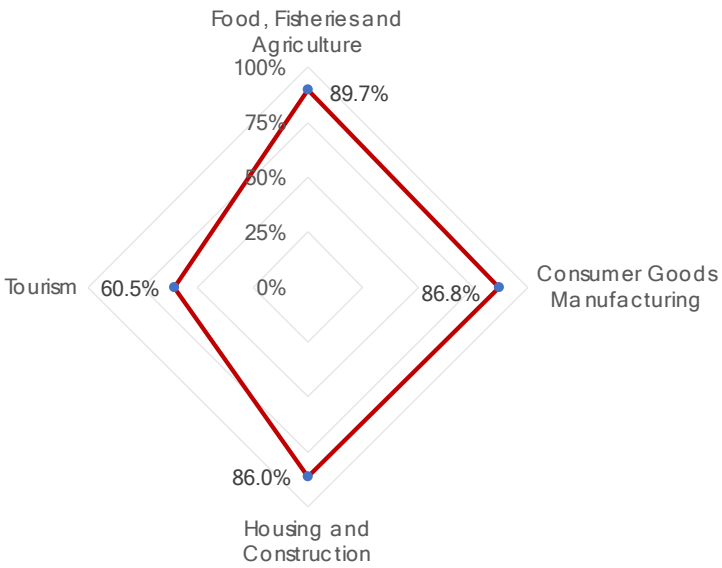
Based on the assessment done from different points of views in the previous section, food, fisheries and agriculture value chain is highlighted as having the most relevance in the legislation as well as having the most impact in terms of sustainable consumption and production. Consumer goods manufacturing value chain follows it.

To validate the results with stakeholder, a questionnaire was conducted. 46 institutions participated in questionnaire mostly from public institutions and consumer goods manufacturing value chain (see Figure)



Annex 3 - Figure 1: Types and Sectoral Distribution of Stakeholders Consulted

The questionnaire has four sections in addition to personal information section. The first section following personal information, asked participants to evaluate the four priority value chains between “very important-important-not important”. The results are calculated based on ranking each option between 1 and 3. While there is no value chain highlighted as above the others, tourism value chain is behind the others as seen from the Figure 1. This result is consistent with the assessment done in the previous section.



Annex 3 - Figure 2: Evaluation of Priority Value Chains by Related Stakeholders

The third section asks participants to select the most important key elements in life cycle stages in each priority value chain. Therefore, the following tables presents the priority results by dividing in three sections as primary, secondary and tertiary. The highlighted results are as follows:

- Raw material utilisation element is emphasized in natural resource extraction stage in all the value chains except for the tourism.
- Solid waste is also selected as one the primary elements for end-of-life management stage for all the value chains except for tourism.
- Water and energy utilisation are highlighted as one of the primary elements for natural resource extraction in food, fisheries and agriculture value chain.
- Energy utilisation is selected as one the five primary elements for manufacturing and packaging together with acquisition and use life cycle stages in both housing & construction and consumer goods and manufacturing value chains.

Food, Fisheries & Agriculture
5 Key Elements

	Natural Resource Extraction	Manufacturing and Packaging	Acquisition & Use	End-of-useful-life Management
Raw materials utilisation	11	5	1	1
Water utilisation	11	3	6	0
Energy utilisation	9	6	3	0
Air pollutants (emissions)	4	2	2	1
Water pollutants	3	4	0	2
Solid wastes	2	0	1	6
Biodiversity	9	0	0	1
Toxic substances	1	2	0	4
Worker health	4	2	0	1
Fair wages	2	1	2	0

