




LIFE Integrated projects 2020
Environment

Stage 1 - Concept Note (CN) forms

LIFE Integrated Projects 2020- CNa

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PROJECT

Project title (*max. 120 characters*): Circular Economy Beyond Waste

Project acronym (*max. 25 characters*): LIFE IP CE Beyond Waste

The project will be implemented in the following Country(ies) and/or Administrative region(s): Denmark. The Danish Environmental Protection Agency (EPA), Central Denmark Region (CDR), and the Capital Region of Denmark (CR) are main partners. The two regions are pilot regions and will together with the EPA (the competent authority responsible for the WP) involve app. 48 out of 98 municipalities in Denmark in the project. The EPA and the three remaining regions in DK (approx. 50 municipalities) will be replicating actions during phases 2 and 3.

Expected start date: 01.01.2022

Expected end date: 31.12.2029

PROJECT POLICY AREA

You can only tick one of the following options:

LIFE Integrated Project Nature: Integrated project implementing prioritised action frameworks pursuant to Article 8 of the Habitats Directive which may include Green Infrastructure actions that contribute to the coherence of the Natura 2000 network in a cross-border context

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LIFE Integrated Project Environment: Integrated project implementing:

- waste management plans pursuant to Article 28 of the Waste Framework Directive
- river basin management plans pursuant to Annex VII to the Water Framework Directive
- air quality plans pursuant to the Air Quality Directive or national air pollution control programmes pursuant to the National Emission Ceilings Directive.

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The project aims at implementing the following plan/strategy (**full copy is to be provided in attachment**):

The Action Plan for Circular Economy, National Waste Prevention Programme and Waste Management Plan 2020-2032. (Handlingsplan for cirkulær økonomi, National plan for forebyggelse og håndtering af affald 2020-2030¹).

BENEFICIARIES

Name of the **coordinating** beneficiary (1): Central Denmark Region (CDR)

Name of the associated beneficiary (2): The Danish Environmental Protection Agency (EPA)

Name of the associated beneficiary (3): The Capital Region of Denmark (CR)

PROJECT BUDGET AND REQUESTED EU FUNDING

Total integrated project budget: 18,500.000 €

Total eligible project budget: 18,500.000 €

EU LIFE financial contribution requested: 11,100.000 € (60 % of total eligible budget)

AUTHORISATION TO INFORM NATIONAL CONTACT POINT

The consortium authorises EASME to share with the LIFE National Contact Point the project title and coordinating beneficiary name:

Yes

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No

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¹ Den Nationale Affaldsforebyggelses- og Håndteringsplan 2020-2026, which implements and integrates the WFD Art. 28 and Art. 29, is in its final stages before formal approval. It will be public and adopted well in advance of handing in the full proposal.

LIFE Integrated Projects 2020- CNb

Coordinating Beneficiary Profile Information					
Short Name	CDR			Beneficiary n°	1
Legal information on the Coordinating Beneficiary					
Legal Name	Region Midtjylland (Central Denmark Region)			Legal Status	
VAT No	29190925			Public body	x
Legal Registration No	29190925			Private commercial	
Registration Date	01.01.2007			Private non- commercial	
Legal address of the Coordinating Beneficiary					
Street Name and No	Skottenborg 26			PO Box	N/A
Post Code	8800	Town/City	Viborg		
Country Code	DK	Country Name	Denmark		
Coordinating Beneficiary contact person information					
Function	Strategic Development Consultant				
Surname	Jensen	First Name	Jesper Birkhøj		
E-mail address	Jesper.jensen@ru.rm.dk				
Department / Service	Regional Udvikling/Regional Development				
Street Name and No	Skottenborg 26			PO Box	N/A
Post Code	8800	Town/City	Viborg		
Country	Denmark				
Telephone No	+4521375544	Fax No	N/A		
Coordinating Beneficiary details					
Website	www.rm.dk				
Brief description of the Coordinating Beneficiary's activities and experience in the area of the proposal					

CDR is the 2nd largest regional administrative unit in Denmark, covering 19 municipalities. CDR is responsible for healthcare, psychiatry, social services, and regional development. CDR has a long-term political commitment to improving environmental, resource management and sustainability issues in its strategic development, including in the Regional Development Strategy and the Sustainability Strategy, based on the SDGs.

CDR is a European pioneer regarding innovative circular economy (CE) projects. It has implemented a decade-long crosscutting programme of interaction with municipal authorities and other key players, employing participatory strategies and shared multi-governance structures. This has addressed the needs of stakeholders and created robust initiatives that preserve resources, prevent waste, improve business opportunities, and create jobs.

Since 2010, CDR has supported 500+ SME's in CE business programmes, replicated across Denmark. Recently, CDR implemented two major CE projects addressing value chains and material flows of plastics and construction materials.

CDR has assisted the 19 municipalities to facilitate the transfer of CE principles into local strategies, and in 2017 was a major contributor to the catalogue "The Circular Municipality" developed by Local Government Denmark (KL), uniting all 98 Danish municipalities.

In 2013, CDR was among the first public organisations to cooperate with the Ellen MacArthur Foundation on CE. CDR paved the way for the Danish EPA and the Danish Business Authority to become formal members and was the driving force behind the Foundation using DK as a showcase for "Delivering the Circular Economy - A toolkit for policymakers".

Since 2010, CDR has held 100+ conferences, strategic workshops, etc. and attended international conferences as keynote speakers on CE.

CDR has utilized EU funds to pursue the sustainability agenda, e.g. energy-projects like REFER (ELENA), C2CCC on climate adaptation (LIFE IP), and Interreg projects. Lately, CDR has been part of an EPC taskforce on digitalization of CE, delivering recommendations for the European Green Deal.

The Concept Note has been developed with the EPA - responsible for the WP - and CR, being two main beneficiaries. The municipalities in CDR and CR have been involved in the development of the actions.

