DSIF Investment proposal
Danida Program Committee

Lviv WWTP Rehabilitation Project
Ukraine
July 02, 2020

UDENRIGSMINISTERIET
Danida

DANIDA SUSTAINABLE INFRASTRUCTURE FINANCE

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PID: 16423 File no.: L72-3

Abbreviations

DANIDA SUSTAINABLE INFRASTRUCTURE FINANCE

CIP – Clearance in Principle

DANEP – Danish Neighbourhood Programme

Danida – Danish International Development Assistance

DSIF – Danida Sustainable Infrastructure Finance

EBRD – European Bank for Reconstruction and Development

EIA – Environmental Impact Assessment

EASP – Environmental and Social Action Plan

EUR – Euro; conversation rate 1 EUR = 7,47 DKK

FS – Feasibility Study

GNI – Gross National Income

IC – IFU Investment Committee

IFC – International Finance Corporation

IFU – Investment Fund for Development Countries

IRR – Internal rate of return

LVK – Lviv Vodokanal – water utility company owned by Lviv Municipality, Ukraine

NEFCO – Nordic Environment Finance Corporation

PIU – Project Implementation Unit

SDG – Sustainable Development Goals

ToR – Terms of Reference

UDEC – Ukrainian-Danish Energy Centre

WWTP – Waste Water Treatment Plant

Background

DSIF has been approached by NEFCO and EBRD and asked to participate in a project concerning rehabilitation of Lviv Waste Water Treatment Plant in Ukraine. The Rehabilitation Project is identified as a top priority in the Lviv Municipality Green City Action Plan.

Lviv Vodokanal (LVK), a water utility company owned by Lviv Municipality, is managing the waste water treatment plant. The plant is servicing all of Lviv 760.000 citizens. LVK has initiated two projects to restore and improve the plant, to be financed by NEFCO and EBRD; 1. A Biogas Project and 2. A Rehabilitation Project. The biogas project was the first project to be developed and is now approved by EBRD and the procurement process will soon be finalised. During preparation of the biogas project, it became clear that a rehabilitation of the waste water treatment plant was critical in order to complete the biogas project. Lviv City Council and Lviv Vodokanal are not able to finance two projects of this size, without a considerable grant element and DSIF was therefore asked to participate. DSIF financing is critical for both projects, as the biogas plant can not operate, if the sludge volume from the waste water treatment is not increased.

The project is the third DSIF/NEFCO joint project in Ukraine, in which DSIF will provide a grant to soften a NEFCO loan against a guarantee from NEFCO. NEFCO is the main DSIF partner in the project and report to DSIF based on an agreement. NEFCO will cooperate with EBRD in implementing the project. DSIF has evaluated that NEFCO and EBRD procedures are compliant with DSIF requirements. Tender procedures will be according to EBRD rules, which call for an open, international tendering process.

The total cost of the WWTP Rehabilitation Project is DKK 197 million (EUR 26.35 million). The loan is provided directly by NEFCO instead of a loan from a commercial bank. DSIF plans to support the project with a grant of 35% of the project total, in addition to around 2.6 million kr. that will cover the cost of a Project Implementation Unit Consultant. To further improve project implementation and sustainability, an additional grant to finance a twinning agreement between a Danish water utility and Lviv Vodokanal is also part of the project.