Primary ≥6 Secondary ≤5 Tertiary <4

Housing & Construction
5 Key Elements

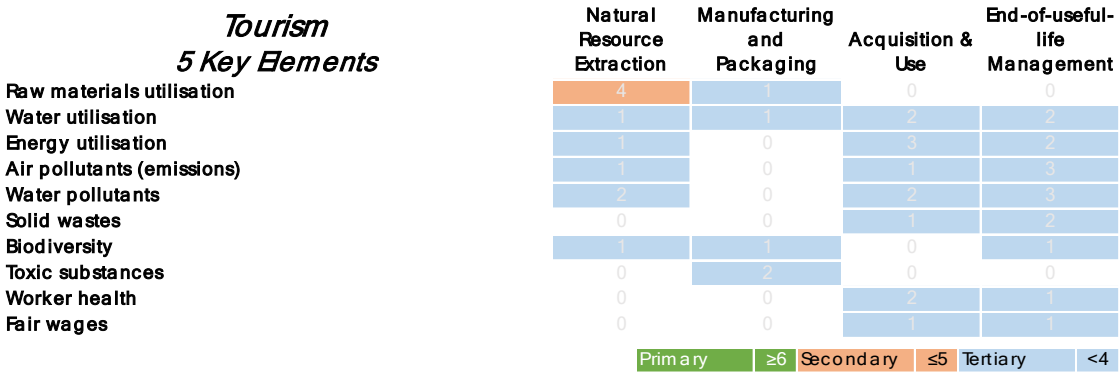
	Natural Resource Extraction	Manufacturing and Packaging	Acquisition & Use	End-of-useful-life Management
Raw materials utilisation	13	4	0	1
Water utilisation	4	2	4	1
Energy utilisation	3	8	7	1
Air pollutants (emissions)	4	4	0	1
Water pollutants	2	2	1	2
Solid wastes	1	3	1	10
Biodiversity	1	0	0	0
Toxic substances	0	0	1	1
Worker health	1	9	1	2
Fair wages	0	2	2	1

Primary ≥6 Secondary ≤5 Tertiary <4

Consumer Goods Manufacturing
5 Key Elements

	Natural Resource Extraction	Manufacturing and Packaging	Acquisition & Use	End-of-useful-life Management
Raw materials utilisation	6	4	7	4
Water utilisation	4	3	2	1
Energy utilisation	2	11	7	2
Air pollutants (emissions)	1	3	4	4
Water pollutants	2	7	2	4
Solid wastes	1	2	1	11
Biodiversity	1	1	1	0
Toxic substances	3	5	5	4
Worker health	0	5	1	2
Fair wages	0	2	2	0

Primary ≥6 Secondary ≤5 Tertiary <4



Annex 3 - Figure 3: Featured Key Elements of Selected Priority Value Chains

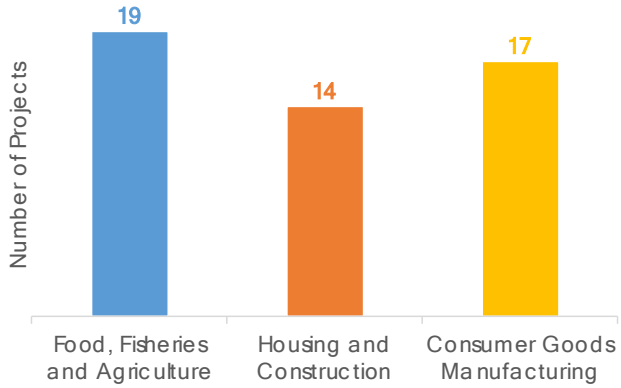
Following these three sections, participants were asked to input some of policy instruments in each value chain as well as project ideas. The results are provided in the Section 4.

Outputs of the workshops and online survey on **current policy agenda** in Turkey are summarized in this section. When looking at the number of instruments in the value chains, it is remarkable that they are directly proportional to the participation of sector representatives. For example, Food, Fisheries and Agriculture value chain has the highest number of instruments while Tourism value chain does not have too many as total representatives are less than five.

For each value chain, SCP related regulatory instruments are dominating other instruments and stakeholders (both public/private sectors and NGOs) have comprehensive knowledge of them. Just as in EEE value chain, communication and voluntary instruments are at a much lower level compared to regulatory and economic ones, demanding more efforts in these fields. Food, Fisheries and Agriculture value chain is considered as the most successful in this context among four selected value chains.