SUMMARY DESCRIPTION OF THE PROJECT

1. Overall context/background/geographical scope

IP itself

Context and background

Denmark faces serious environmental challenges: climate change, environmental degradation (incl. soil and biodiversity degradation), concern over resources depletion and scarcity, risks of harmful chemicals, and overconsumption (having Europe's earliest Earth Overshoot Day), as well as a COVID-19 induced economic, employment, and health crises. Danish consumption and production have led to one of the world's highest carbon footprints, 19 tons per capita (Global Resource Footprint of Nations, 2014) or 8.9 tons CO₂ per capita if counting only domestic emissions (Eurostat), and waste generation per capita is one of the highest in Europe (816 kg EPA) – far above the EU average of 492 kg per capita.

Better integration of circular approaches in waste prevention as well as in waste management present ways of meeting these challenges. Lately, political consensus is emerging at all levels on the need for a green and sustainable economic recovery to ensure a resource efficient and climate neutral way of life before 2050.

The Danish waste management sector is highly fragmented. At national level, the Danish Environmental Protection Agency, EPA, is the competent authority responsible for the WP, with other governmental agencies also playing a role. At local level, the legislative framework and a tradition for municipal self-governance means that the municipalities are responsible for waste management. In some cases, municipalities have created joint waste companies, but politically, there are 98 local waste management plans (19 in CDR and 29 in CR), implementing the WP, adapted to local conditions.

The fragmented waste management also affects the value of the waste fractions: Waste sorting is currently locally defined, reducing the potential for creating homogenous fractions of high quality and volume, which is necessary to establish effective commercial markets for secondary raw materials. In Denmark, less than 60 % of the collected, sorted, and registered waste is recycled. In addition, much of the waste that is recycled is severely down cycled.

Moreover, current legislation dictates that business waste (73 %) falls outside municipal responsibility and thus outside the scope of the local municipal waste management plans. Finally, municipalities handle surveillance and enforcement of business waste management unevenly.

The Danish waste-to-energy system has led to a 'trap of incineration overcapacity' and an increased dependency on import of waste. In 2018, 3,938,000 tons of waste were incinerated, and 549,000 tons imported solely for energy purposes. Waste incineration plays an important part of district heating (20 %) and in electricity production (5 %), and large sums have been invested in incineration plants - some of them very prestigious, hampering upcycling, waste prevention and re-use.

Waste prevention has primarily been the responsibility of the Danish government, and municipal prevention initiatives are varied and reflect different local priorities. Municipalities have expressed concern that waste prevention is difficult and that capacity building and cross-sectoral cooperation is needed. Extra resources are also needed to cover the risks and costs of the fundamental changes to procurement, consumption, and production processes.

The transition to circular economy is highly complex and will require a coordinated approach of a multitude of actions from a broad range of stakeholders. There is currently no such comprehensive coordinated effort or integrated strategy in Denmark to initiate a shift from linear to circular economy. As a symptom of that, about 70 % of companies are not meaningfully acquainted with circular economy.

A circular transition also requires a strong democratic mandate and citizen engagement. As such, citizens must be mobilised and empowered to take part in the circular transition.

Political will to address the challenges of a transition to circular economy has recently been manifested by the political agreement a Climate Plan for a Green Waste Sector and Circular Economy (*Klimaplan for en grøn affaldssektor og cirkulær økonomi*, June 2020), functioning as the basis for the upcoming WP. However, real change has yet to occur.

The main gaps that hinder the effective implementation of the national waste plan and a shift to circular economy are (in parenthesis: the project objectives and the actions addressing the gaps):

Lack of capacity building and commercialisation addressing waste prevention, reuse, and re-cycling

- Lack of **circular competences and capacity** across all sectors, stakeholders, and professions (O1, O2, O3, action 1)

- Lack of **proven concepts** for successful circular business models, practical solutions, reskilling and organizational setups, hampers a broad dissemination of circular practices. (O1, O2, action 2)
- Insufficient development and deployment of **digital solutions** to track and trace materials and products through the value chain. (O1, O2, action 3)
- Lack of **measuring and pricing methods** integrating the broader societal benefits of circular economy (O3, actions 5 and 6)

Weak waste prevention

- **Linear product design** hinders repair, reuse, and recycling of products, leading to down cycling of resources (e.g. building materials, textiles, electronics/WEEE) (O1, O2, actions 8-13)
- Inadequate **demand for circular solutions** (e.g. used products, repair services, product-as-a-service, and products based on secondary raw materials) (O1, O2, action 6)
- A prevalent culture of **resource intensive consumption patterns** (O1, action 15)
- Lack of convenient and cost-effective **concepts for repairing, sharing and selling and buying** second-hand (O1, action 7)

Lack of organisation and value-chain based waste management

- A fragmented organisation of the waste management results in different **standards for collecting, sorting, and treating waste**, thereby hindering waste streams of sufficient quality and volume to be commercially attractive (O2, actions 8-13)
- **Inadequate market/demand** for secondary raw materials (O2 – actions 8-13)

Lack of regulation stimulating both citizens and companies to go beyond waste

- Absence of a clear **democratic mandate** to undertake the necessary investments and changes in the framework conditions in order to promote systemic change (O1, O2, O3, action 15)
- Absence of **governance structures and incentives** to foster circular transition, e.g. multi-level and crosscutting cooperation, coordination, mutual learning and innovation among and between all relevant stakeholders. (O3, actions 4 and 16).

Geographical coverage

The IP aims at the full implementation of the Danish national waste plan (the WP, incl. both WPP & WMP) during the three phases (3 + 3 + 2 years) of the IP and after, using a multi-level approach.