For discussion and recommendation

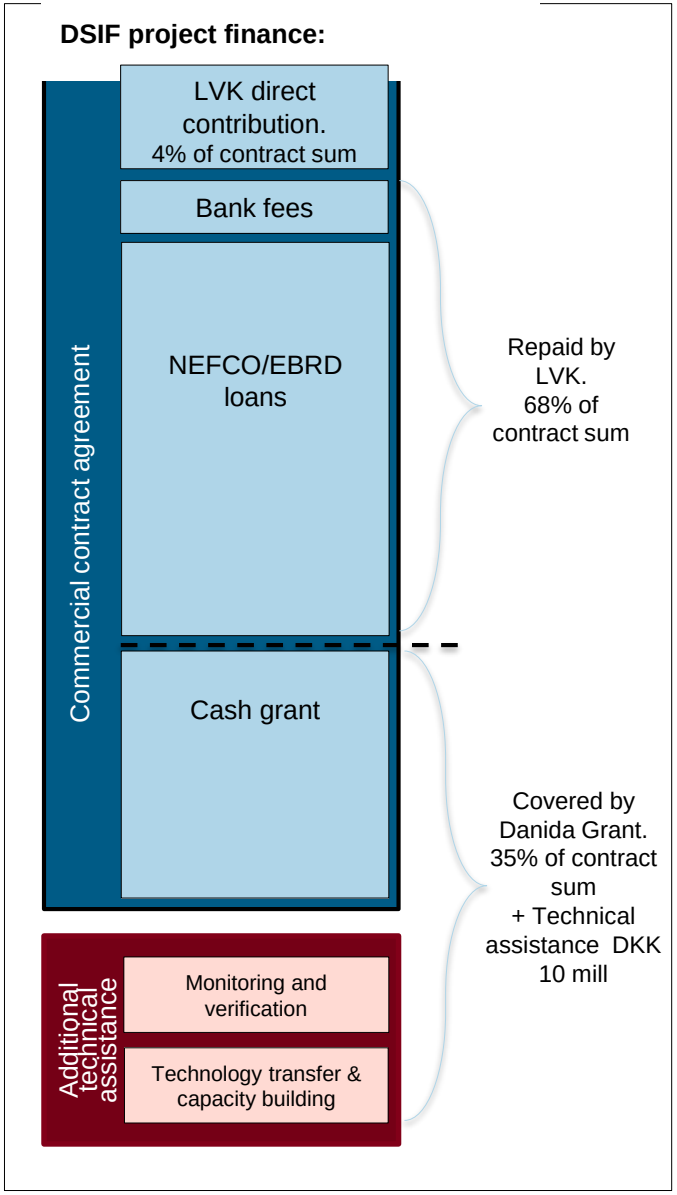
Recommendation to continue preparation of the project and appraisal guided by comments from the Program Committee

Recommendation of applying DSIF's Project Development Facility to finance the preparation of the project, including additional studies, drafting of project document and appraisal prior to presentation to UPR.

KEY DATA

DANIDA SUSTAINABLE INFRASTRUCTURE FINANCE

Project name
Lviv WWTP Rehabilitation Project
Country
Ukraine
GNI per capita (USD): 2,660 (World Bank, Atlas method, 2018)
Product
Rehabilitation of an existing wastewater treatment plant
Implementing partners
Buyer: Lviv City utility “Lviv Vodokanal” (LVK), a water utility owned by the Lviv Municipality
Implementing period
30 months
Sustainable development goals targeted
SDG 3, 6, 8, 11, 14, 17
Total project budget (contract)
DKK 197 million (EUR 26.35 million)
ODA budget
DKK 79 million
Type of DSIF financing
Grant, to soften NEFCO/EBRD loans
Financial net IRR
Financially nonviable without subsidy



1: PROJECT CONTEXT

DANIDA SUSTAINABLE INFRASTRUCTURE FINANCE

Context

Political situation

- Ukraine is amongst the poorest countries in Europe, and is further challenged by the Russian annexation of Crimea and the ongoing conflict in the Donbas region of Ukraine. The conflict has resulted in displacement of millions of people. Despite these challenges, Ukraine's economy has shown signs of stabilization in recent years, and in 2016 the GDP returned to growth. A new government, led by President Volodymyr Zelenskyi, was elected in April 2019. After an eventful first year in office, Zelenskyi is still struggling to tackle Ukraine's major problems. Long-term economic and political stability is hoped for, but still seems elusive and difficult to achieve.

- Ukraine has initiated a major decentralization process, which continues under the new Government. Decentralization aims to strengthen local governments and empower them to deliver services and run infrastructure systems. Cities and municipalities have to urgently upgrade their infrastructure from Soviet-era to efficient, high-tech plants, to address pollution and energy efficiency goals.

Ukraine and Denmark, other donor organizations

- Danish industry has shown great interest and are actively present in Ukraine, however access to finance is a challenge. EKF does not offer loans or guarantees to public buyers in Ukraine.

- Ukrainian interest in Danish technology and know-how is large. Particularly water treatment and district heating are interesting to the Ukrainian public sector.