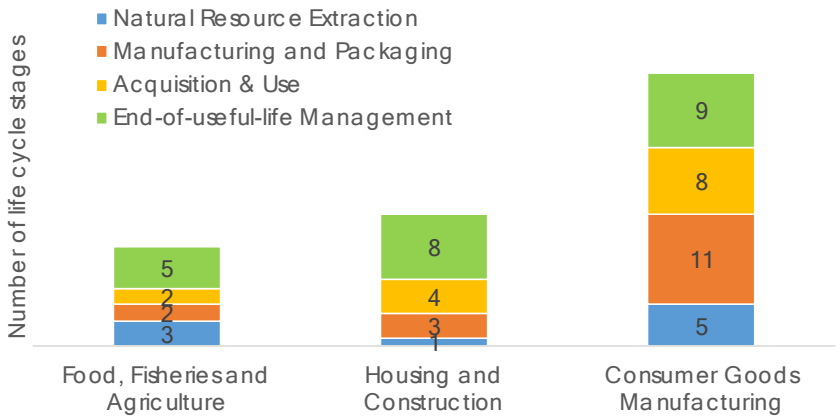
In this value chain, instruments are not focused on only one life cycle stage showing that improvements in all life cycle stages of the Food, Fisheries and Agriculture value chain could make a difference in terms of circular economy. For the Housing and Construction value chain, production and acquisition/use stages are highlighted as expected. On the other hand, it is seen that the focus is on all stages for the Consumer Goods Manufacturing value chain.

The situation is similar for the suggested projects. While total number of projects developed for three value chains are close to each other (Figure 4), only two project ideas were suggested for Tourism value chain. That's why outputs of Tourism value chain are not included in the following figures.



Annex 3 - Figure 4: Highest Number of Project Ideas among Selected Value Chains

Project ideas also support the importance of manufacturing stage for the Consumer Goods value chain (Figure 4). When looking at the number of life cycle stages addressed in the projects, it could be said that end-of-life stage comes to the fore for the other two value chains. However, it is important to note that the life cycle stages are not provided for some of the projects. This could also explain low number of extraction of natural resources stage in the Food, Fisheries and Agriculture value chain even though this stage was selected as one of the most important key elements (Section 2 and Annex 1).



Annex 3 - Figure 5: Number of Projects Regarding for Each Value Chain

Detailed SCP related policy instruments and project ideas suggested for each value chain are presented in Annex 4 and 5 respectively.

Annex 4: SCP Related Policy Instruments in Turkey

Table 1: Existing national policies enabling circular economy business models within the Food, Fisheries & Agriculture value chain.