The three main beneficiaries – the Central Denmark Region (CDR, lead-partner), the Capital Region Denmark (CR), and the Environmental Protection Agency (EPA) – will initiate actions (best practice, demonstration, pilot) in phase 1. During subsequent phases, the IP will transfer best practice and demonstration projects to other municipalities – inside and outside the two regions – based on an adaptive approach and continuous evaluation of the impact of the actions. Likewise, solutions are up-scaled by fostering cooperation and partnerships with other Danish regions and other stakeholders early in the process. Eventually, the IP will cover all 5.8 million inhabitants in Denmark, and the EPA will serve as a crucial replication agent as well as an agent for future revision of legislation.

Why this project is an IP

Implementing the WP and mainstreaming circular economy approaches is a highly complex process that reaches beyond the traditional waste sector to society at large. It requires a holistic approach and a high quality, multi-purpose delivery mechanism with committed participation of a broad range of stakeholders. The value added of the IP to the implementation of the WP lies in its focus on securing long-term circular solutions in society by consolidating the capacities among public and private actors inside and outside the waste sector, and allowing for the development of circular solutions, business models as well as their replication in integrative cross-sectorial networks. CDR and CR are ideally placed to facilitate the process; the regional governance level in Denmark supports coordination between municipalities and helps bridge the gap between national and municipal authorities. The IP addresses the complex and as yet unsolved barriers to the practical implementation of circular economy in Denmark.

Complementary actions

The complementary actions target the same gaps as the IP and the WP, by adding layers of technological innovations, R&D, and physical infrastructure/facilities etc. Some of the complementary actions address complicated waste areas such as plastics, bringing innovative solutions to a higher level and bridging the gaps to the development of circular business models and value chain collaborations. Furthermore, complementary actions transfer best practice to locations outside the CDR and CR – or introduce best practice (European or Danish) into the context of the IP.

2. Project objectives

IP itself

The IP aims at the full implementation of the national Waste Plan (cf. footnote 1), in a way that reinforces and accelerates the shift to a circular economy, in order to keep resources at the highest possible level of the waste hierarchy for as long as possible. The three main objectives are:

O1. Waste prevention: To prevent waste generation and reduce consumption of primary resources by introducing and integrating circular approaches in the actions and behaviour of public authorities, private enterprises as well as among citizens.

O2. Circular waste management: To turn waste to resources by implementing circular economy practices in the treatment of waste; realise markets for re-use and secondary raw materials and innovate waste monitoring to include effects of circularity and thus incentivise circular economy.

O3. Regulation: To improve the regulatory framework, governance, and incentives for circular economy, waste prevention and circular waste management by identifying regulatory barriers to circularity and providing feedback and guidance to political and administrative decision makers.

The IP supports the implementation of the revised WFD (EU) 2018/851 and associated acts and Directives. The IP contributes to (EU) 1293/2013 Articles 3 and 10, 1386/2013/EU, subsequent developments pursuant to COM/2015/0614 and COM/2020/98 and to the objectives of COM(2019) 640 final, as well as the SDG12.

Complementary actions

The complementary actions support the implementation of the WP as well as the circular transition in general. Complementary actions foreseen: R&D providing new insights to base future innovation upon (e.g. Blueprint for Denmark); technological development accelerating or easing the circular transformation (e.g. MUDP); investments in innovation and physical facilities related to waste prevention and waste treatment/sorting (e.g. a H2020 project); municipal, regional and national initiatives encouraging ambitious waste prevention and waste management initiatives (e.g. CDR's Sustainability Strategy).

3. Actions and means involved:

Actions financed by LIFE:

Actions and means are designed to meet the three objectives. The actions 1-5 catalyse and facilitate the development within the actions 6-14, dealing with public procurement, reuse, waste fractions and business waste. The actions 15-16 address citizens' involvement and empowerment as well as better governance and regulation. Stakeholders, incl. the eventual beneficiaries (e.g. municipalities, waste companies, interest organizations), have actively designed the actions together with the three main beneficiaries and planned them to make maximum use of the adaptive approach and ensure replicability to the other regions. Actions and means as described below are to be complemented with concrete pilot/demonstration/best practice projects, led by beneficiaries and with a broad stakeholder involvement.

1. Action and means to sustain capacity building (relevant for all objectives)

This action addresses capacity building, primarily targeting actions 7-14. The means include: analysing the involvement of relevant stakeholders, the material streams, and the value chains; disseminating best practice from hands-on circular economy activities through tailor-made training and re-skilling as well as workshops and conferences; networking to promote partnerships, exchanging knowledge, and developing new solutions.

2. Action and means to promote commercialization, sales and markets

To reach O1 and O2, this action focuses on the market for reusable products and secondary raw materials, thus contributing to the objectives in COM(2011)571. The means include: awareness-raising and re-skilling to increase knowledge and competence among key stakeholders on circular business models for reuse and recycling; developing new models of formalized partnerships between public and private stakeholders along the value chain, including start-ups addressing reuse and recycling; developing joint tenders on the marketing of reusable and recyclable materials providing solutions to legal and contractual matters, with the aim to increase the market value of second-hand products and secondary raw materials. This action serves the WP CH 3 on resource efficient companies.

3. Action and means to promote digitalization

To reach O1 and O2, this action will promote the use of digitalization as a means of implementing the ambitions of the waste hierarchy. The means include: identifying the need for digital solutions for individual waste fractions (Actions 7-13); identifying best practice solutions in order to apply these in Actions 7-13. The action serves the WP CH 3 and underpins objectives in EU's Digital Future.

4. Action and means dealing with extended producer responsibility

To reach O1 and O2, this action addresses the new extended producer responsibilities, as required by the WFD (2018), and implement changes in the existing ones (electronics, cars and batteries). The means include: developing a set of rules, easily implemented, in dialogue with key stakeholders (e.g. businesses and municipalities); motivating the development of new solutions by involving the waste management sector and industry. The action serves the WP CH 4.