- Other donors are active in Ukraine, amongst others EBRD, The World Bank, KfW, EIB and NEFCO. Currently, DSIF has two projects in the pipeline in Ukraine in cooperation with NEFCO.

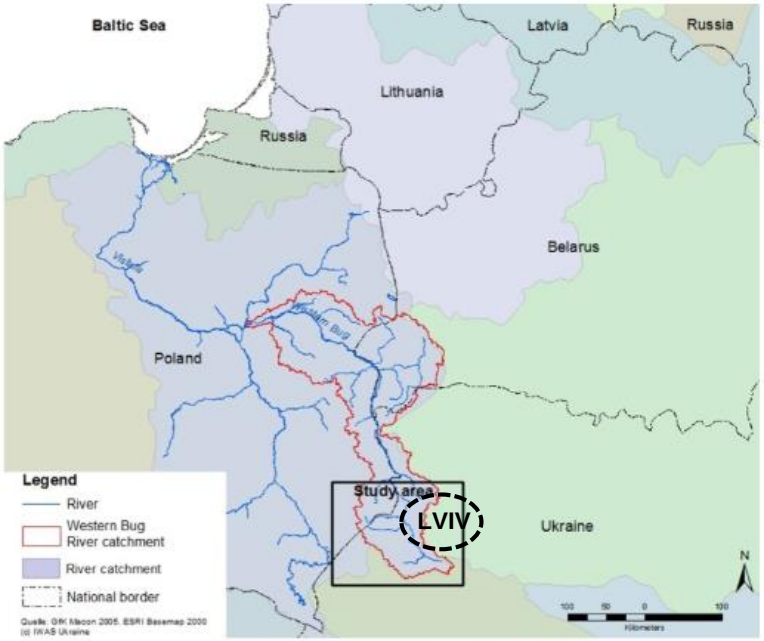
The role of Lviv WWTP

- Lviv is the largest city in western Ukraine and the 7th largest in the country. It is situated close to the border to Poland and has a population of approx. 760,000. To ensure sustainable development of the city, Lviv City Council are implementing various infrastructure development projects. The WWTP Rehabilitation Project is identified as a top priority in the Lviv Municipality Green City Action Plan.

- The Baltic Sea is one of the most polluted seas in the world, and most of the pollution originates from inland activities. The WWTP in Lviv is a well-known major source of nutrient pollution to the watercourses at the Baltic Sea Catchment Area. This project will significantly contribute to reducing pollution to the Poltva River and eventually the Baltic Sea, which in turn will have a positive impact on the Danish marine environment.

Documentation

- Lviv WWTP Emergency Rehabilitation Project, Short Synopsis, egis
- Due Diligence Report. Lviv Wastewater Biogas Project Implementation Support and Engineering Supervision, egis
- Lviv Rehabilitation Project, Environmental and Social Action Plan, NEFCO
- IWAS – International Water Alliance Saxony model
- Ukraine 2020 Strategy
- DANEP 2017-2021. Ukraine Country Programme Document, October 2017
- The Government's Priorities for Danish Development Cooperation 2019 Expenditure framework for Danish development cooperation, 2019-2022
- The World 2030, UM



2. INVESTMENT CASE: Theory of Change

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Outputs

Output 1: Rehabilitation and technical upgrade of an existing wastewater treatment plant with a capacity of 380,000 m^3/day. The rehabilitation includes grit chamber rehabilitation, rehabilitation of primary and secondary sedimentation tanks and aeration system, new sludge pumps and pipelines, new decanter centrifuges and automatic overflow control.

Output 2: Capacity building of LVK personnel through knowledge transfer from Denmark to Ukraine by means of twinning with a Danish water utility (DSIF grant).

Output 3: Double retention/production of sludge from the WWTP to a minimum of 90 tons/day.

Outcome

Reduced pollution of the Poltva River and the Baltic Sea Catchment Area. Reduction of nutrient emissions, significantly nitrogen and phosphorous,. Overall, as a result of the project, all water effluent from Lviv City will comply with existing EU and UA standards.

Installation of automatic overflow control will prevent regular overflow of raw sewage from WWTP into the Poltva River.

The ongoing deterioration of the WWTP will be brought to a halt, and the plant will see increased efficiency and energy savings, due to equipment rehabilitation and upgrade.