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
Regulatory Instruments	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - 2 Official Control By-Laws - 2 Hygiene Control By-Laws - Turkish Food Codex (TGK) By-Laws - Turkish Food Codex (TGK) Communiqués - Surface Water Quality By-Law (30.11.2012, 28483) - By-Law on the Quality and Treatment of Drinking Water Resources (06.07.2019, 30823) - By-Law on Protection of Drinking-Potable Water Basins (28.10.2017, 30224) - By-Law on Control of Water Use in Irrigation Systems and Reduction of Water Losses (16.02.2017, 29981)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - 2 Official Control By-Laws - 2 Hygiene Control By-Laws - Turkish Food Codex (TGK) By-Laws - Turkish Food Codex (TGK) Communiqués - Surface Water Quality By-Law (30.11.2012, 28483) - By-Law on the Quality and Treatment of Drinking Water Resources (06.07.2019, 30823) - By-Law on Protection of Drinking-Potable Water Basins (28.10.2017, 30224)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - 2 Official Control By-Laws - 2 Hygiene Control By-Laws - Turkish Food Codex (TGK) By-Laws - Turkish Food Codex (TGK) Communiqués - Zero Waste By-Law (12.07.2019, 30829) - Agricultural Products Licensed Warehouse Law (17.02.2005, 25730) - Environmental Label By-Law (19.10.2018, 30570)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Ministry of Agriculture and Forestry Agricultural Research Institutes and Station Task Instruction (TOBTAEİGY) - Zero Waste By-Law (12.07.2019, 30829) - Communiqué on Code of Good Agricultural Practices to Prevent Nitrate Pollution in Waters caused by Agricultural Activities (11.02.2017, 29976) - By-Law on the Monitoring of Greenhouse Gas Emissions (17.05.2014, 29003) - By-Law on the Protection of Water Against Agricultural Nitrate Pollution (23.07.2016, 29779) - Packaging Waste Control By-Law (27.12.2017, 30283)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
	- By-Law on Control of Water Losses in Drinking Water Supply and Distribution Systems (08.05.2014, 28994) - PEFC Turkey Label Standard - Law on Breeding of Olives and Inoculation of Wilds (07.02.1939, 4126) - By-Law on Breeding of Olives and Inoculation of Wilds (03.04.1996, 22600) - Fresh Vegetable Fruit Cold Chain Law - Soil Conservation and Land Use Law (19.07.2005, 25880) - Agricultural Reform Law on Land Arrangement in Irrigation Areas (01.12.1984, 18592)	- By-Law on Control of Water Use in Irrigation Systems and Reduction of Water Losses (16.02.2017, 29981) - By-Law on Control of Water Losses in Drinking Water Supply and Distribution Systems (08.05.2014, 28994) - Turkey Label PEFC standard - Law on Breeding of Olives and Inoculation of Wilds (07.02.1939, 4126) - By-Law on Breeding of Olives and Inoculation of Wilds (03.04.1996, 22600) - By-Law on Registration and Approval Procedures of Food Premises (17.12.2011, 28145) - By-Law on the Registration Procedures and Best Practices for Production of Food Contact Materials (03.08.2012, 28373)- IPPC Communiqué in the Textile Industry (14.12.2011, 28142)		- Waste Management By-Law (02.04.2015, 29314)
Economic Instruments	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects - Organic Agriculture Law (03.12.2004, 25659)	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects	- Regional Development Incentives (tax, energy, personnel, investment, etc.) - General Budget - R&D Support Program - TÜBİTAK Programs - EU Framework Program Projects - International Projects

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
	- By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Administrative sanctions defined in Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - Tree cutting penalties/Illegal building penalties in Law on Breeding of Olives and Inoculation of Wilds (07.02.1939, 4126) and By-Law on Breeding of Olives and Inoculation of Wilds (03.04.1996, 22600)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Administrative sanctions defined in Veterinary Services, Plant Health, Food and Feed Law (13.06.2010, 27610) - Financial supports to clean production/industrial symbiosis in line with the priorities of Development Agencies (in the past)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Packaging Waste Control By-Law (27.12.2017, 30283)	- Organic Agriculture Law (03.12.2004, 25659) - By-Law on Principles and Implementation of Organic Agriculture (18.08.2010, 27676) - By-Law on Good Agricultural Practices (07.12.2010, 27778) - Communiqués regarding the two By-Laws above - Packaging Waste Control By-Law (27.12.2017, 30283)
Communicative Instruments	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Packaging Waste Control By-Law (27.12.2017, 30283) - Ministry of Industry and Technology Clean Production Information Platform	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Packaging Waste Control By-Law (27.12.2017, 30283) - Ministry of Industry and Technology Clean Production Information Platform	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Technical Assistance for Water Ambassadors Education and Awareness Raising Project (Public Spot)	- Field Days - The Project on Dissemination and Control of Organic Agriculture - The Project on Gökçeada and Bozcaada Agricultural Development and Habitation - The Project on Dissemination and Control of Good Agricultural Practices - Packaging Waste Control By-Law (27.12.2017, 30283) - Zero Waste By-Law (12.07.2019, 30829)

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
			- Packaging Waste Control By-Law (27.12.2017, 30283) - Packaging Waste Information System	
Voluntary or Procedural Instruments	- EMAS Label - Field Days	- EMAS Label - Field Days - Sectoral Associations	- EMAS Label - Field Days - Zero Waste By-Law (12.07.2019, 30829) - PEFC logo utilization	- EMAS Label - Field Days - Zero Waste By-Law (12.07.2019, 30829) - Virtual water and water footprint studies

Table 2: Existing national policies enabling circular economy business models within the Housing & Construction value chain.