5. Action and means to promote a circular database and new ways of measuring waste reduction

To reach O1 and O2, this action will develop and provide the necessary data basis as well as control measures to support the implementation of the WP. The means include: extending the capacity of and the methods in the existing national waste database to enable more frequent data capture from multiple sources; facilitating better data analysis, and providing entities with the information needed to improve the circular database with higher data quality through automation; developing measurement methods that enable the Danish government to measure the quantitative effects and the environmental footprints of waste generation. The action serves all chapters related to waste data in the WP and addresses the intentions of COM(2018)29.

6. Actions and means to promote circular public procurement

To reach O1 and O2, this action focuses on the activities of public organisations regarding procurement. The means include: developing and testing concepts for integrating circular principles in procurement practices and overarching development strategies; facilitating organizational learning processes with a particular focus on circular procurement as a strategic lever for innovating public services; training of procurers and other professionals in circular procurement best practice; ensuring that the output from those means are reflected in actions 7-13 and in the overall procurement strategies. The action serves the WP CH 3.

7. Action and means to promote reuse

To reach O1 and O2, this action will strengthen the reuse of goods. The means include: awareness-raising and better access to repair; encouraging sharing and direct reuse among citizens, businesses and public entities; facilitating value chain collaborations on the collecting, repairing and re-selling of used goods; designing user-friendly reuse stations and the related logistics; pooling of reusable waste across municipalities to increase its marketability; developing business models integrating broader societal benefits such as employment for the socially vulnerable. This action serves the WP CH 3.

8. Action and means addressing textiles²

To reach O1 and O2, this action strives to reduce use and enhance reuse and recycling of textiles, moving textiles upwards in the waste hierarchy. The means include: facilitating partnerships across key stakeholders within textile design and production, brand-owners, public and private procurement, charity, and innovative recycling agents; involving ecolabel actors in developing new standard(s) for textiles focusing on longevity, reuse and recycling; exploring and testing innovative solutions for sorting and recycling of post-consumer textiles waste. The action serves the WP CH 4.

9. Action and means addressing plastics

To reach O1 and O2, this action will address reuse and recycling of plastics and design for improved circularity. The means include: integrating circular economy principles in public procurement; ensuring separate collection and sorting of plastic waste that match demand-side requirements and encourage use of secondary raw materials; designing new value chains and partnerships across the public and the private sector in order to pool the plastic waste; back-casting knowledge from the plastics industry to the recyclers in order to ensure that the secondary raw-materials produced match industry requirements; Testing digital solutions for easier

² Based on an analysis, financed as part of the LIFE IP Technical Assistance-project, CETACDR

sorting of plastics. The action serves the WP CH 7 and addresses the objectives in the Directive (EU) 2019/904.

10. Action and means addressing construction and demolition

To reach O1 and O2, this action strives to prevent waste, increase upcycling and recycling of construction materials, and improve circularity of demolition waste. The means include: awareness raising and capacity building in circular design and asset management among businesses and public entities; developing public procurement processes that increase the use of recyclable and secondary building materials; establishing material bank(s) to increase volume and accessibility; facilitating public-private partnerships and value-chain modelling on commercializing and creating markets for secondary building materials. The action serves the WP CH 6.

11. Action and means addressing composite food cartons

To reach O1 and O2, this action will increase recycling of food cartons. The means include: identifying and transferring existing experiences from the recycling industry in Europe; facilitating cooperation between the Danish producers of food cartons to promote research and development of standardized recyclable cartons; creating partnerships between producers, waste collectors and recycling facilities exploring possibilities of sorting and recycling composite products. The action serves the WP CH 4.

12. Action and means preventing Waste Electric and Electronic Equipment (WEEE)

To reach O1 and O2, this action increases the reuse and improve circularity in the handling of Electric and Electronic Equipment (EEE). The means include: designing, testing, and implementing an overall concept to enhance repair and reuse of EEE; developing partnerships between interest organisations, producers, repair companies and others; fostering citizen engagement to motivate consumers to be part of a reuse value chain; leveraging extended producer responsibility to work with companies at a design level. The action serves the WP CH 4 and addresses the implementation COM 2012/19/EU.

13. Action and means addressing biomass

To reach all of the objectives, this action addresses the need to ensure that nutrients are kept in circulation in cascades as long as possible, eventually returning them to the soil as nutrients. The means include: analysing biomass waste streams to identify valuable components to be used in biological cascades; developing methodologies and partnerships that provide the possibility of using the nutrients at the highest level of the waste hierarchy; identifying and addressing regulatory barriers for utilising sewage nutrients as fertilizer for food production. The action addresses the WP CH 5.

14. Action and means addressing business waste

To reach O2, this action addresses business waste and the market demand for quantity, quality, and stable supply of secondary materials and used goods. The means include: identifying, analysing, and pooling business waste with municipal waste; fostering collaboration between the waste management sector, the recyclers, and industry, which will strengthen the market and increase the demand for business waste; establishing effective logistic systems; and developing a model for municipal supervision of business waste that increases the possibilities of circular solutions. The action serves the WP CH 4.

15. Action and means to promote circular consumption and citizen empowerment

To reach O1 and O3, this action focuses on consumption and society, striving to engage citizens as active partners in the circular transition. The means include: enhancing citizens' capacity for action and making sustainable choices (e.g. minimise food waste); developing new methods for motivating circular consumption in selected rural and district areas; engaging citizens in deliberative processes to build common images and visions of a future with low waste generation and carbon footprint, while securing a high quality of life; communicating engaging stories from the process. The action serves the WP CH 3.

16. Action and means to improve governance and establish systemic drivers for a circular transition

To reach all objectives, this action will provide guidance to the political and administrative level for improved regulation, governance, and economic incentives (ref. the objectives in COM(2011)571). The means include: developing methods for improved assessment of environmental and societal benefits of a circular economy and integration into regulation, governance, and incentive structures (incl. life-cycle assessments of environmental impacts and the use of Ecolabels); analysing governance barriers identified through the other actions, developing suggestions for regulatory and governance improvements, and facilitating dialogue

between decision makers (political and administrative framework), citizens, and key stakeholders from the value chains.