The rehabilitation project will furthermore ensure retainment of sufficient sludge for the sustainability of a IBRD projected biogas plant, designed to produce energy to cover power consumption of the WWTP, thereby increasing the production of renewable energy and reducing the CO2 emissions.

Impact

Primary

SDG 6 – Clean Water and Sanitation

SDG 17 – Partnerships for goals

Secondary

SDG 3 – Good Health and Well-Being

SDG 8 – Decent Work and Economic Growth

SDG 11 – Sustainable Cities and Communities

SDG 14 – Life Below Water

3. JUSTIFICATION & INVESTMENT CASE

DANIDA SUSTAINABLE INFRASTRUCTURE FINANCE

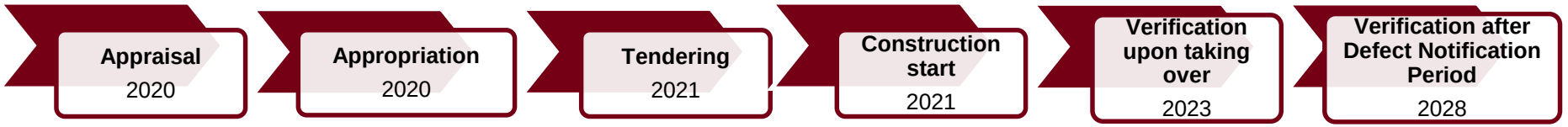
Justification

- **Strong development impact** by reduction of nutrients and organic matter being let to the Poltva river and improving the city´s volume of safely treated wastewater in accordance with EU standards, thereby improving the ecosystems in the Poltva River and upstream to the Baltic sea. The project will ensure retainment of sufficient sludge for the projected biogas plant, thereby reducing CO2 emissions.
- Compliance with Danish development policy, **The World 2030**, with its focus on water (SDG 6) and mobilizing Danish solutions to SDG challenges. **Ukraine is a Danish priority country**, supported through DANEP, with the aim of promoting human rights and democracy, and to strengthen sustainable and inclusive economic growth.
- **Support to the Ukraine reform agenda**, which aims to overcome environmental challenges and ensure sustainable development of Ukraine.
- **Promotion of state-of-the-art Danish waste water treatment technology and knowledge transfer**. A utility-to-utility twinning agreement will be put in place to enable transfer of Danish know-how, thereby paving the way for Danish companies to deliver environmental solutions and services to the market in Ukraine.

Investment case – Project Description

- The Lviv water and wastewater utility, Lviv Vodokanal (LVK), is owned by the Lviv Municipality and operates the **Lviv Wastewater Treatment Plant** (WWTP) which has a total waste water load of 380.000 m3/d. The effluent from the WWTP is discharged to the Poltva River and eventually to the Baltic Sea Catchment Area. The plant treats both household and industrial waste. The Lviv WWTP is an older plant built during the Soviet era. Like many such plants in operation today in Ukraine, it is highly inefficient and in a deteriorating condition. As study financed by LVK, NEFCO and EBRD estimates that due to this deterioration, the sludge volume collected by Lviv WWTP is currently only 50% of the sludge volume a treatment plant of that size should be able to collect during the treatment process. It is assumed that most of the pollution flows remain uncleaned and simply flows through the wastewater treatment facilities into the Poltva River and the Baltic Sea Catchment Area. .
- Tender procedures will be according to EBRD rules, which call for an open, **international tendering process**.
- In order to ensure a **high content of state-of-the-art technology, building on Danish expertise and knowhow**, DSIF will support utility-to-utility knowledge transfer by means of a twinning agreement with a Danish water utility. The role of the Danish water utility will be to promote Danish technology solutions and methods, and ensure increased focus on lifecycle costing throughout the project, ensuring optimal operations and plant management. The utility-to-utility cooperation aims to empower the local organization through operational and institutional knowledge transfer resulting in efficient plant operation.