Policy instruments / **Lifecycle stages**	**Extraction of natural resources and sourcing of materials**	**Manufacturing and Packaging**	**Acquisition & use**	**End-of-life**
Regulatory Instruments	- Construction Products By-Law (305/2011 / EU) (10.07.2013, 28703) - By-Law on Occupational Health and Safety in Construction Works (05.10.2013, 28786) - Mining Law (15.06.1985, 18785) - Mining By-Law (21.09.2017, 30187) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Persistant Organic Pollutants By-Law (14.11.2018, 30595) - By-Law on Registration, Evaluation, Authorization and Restriction of Chemicals (23.06.2017, 30105) - Turkey Earthquake Building Regulations (18.03.2018, 30364) - By-Law on Fire Protection of Buildings (19.12.2007, 26735)	- Construction Products By-Law (305/2011 / EU) (10.07.2013, 28703) - By-Law on Occupational Health and Safety in Construction Works (05.10.2013, 28786) - By-Law on the Construction Products Criteria (26.06.2009, 27270) - Law on Building Control (13.07.2001, 24461)	- Construction Products By-Law (305/2011 / EU) (10.07.2013, 28703) - By-Law on Waterproofing in Buildings (27.10.2017, 30223) - By-Law on Energy Performance of Buildings (05.12.2008, 27075) - By-Law on Green Certificate for Buildings and Settlements (23.12.2017, 30279) - By-Law on Fire Protection of Buildings (19.12.2007, 26735) - By-Law on the Noise Protection of Buildings (31.05.2017, 30082) - Green Buildings and Green Building Certificate	- By-Law on Control of Excavation, Construction and Demolishing Wastes (18.03.2004, 25406)
Economic Instruments	- Mining Law (15.06.1985, 18785)		- Fines arising from Customs Union Agreement - Law on the Amendment of Some Law and Law Decree for the Development of Industry and Supporting Production (01.07.2017, 30111)	
Communicative Instruments	Electronic Mining Operations Management Information System (E-Mining)			

Voluntary or Procedural Instruments	İstanbul Mineral Exporters' Association (İMİB) Turkish Miners Association (TMD) Turkish Association of Economic Geologists (MJD)		Green Procurement	

Table 3: Existing national policies enabling circular economy business models within the Textile and Clothing value chain.

Policy instruments / **Lifecycle stages**	**Extraction of natural resources and sourcing of materials**	**Manufacturing and Packaging**	**Acquisition & use**	**End-of-life**
Regulatory Instruments	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Surface Water Quality By-Law (30.11.2012, 28483)	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Environmental Law (11.08.1983, 18132) - IPPC Communiqué in the Textile Industry (14.12.2011, 28142) - Energy Efficiency Law (02.05.2007, 26510) - By-Law on the Energy and Other resource Consumptions of Products by Labelling and Standard Product Information (02.12.2011, 28130) - National Energy Efficiency Action Plan - 11th Development Plan - Turkish Industrial Strategy	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Environmental Law (11.08.1983, 18132) - IPPC Communiqué in the Textile Industry (14.12.2011, 28142) - Eco-design Communiqués	- Environmental Label By-Law (19.10.2018, 30570) - By-Law on Substances that Deplete the Ozone Layer (07.04.2017, 30031) - By-Law on Fluorinated Greenhouse Gases (04.01.2018, 30291) - Environmental Law (11.08.1983, 18132) - By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012, 28300) - By-Law on Control of Waste Batteries and Accumulators (31.08.2004, 25569) - Waste Management By-Law (02.04.2015, 29314)
Economic Instruments	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132)	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132) - Rewarding Resource Efficiency Projects - Environmental Contribution	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132)	- Environmental Label By-Law (19.10.2018, 30570) - Article No. 20 of Environmental Law (11.08.1983, 18132) - Deposit/Award Mechanisms for Consumer Within the Scope of 5R