Expected complementary actions and means involve

Pilot/demonstration projects that develop, test and demonstrate full-scale environmental technology solutions financed by the **Danish Ecoinnovation Programme** (MUDP). Complements actions 8-14.

CDR actions to integrate circular economy in CDR's services, activities and procurement via the **CDR's Sustainability Strategy**. The CDR plans to launch a Centre for Sustainability, a large investment plan for circularity in buildings, and better waste sorting facilities etc. This involves the employment of 9+ sustainability consultants and two funding pools reserved for sustainable activities. Complements actions 1-2, 6, 8-14.

Large scale testing of systemic, circular solutions via an **EGD H2020 research project** (topic 3.2) on circular economy. Includes demonstration and collective actions across product/service value chains – in order to develop replicable and proven concepts for recycling. Complements actions 8-13.

Creation of a vision and a living lab that will set new standards for a sustainable way of life in Denmark through the **Blueprint for Denmark initiative**. In the wake of the COVID-19 crisis the initiative seeks to ensure broad democratic legitimacy and participation in a far-reaching green transformation of society. Complements actions 15 and 16.

4. Expected results (main outputs and achievements, qualitative and quantitative):

Linked to Actions financed by LIFE:

Results from the IP on prevention, improvement of circular waste and resource management and the improvement of the regulatory framework, are quantitative and qualitative. The results are transferred from one phase to the next to create optimal outputs and they are an integrated and interlinked mix of measures, all originating from the WP and the project objectives. The results consolidate the transition to a circular economy.

The main IP results are the WP implementation and the fulfilment of the project objectives (O1-3). By 2030, the Danish waste sector has increased its recycling of waste from 72% to 90%, reducing CO_{2e} emission by app. 2 Mio. Tons (or 7-9 Mio Tons, incl. a broader circular transition)³. Negative environmental impacts have been reduced by replacing virgin materials with secondary raw materials, reducing CO_{2e} emissions by 3 Mio. Tons. By 2030, waste generation is reduced by 40% from 816 kg to 489 kg per capita (2018 EU28 average) and Incineration has been reduced from 3.95 to 2.6 Mio. Tons. The Danish society and waste sector are on track to transition to a circular economy, where resources are kept in economic circulation for as long as possible. This increases social inclusion, sustainability, and decouples economic growth from the environmental impacts associated with waste generation cf. WFD (2008/98/EC).

O1 - Results in waste prevention by 2030:

- Waste is prevented and the use of raw materials is reduced through circular product design that increases direct reuse, reparability and product longevity (Actions 7-13).
- Circular principles are integrated in public procurement, and procurement concepts and strategies have been developed and applied by 10 public entities, affecting 45 public suppliers (Action 6).
- Concepts for collecting, repairing, and re-selling used goods, have been tested by a considerable number of actors along the value chain. Reuse stations and business models for reuse have been designed and tested, including new models for integrated employment for the socially vulnerable. Increased reuse, sharing, and repair in the participating municipalities (Action 7).
- Awareness on the benefits of circular consumption is increased by 70 %, and consumer demand is reflected in the availability of more products based on circular principles and business models (Action 15).
- Suggestions for regulatory and governance changes and ways to empower citizens (15, 16).
- At least 30 businesses, 40 municipalities and 2 regions are frontrunners in demonstrating how to roll out circular economy in practice (Actions 1-3, 6-14).

O2 - Results in circular waste and resource management by 2030:

- Waste from construction, biomass, textile, WEEE, plastic and food cartons is being treated at the highest possible level in the waste hierarchy (Actions 8-14).

^{3,6} Figures in para 4 derive from *Regeringens Klimapartnerskab, Affald, vand og cirkulær økonomi, 2020*

- New methodologies in analysing and addressing value chains and material streams have been developed and brought to use. Circular product design has been brought to use (Actions 1, 7-14).
- More than 500 network meetings, conferences, workshops, etc. have led to strong partnerships, qualified regulatory input, and waste streams being thoroughly addressed, and improved practices. Eventually, this will enable stakeholders to initiate and manage transformation to a circular approach. (Actions 1, 8-14, 16).
- Public-private partnerships across sectors and the pooling of business and municipal waste have encouraged the emergence of markets for secondary raw materials. (Actions 1, 2, 7-14).
- The management of waste fractions have been optimised by applying circular business models along the value chain; 6 main waste streams have been pooled; digital solutions have been identified and applied. A 25% increase in recycling of waste has taken place⁴ (Actions 8-14).
- Concepts on joint tenders across municipalities have provided solutions to legal and contractual matters and enhanced the possibility of pooling fractions. (Action 2).

O3 - Results in regulatory improvements by 2030:

- Identification of regulatory barriers to circular transition and feedback to improved regulation, governance, and incentives has increased policy coherence and lessened discrimination against sound environmental/circular practice (Action 7-14, 16).
- Qualitative and quantitative methods for measuring the societal and environmental benefits of circular economy will have a major impact on governance and economic incentives (Action 5, 16).
- Citizens and companies participating in the project will have increased their support for public measures that guide private consumption in a circular direction (Action 2, 15).
- Deliberative processes with citizens and stakeholders have provided input for political and administrative decision-making (Action 15, 16).

Linked to expected complementary actions

- MUDP will develop new technology that supports better waste prevention and management and reduces the pressure on natural resources, nature and climate.
- The CDR's Sustainability strategy will by integrating circular economy principles reduce the region's resource consumption and waste by up to 30 %, and lead to recycling of up to 70 % of the waste in 2030.
- The H2020 project will develop a replicable and proven system for recycling that combines technological solutions and collaboration between actors.
- Blueprint for Denmark will set new standards for a sustainable way of life – and strengthen the democratic mandate for circular transition.

5. Expected contribution to the implementation of the target plan/strategy

IP itself

The IP will assist and accelerate the practical implementation of the national WP. The IP intends to bring about the full implementation of the WP and the circular transition in two ways. Firstly, the IP will build circular capacity among citizens, municipalities, and regions. Secondly, the IP intends to engage the entire value chain and its stakeholders in the circular transition by facilitating formalized partnerships, improving market conditions and removing regulatory barriers for using secondary raw materials and integrating circular economy plans & thinking in production processes and in society.

The Action Plan for Circular Economy, National Waste Prevention Programme and Waste Management Plan (2020-2032) revolves around the circular value chain. Besides crosscutting initiatives, the WP emphasizes on three areas of intervention where the environmental and the climate impact is particularly high: biomass, construction and demolition waste, and plastic. The Danish Environmental Protection law demands that all policies issued in relation to waste prevention and management are in accordance with the waste hierarchy, which favours waste prevention and discourages incineration and disposal.

The political agreement, a Climate Plan for a Green Waste Sector and Circular Economy provided a broad consensus behind the Danish circular economy strategy and functions as the backbone for the WP. The IP also relates directly to previously adopted governmental strategies, such as the Plastics Action Plan (*Plastikhandleplanen*) and the Danish Circular Economy Strategy (*Strategi for cirkulær økonomi*, 2018). The WP intends to integrate suggestions for waste prevention and management from the COM(2020) 98 final, develop a new model for extended producer responsibility for packaging waste in 2021, and aid the

implementation of the new and ambitious recycling targets for household and packaging waste from the revised WFD (2018).

The WP describes the current state of waste prevention and management in DK and sets the direction towards 2032. Partly based on the Waste Act (*Affaldsbekendtgørelse*), the WP implements the objectives and requirements from EU's CEAP from 2015 with special emphasis on the revised WFD (2018). Simultaneously, the WP supports the Danish Climate Law's goal of a 70 % reduction in GHG emissions in 2030. The municipalities have the responsibility to devise their waste management plans in accordance with the WP.

Complementary actions

The complementary actions contribute by: developing and demonstrating new technologies; reinforcing public ambitions in waste prevention, reuse and recycling, thereby supporting development of new markets; developing proven concepts for business models and value chain collaborations; empowering citizens to take an active role in the circular transition.

6. Main stakeholders involved in the project:

The IP is characterised by thorough stakeholder involvement on which the project consortium is based. Prior to submittal of the concept note, all municipalities and selected waste management companies in CDR and CR were invited to a series of conferences, seminars and workshops to define the content of the project. More than 220 people participated, and the defining results from all the events can be provided upon request.

The main stakeholders in the IP are:

Municipalities: Most of the Danish municipalities will be involved in either pilot or replication activities. Most of the municipalities in CDR and CR will become beneficiaries and be pilots developing solutions in the IP, whereas municipalities in the other three regions will primarily replicate the solutions

Waste management companies: A number of waste management companies in CDR and CR will be involved as either beneficiaries or stakeholders in actions 7-14, participating in new value chain collaborations and developing circular business models and markets for secondary products and raw materials.

Regional governments: The Region of Southern Denmark, the North Denmark Region and Region Zealand are all directly involved in the project in a replication role – and so the IP covers all five regions in Denmark.

National governmental agencies: Beside the Danish EPA as beneficiary the IP will involve several governmental agencies (e.g. The Danish Energy Agency, The Danish Business Authority, The Danish Transport, Construction and Housing Authority and The Danish Veterinary and Food Administration), as waste prevention and management and the transition to a circular economy involves many ministerial areas. The relevant agencies play a role in regulatory and governance matters.

Interest organisations: A broad range of interest organisations will be involved in the project in order to ensure successful implementation and wide legitimacy of the IP. They can facilitate cooperation and knowledge sharing, influence regulation and governance, act as advisers to the project, disseminate project results and mobilize complementary funding during and after the IP. Relevant stakeholders include: Danish Regions, Local Government Denmark (KL), Confederation of Danish Industry (DI), the Danish Chamber of Commerce, the Danish Waste Association, sector-specific trade associations and environmental NGO's.

Knowledge institutions, think tanks, and universities: As capacity building is a key ingredient in the IP, the project must continuously incorporate updated expert knowledge and research. The role of the following stakeholders is to feed relevant analyses, data and expertise into each of the IP actions: Six Danish universities and three from other Nordic countries, the seven Danish government-approved Research and Technology Organisations (GTS institutes), Waste and Resource Network Denmark (DAKOFA) and CONCITO.

Citizens: Citizens play an important role in the IP engaging in local projects about circular consumption and in deliberative processes strengthening the democratic mandate for governance and regulation that can guide consumption in a circular direction.

The private sector: Producers, suppliers, retailers, recyclers and other stakeholders from the private sector have important roles to play in innovating circular solutions, methods and practices and new collaboration between the private and public area.

7. Long term sustainability (including capacity)

Sustainability of project results and capacity building:

The principal idea of the IP is to infuse capacity for circularity on all levels in all parts of society – as a means to support and mobilise beneficiaries and other stakeholders to transform their approaches and practices to circular ones. Capacity building is integrated in all IP actions – in a broad sense, covering new knowledge and

insights, but also new relations, new partnerships and a better toolbox for waste prevention and circular waste management.

The capacity for circularity will influence the whole value chain – towards circular design, circular business models, value chain collaborations, increased demand for circular solutions through public procurement, circular consumption, repair and reuse, fully functioning markets for secondary raw materials etc. But equally important, it will influence regulation and governance towards establishing systemic drivers for circular transition, and empower citizens to take part in the transition.