Policy instruments / Lifecycle stages	Extraction of natural resources and sourcing of materials	Manufacturing and Packaging	Acquisition & use	End-of-life
		- City Gas Contribution		
Communicative Instruments	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report - Textile specific institutions such as BUTEKOM, and other NGOs.	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report - Eco-labelled Products	- Environmental Label By-Law (19.10.2018, 30570) - Annual Environmental Indicators Report
Voluntary or Procedural Instruments	- Environmental Label By-Law (19.10.2018, 30570)	- Environmental Label By-Law (19.10.2018, 30570) - Efficiency-enhancing Suggestion Mechanism for Staff	- Environmental Label By-Law (19.10.2018, 30570) - Customer demand and Obligation - Green Procurement	- Environmental Label By-Law (19.10.2018, 30570) - Green Procurement

Annex 5: Projects Suggested for the Roadmap

Table 1: Suggested projects enabling circular economy business models within the food, fisheries & agriculture value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Conservation and Sustainable Use of Pastures Project	- Ministry of Agriculture and Forestry	Extraction of Natural Resources	> €1,000,000	> 3 years
2	Project for Prevention and Management of Food Wastes	- Ministry of Agriculture and Forestry - Ministry of Environment and Urbanization - Municipalities - Restaurants/Hotels/Malls - Citizens	Extraction of Natural Resources End-of-life	€100,000 - €1,000,000	1-3 years
3	Determination of Type and Potential of Agricultural Waste to be Used in Energy Supply in Turkey	- Ministry of Agriculture and Forestry - TAGEM - TÜBİTAK MAM Institute of Energy	End-of-life	< €100,000	< 1 year
4	Project for Collection and Disposal of Packaging of Plant Protection Products Used in Agricultural Production	- Ministry of Agriculture and Forestry - Ministry of Environment and Urbanization - NGOs (Plant protection products producers and exporters) - Plant protection products dealers - Agricultural Chambers - Agricultural Credit Cooperatives - Producers	End-of-life	> €1,000,000	> 3 years
5	Project on Promotion of Smart Agriculture	- Ministry of Agriculture and Forestry - Farmers - BGOs	Acquisition & Use	€100,000 - €1,000,000	> 3 years
6	Project on Incorporation of all Raw Vegetables and Fruits into Cold Chain	- Ministry of Agriculture and Forestry - Ministry of Trade	Manufacturing and Packaging Acquisition & Use	> €1,000,000	> 3 years

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
7	The Project for Determining the Most Impactful Sector within the Food Industry and the Size of Improvement Capacity	- Ministry of Agriculture and Forestry - Ministry of Environment and Urbanization	Manufacturing and Packaging	€100,000 - €1,000,000	
8	The Project for Assessment of Agricultural Sectors and Preparation of National Action Plan in Transition to Green Economy	- Ministry of Agriculture and Forestry - NGOs - Universities - Agricultural Chambers	Extraction of Natural Resources	€100,000 - €1,000,000	
9	Awareness Raising Project for Producers and Consumers in Agricultural Pollution	- Ministry of Agriculture and Forestry - NGOs - Universities - Agricultural Chambers	End-of-life	> €1,000,000	
10	Preparation of the By-Law on Recycling of Waste Electrical Electronic Equipment (WEEE) in line with the EU	- Ministry of Agriculture and Forestry - Ministry of Industry and Technology		< €100,000	< 1 year
11	Project for Sustainable Use of Biomass to Assist the Development of Turkey's Economy Towards Green Growth (on-going)	- TAGEM - UNIDO	End-of-life		
12	Project for Establishment of Turkey Office of PEFC	- Ministry of Agriculture and Forestry - PEFC Central Office - TSE Standard Preparation Center		€100,000 - €1,000,000	
13	Project on Capacity Building on Efficient Livestock Breeding in the Eastern Anatolia Region (DAP)	- Universities - Agricultural Chambers - NGOs - Municipalities - Provincial Directorates of Agriculture and Forestry			< 1 year

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
14	Zero Waste Management System for Food Processing Industry	- Ministry of Agriculture and Forestry - Catering/Hotels			
15	Project on improving the life quality and number of farmers to ensure the continuity of production by implementing new developments				> 3 years
16	Project on EU Common Agricultural Policies				
17	Project for New Variety Development (cereals, forage crops)				
18	Project on Good Agricultural Practices				
19	Project on Organic Production				