The multi-level partnership, which is the basis of the IP, will consolidate long-term ownership among beneficiaries and stakeholders. It will ensure that the circular solutions and business models developed in the IP meet the needs and interests of all stakeholders, thereby making the solutions more robust and viable. The IP will mobilize stakeholders to increase, build, and test new knowledge and to organize and take lead on activities and implementation beyond the project, as well as to cooperate in innovative partnerships across sectors. Furthermore, during the IP the beneficiaries will be supported in applying for further funding for complementary actions from local, national and international funds

In conclusion, the capacity, relations, and cooperation built through the IP ensure that beneficiaries and stakeholders are able to function as co-deliverers of the national WP after the end of the IP.

Replication and transfer of the project results:

CDR and CR are pilot regions and will together with the Danish EPA carry out actions during all three phases of the IP. Replication of main methodologies and results will take place in the three other Danish regions during phase 2-3. Replication will be strengthened via complementary actions and funding.

A replication plan will ensure that potential partners are involved, including the three remaining regions in Denmark, Local Government Denmark (KL), interest and trade organizations etc. The purpose is to disseminate results and lessons learnt from the IP to stakeholders. Seminars, masterclasses and workshops on the IP's methodologies will be held during the IP, extending the number of stakeholders adopting the Circular Approach and being able to accelerate the transformation after the IP.

Transferability of the project results will further be ensured by the strong project partnership (beneficiaries and stakeholders), representing all the regions in Denmark, municipalities, leading experts from knowledge institutions, business and industry, etc., who will play important roles in transferring the IP's methods and results across the country and across different levels of governance.

8. Expected major constraints and risks of the:

IP itself

Risk 1: Lack of commitment to the IP

The IP's success depends on the participation and commitment from relevant stakeholders in Denmark within waste and circular economy. The IP involves a variety of different beneficiaries and stakeholders, which poses both a great strength and a risk to the IP. Conflicting interests between beneficiaries can hamper the project progress. Furthermore, the IP expands over an 8-year period, and a major risk to the implementation of the IP is that partners might withdraw from the IP due to – for example change in political leadership or organisational restructuring. The CDR has already taken important steps to mitigate this risk by including stakeholders in the project design ensuring shared ownership of the IP. The CDR will furthermore mitigate this risk by ensuring continuous dialogue with the beneficiaries and relevant stakeholders.

Risk 2: Complexity of local contexts

The IP is developed and demonstrated in two regions including in total 48 municipalities. This complexity of local realities is a strong benefit for the IP – and for finding crosscutting solutions on circular economy - but can also be a constraint when it comes to finding common solutions that considers different local contexts. The CDR will mitigate this risk by adapting actions to local needs, prioritising a bottom-up approach, capacity building and stakeholder involvement. This is also important when creating incentives to replication outside the CDR and CR. The CDR has ensured that potential stakeholders for replication are included in a replication council. The three remaining regions in Denmark are also represented in the advisory board and will contribute to create incentives for replication in their respective regions.

Risk 3: CDR's role within waste management

The CDR is not the entity responsible for the implementation of the Danish national WP. However, the CDR is a frontrunner on the circular economy agenda, working since 2010 on creating Circular Municipalities, Value chain co-operations, business development and construction based on circular principles, cooperation with

Ellen MacArthur Foundation and on making Central Denmark Region a Circular Economy Region. Moreover, previous projects, such as LIFE IP C2C CC, have shown that municipalities respect and appreciate that the CDR coordinate and facilitate efforts that solve crosscutting issues. Since the competent authority, the EPA, is a core beneficiary in the IP, taking responsibility in project design and of several actions, future developments are handled in a multi-level framework.

Risk 4: Lack of incentives to shift from linear to circular practices

The IP depends on stakeholders' willingness and incentives to acquire new competences and build new practices, business models, and partnerships. Major risks in relation hereto may include that key stakeholders (e.g. municipalities and businesses) lack incentives to make those changes, because they are costly and/or risky for each stakeholder – and there are currently no adequate benefits to outweigh those costs and risks. Capacity building (action 1), commercialization efforts (action 2) and improved governance and incentives (action 16) play a particular role in mitigating the abovementioned risks, as the purpose of those actions is to lay the foundation for a better political and administrative framework, including regulation and incentives for mainstreaming circular economy.

Risk 5: The incentive to work with circular economy on a macro level

The Covid19 pandemic has put Denmark in an economic and social crisis, in which the incentives to address new approaches, such as circular economy, seem to be decreasing. Companies facing mass layoffs might not have the capacity and incentive to think about new designs, new business models, recycling etc. However, Covid19 has also created a burning platform, where citizens and private producers are becoming increasingly aware of the need to act more resource responsibly. To mitigate the risk the IP will identify new methods and new types of partnerships and new types of jobs.

Complementary actions

Risk 2 – as described above – is also relevant for the complementary actions, in the sense that any solution developed in a particular project or geographical area are subject to a risk of being difficult to replicate and integrate into another local context.

Risk 4 – as described above – is also relevant regarding complementary actions. The replication and broader dissemination of solutions developed through complementary actions are subject to the same lack of incentives as the solutions developed in the IP.

9. a) Is your project significantly climate related? Yes ☒ No ☐

b) Is your project significantly biodiversity-related? Yes ☐ No ☐

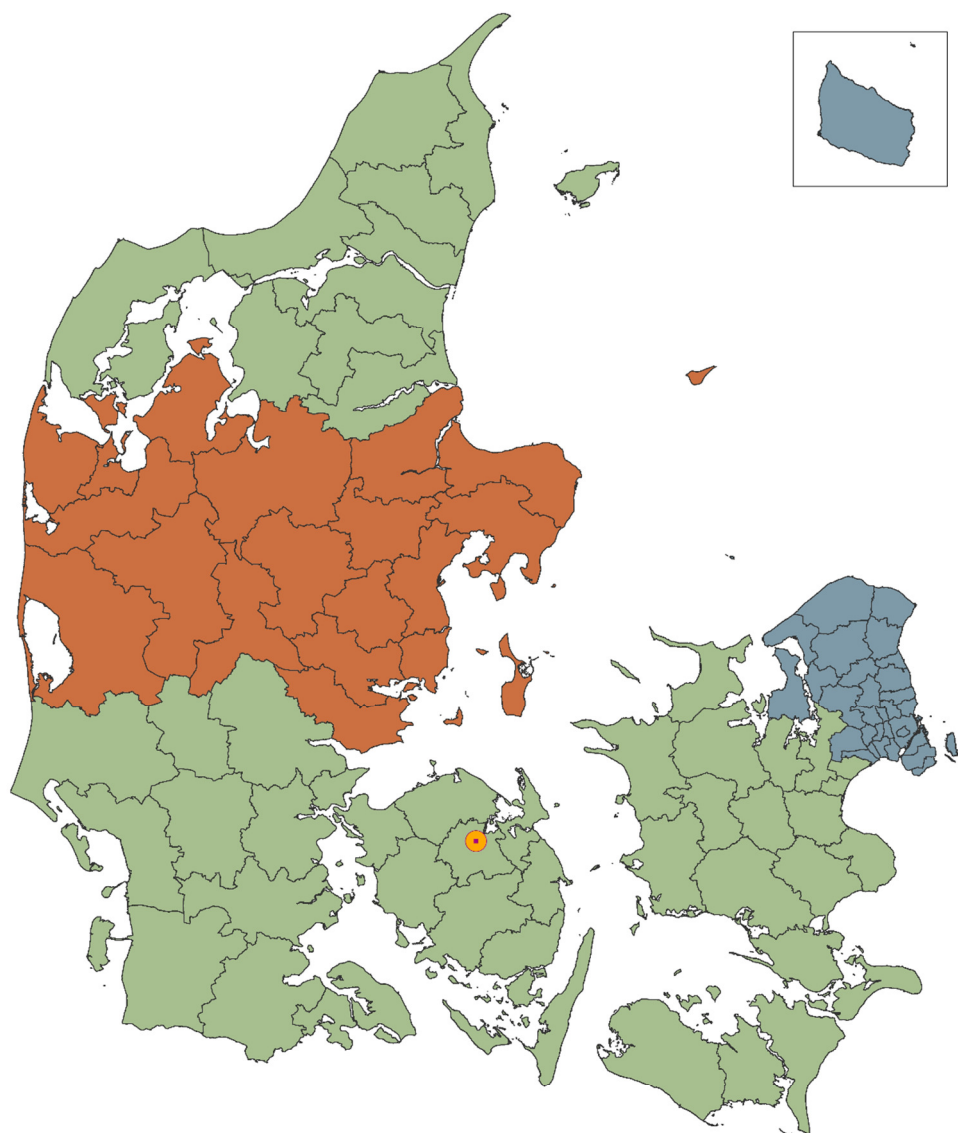
If you consider your project to be significantly climate or biodiversity-related (you marked 'yes'), please explain why:

The IP is climate related because it intends to assist and accelerate the practical implementation of a waste management and prevention plan that primarily has been designed to contribute to the Danish government's goal of reducing GHG emissions by 70 % in 2030.

The Danish waste sector's current emphasis on incineration adversely exacerbates the vulnerability of natural and human systems against actual or expected climate change effects. The only way to remedy this is by deliberately launching initiatives that will create progression in the waste hierarchy.

Use of resources is a major source of CO₂ emissions. The IP's main actions, measures, and complementary actions will decrease resource extraction, lessen discrimination against sound environmental/circular practices, and improve public health by decreasing the production and circulation of hazardous waste. The actions will result in significant CO₂ reductions and decrease the Danish carbon footprint and transition Denmark into a green pioneering country that will be able to export circular solutions globally.

MAP OF THE GENERAL LOCATION OF THE PROJECT AREA(S) IN THE COUNTRY/REGION



- Central Denmark Region – Pilot region/19 municipalities, phase 1-3
- The Capital Region of Denmark – Pilot region/29 municipalities, phase 1-3
- Three regions – Replicating regions/50 municipalities, phase 2-3
- Danish EPA – engaged in pilots and replication in Denmark as a whole

LIFE Integrated Projects 2020 – CNF

Financial Plan

Sources of financing	Actions/ measures to be financed	Amount of funding (EUR)	Status/date of Funding granted/ to be granted/ not yet requested	Authority/ entity managing the fund
LIFE PROJECT:				
EU contribution	NA	11,100.000	NA	NA
Contribution by beneficiaries	NA	7,400.000	NA	NA
TOTAL LIFE IP		18,500.000		
EU FUNDS:				
H2020 Green Deal topic LC-GD-3-2-2020, <i>Demonstration of systemic solutions for the territorial deployment of the circular economy</i>	H2020 project (actions 8-13; involving the CR)	20,000.000	Not yet requested: Application deadline end of January 2021	EU
TOTAL Horizon 2020		20,000.000		
Subtotal EU:		20,000.000		
OTHER FUNDS				
Danish Environmental Protection Agency (EPA)	MUDP (the Danish ECO- innovation Programme)	2021 budget TBC (note) (2020 budget 17,000.000)	To be granted	Danish Environmental Protection Agency (EPA)
Central Denmark Region - operations and facilities	CDR Sustainability Strategy (actions 1-2.6,8- 14)	3,600.000 (2021)	Granted (Sep. 2020)	Central Denmark Region
Danish and international funds, including the Danish government's investment fund ('Vækstfonden') and The Danish Green Investment Fund ('Den grønne investeringsfond')	Blueprint for Denmark (actions 15-16)	Approx. 1,500.000 (TBC)	To be granted (autumn 2020)	The Danish government's investment fund (('Vækstfonden'), The Danish Green Investment Fund (('Den grønne investeringsfond'), and others.

Subtotal public:		<i>Approx. 22,100.000</i>		
Total complementary:		<i>Approx. 42,100.000</i>		

Notes (if applicable): MUDP budget for 2021 is yet to be decided in negotiations on Finance Act 2021