Table 2: Suggested projects enabling circular economy business models within the housing & construction value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Project for Constructing Environmentally Friendly Buildings	- Ministry of Environment and Urbanization - İMSAD - Companies in the sector of construction products and construction	Manufacturing and Packaging Acquisition & Use	> €1,000,000	> 3 years
2	Project for Recycling of Construction and Demolition Waste	- Ministry of Environment and Urbanization - Municipalities - İMSAD - Private Sector	Acquisition & Use End-of-life	> €1,000,000	> 3 years
3	Insulation Campaign to Increase Energy Efficiency in Buildings	- Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization - Ministry of Treasury and Finance - İZODER - Banks - Households	Acquisition & Use	> €1,000,000	> 3 years
4	Investigation of Raw Material Supply Opportunities for Production Through Urban Transformation	- Ministry of Environment and Urbanization - İMSAD - İZODER - Universities, etc.	End-of-life	> €1,000,000	> 3 years
5	Project for Developing Sustainable Waste Collection and Disposal Systems for Buildings, Similar to the "Zero Waste" logic (easy to implement by households)	- Municipalities - Ministry of Environment and Urbanization - Ministry of Industry and Technology - Households - İMSAD - Authorized facilities for waste disposal - Water Administrations	End-of-life	€100,000 - €1,000,000	> 3 years
6	Project on modern design criteria and technical specifications of the products	- MMO - TTMD - MTMD	End-of-life	€100,000 - €1,000,000	1-3 years

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
		- ISKID - ISKAV And sectoral NGOs			
7	Determination of Type and Potential of Forestry Waste to be Used in Energy Supply in Turkey	- Ministry of Agriculture and Forestry - General Directorate of Forestry - TÜBİTAK MAM Institute of Energy	End-of-life	< €100,000	< 1 year
8	Determination of Type and Potential of Urban Waste to be Used in Energy Supply in Turkey	- Ministry of Environment and Urbanization - Municipalities - TÜBİTAK MAM Institute of Energy	End-of-life	< €100,000	< 1 year
9	Project for Technical Capacity Building in the Field of Construction Products	- Ministry of Trade - Ministry of Environment and Urbanization - İMSAD	Manufacturing and Packaging	< €100,000	1-3 years
10	Identification of Alternative Camelina Types Suitable for Biodiesel TAGEM 181 R&D / 34 (ongoing)	- TAGEM - Private Sector	End-of-life		
11	Project for Finding and Storing Natural Water Resources, and its Efficient and Economical Use	- Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization - Ministry of Agriculture and Forestry	Extraction of Natural Resources Manufacturing and Packaging		
12	Project for Energy-certified Building Construction for Energy Efficiency (new public buildings to be built as a pilot)	- Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization - Ministry of Industry and Technology - Municipalities - Contractors Association	Acquisition & Use End-of-life		
13	Green Procurement Project	- Public Procurement Authority - Ministry of Environment and Urbanization - Ministry of Transport and Infrastructure			

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
14	Project on Integration of the Life Cycle Cost into the Public Procurement	- Public Procurement Authority - Ministries procuring in the scope of Law of Public Procurement Law No. 4734			

Table 3: Suggested projects enabling circular economy business models within the Consumer Goods Manufacturing value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Project on Recovering Electricity, Heat, Valuable Chemicals (PE, PP, DME) from Potential Waste Types	- Municipalities - Ministry of Environment and Urbanization - TÜBİTAK MAM Institute of Energy	End-of-life	€100,000 - €1,000,000	> 3 years
2	Establishment and Promotion of Green OIZs	- Ministry of Industry and Technology - Ministry of Environment and Urbanization	Manufacturing and Packaging	€100,000 - €1,000,000	1-3 years
3	Recovery of Critical Raw Materials from Electronic Waste	- TÜBİTAK - Recycling Sector - Ministry of Environment and Urbanization - NATEN	End-of-life	> €1,000,000	> 3 years
4	Project for Determining the Discharge Standards Based on Receiving Environment	- Ministry of Environment and Urbanization - Ministry of Agriculture and Forestry - General Directorate of Water Management - Sector Representatives	Manufacturing and Packaging	€100,000 - €1,000,000	1-3 years
5	SCP Communication Strategy	- All public institutions - Universities - NGOs - Municipalities	End-of-life	€100,000 - €1,000,000	1-3 years
6	SCP Sample Grant Projects	- All public institutions - Universities - NGOs - Municipalities	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life	> €1,000,000	> 3 years
7	Eco-labelling of EEE	- Ministry of Energy and Natural Resources - Ministry of Industry and Technology - Professional Chambers - Professional NGOs	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life	> €1,000,000	> 3 years

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
8	Project for Determining and Applying New Environmental Label Criteria for Product and Service Groups	- Ministry of Industry and Technology - Ministry of Trade - Ministry of Culture and Tourism - TÜBİTAK MAM Institute of Energy - Sector Leaders	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life	€100,000 - €1,000,000	
9	Consumer Awareness Raising Project via Energy Label (pop-up tabs on shopping sites regarding the product's energy label and content)	- Ministry of Industry and Technology - Association of E-Commerce Operators (ETİD)	Manufacturing and Packaging Acquisition & Use	€100,000 - €1,000,000	
10	Impact Assessment Project for the Impacts of the Energy Efficiency Legislation in Force currently and in the future (Reflections of the Legislation and Practices of Energy Efficient Products)	- Ministry of Industry and Technology - Ministry of Energy and Natural Resources - Ministry of Environment and Urbanization	Manufacturing and Packaging	€100,000 - €1,000,000	
11	Improving the scope of the Environmental Label Criteria determined for the Textile/Ceramic/Paper products	- Ministry of Industry and Technology - Ministry of Trade - Ministry of Culture and Tourism - TÜBİTAK MAM Institute of Energy - Sector Leaders	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life		1-3 years
12	Improving the Scope of the Environmental Label Criteria Determined for the Tourism Sector	- Ministry of Industry and Technology - Ministry of Trade - Ministry of Culture and Tourism - TÜBİTAK MAM Institute of Energy - Sector Leaders	Extraction of Natural Resources Manufacturing and Packaging Acquisition & Use End-of-life		1-3 years

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
13	Promotion of Resource Efficiency/Energy Efficiency Practices in Industry	- Ministry of Industry and Technology - Ministry of Environment and Urbanization - Ministry of Energy and Natural Resources TÜBİTAK MAM - Institute of Environment and Clean Production	Manufacturing and Packaging		> 3 years
14	Controlling Scrap Used in Steel Production	- Ministry of Environment and Urbanization - Ministry of Energy and Natural Resources - Ministry of Trade - Turkish Steel Producers Association	Acquisition & Use End-of-life		1-3 years
15	Determination of Clean Production Ptential in Industry (Yeast and Iron-Steel Industry)	- Ministry of Industry and Technology - TÜBİTAK MAM - Institute of Environment and Clean Production - Industry of Iron-Steel - Industry of Yeast (Pakmaya)	Manufacturing and Packaging		
16	Improvements in the Scope of Discounts for Purchasing Energy Efficient Products or Incentives for the Use of High Efficiency Motors in Production	- Consumers - High Level Managers in the Company	Acquisition & Use		
17	Training Project for Solid Waste Disposal in Facilities in the EAP Region	- Ministry of Agriculture and Forestry - Agricultural Chambers - Universities			< 1 year

Table 4: Suggested projects enabling circular economy business models within the Tourism value chain.

No	Project Name	Related Stakeholders	Related Life Cycle Stage	Expected Budget	Expected Implementing Duration
1	Annual Periodic Maintenance of all Cold Storage Equipment (Cold Storage Rooms, Logistics Tools, Refrigerated Display Cabinet, Food Processing Areas Cooling Equipment)	- Ministry of Agriculture and Forestry	Acquisition & Use End-of-life	> €1,000,000	1-3 years
2	Ecolabel Project in the Tourism Sector	- Ministry of Environment and Urbanization, Eco-label Department - TÜBİTAK MAM Institute of Environment and Clean Production	End-of-life		