Timeline (anticipated)



4. SUSTAINABILITY

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Development impact

- **SDG 6 - Clean Water and Sanitation:** Expanding international cooperation and capacity-building support in water- and sanitation-related activities, incl. wastewater treatment. Improving water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, and diminishing the proportion of untreated wastewater (Target 6.3 and 6.6)
- **SDG 17- Partnerships for Goals:** Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms. Danish state-of-the-art operation experience will be transferred to the project with the help of a Danish water utility (target 17.7.)
- **SDG 3 - Good Health and Well-Being**: Reducing the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination in Poltva River and the Baltic Sea Catchment Area. Hygiene and health situation will be improved in current non-serviced areas with significant positive impact on the economy e.g. poverty reduction through reduced lost income during illness (target 3.3 and 3.9) .
- **SDG 8 – Decent Work and Economic Growth:** Improve water resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation (Target 8.4).
- **SDG 11 - Sustainable Cities and Communities:** Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal waste management. The carbon footprint will be improved by applying energy efficient technology. The rehabilitation project will be an enabler for a biogas project to make the WWTP self-sufficient and reduce CO2 emissions (Target 11.6).
- **SDG 14 - Life Below Water:** Reduced pollution of the Poltva River and the Baltic Sea Catchment Area by reducing contamination from the household and industrial waste water (Target 14.1).

Corporate Governance

- The project will follow IFU's Sustainability Policy and EBRD's Performance Requirements (PRs).
- Local buy-in is strong. Lviv stakeholders have been engaged in improving the Lviv WWTP for years, and Lviv City Council has identified the project as a top priority in the Lviv Municipality Green City Action Plan.
- As part of the project, utility-to-utility contact will be initiated between a water utility from Denmark and LVK from Ukraine.
- It is an integrated part of NEFCO, EBRD and DSIF procedures and regulations that proper safe guards are applied to ensure human rights and equal access to the benefits of the project. Specific gender issues will be assessed during appraisal.
- Corruption is a major problem in Ukraine. The project mitigate the risk of corruption by: 1. Sufficient PIU/monitoring support to LVK, 2. Monitoring compliance with EBRD/NEFCO guidelines and constant "no-objection"/ stop-go processes, 3. Contractually committing LVK and Lviv City to anti-corruption measures, inserting a default clause in the agreements, and 4. regular Integrity Due Diligence (IDD) checks on major partners.

Environmental and social risks

- The largest environmental risk is the risk of extensive delay of project implementation, which will result in increased pollution load from the WWTP.
- The project is a rehabilitation and upgrade of an existing plant, so land acquisition, resettlement and compensation issues are not necessary.
- A detailed Environmental and Social Impact Assesment is part of the EBRD process. The study is not finalized.

Management of environmental and social risks

- An Environmental and Social Action Plan (ESAP) has been finalized for the project, which includes measures, which Lviv Vodokanal must undertake during the implementation of the project to ensure that EBRD's Performance Requirements and NEFCO Environmental and Social Practices and Standards are met.
- Amongst other measures, LVK will be required to establish an overarching Environmental and Social Management System (e.g on measuring water quality and working environment), including a policy in line with good international practice, and EBRD and NEFCO performance requirements..

5. BUDGET

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Financing of the project

In this joint DSIF/NEFCO/EBRD project, DSIF provides support through a cash grant to soften NEFCO and EBRD loans for the rehabilitation of the WWTP against a guarantee from NEFCO. The rehabilitation project will be financed by standard loans from NEFCO and EBRD, and a direct contribution from City of Lviv, and the DSIF grant of 35% project cost. Loan interest rates are comparable to on-lending rates seen in other DSIF projects.

Two projects will be financed in Lviv Vodokanal plant by EBRD and NEFCO; 1. A Biogas Project and 2. The Rehabilitation Project described in this note. In addition to the loans and the DSIF grant, Lviv City/LVK will contribute directly to the financing.

In addition, DSIF will offer grants for Technical Assistance, in the form of utility-to-utility twinning agreements and a PIU Support Consultant, in order to improve project implementation and overall probability of success.

69 million DKK will be transferred directly by DSIF to NEFCO after final project approval from the Minister of Development Cooperation, and based on an agreed term sheet agreed to by NEFCO and Lviv Vodokanal. The residual 10 million DKK will remain with DSIF and be used for technical assistance, for the strengthening of Lviv Vodokanal capacity building and a twinning arrangement during project implementation.

Sources of funds (mill. EUR)

EBRD	Loan	14	53%
NEFCO	Loan	2	8%
City of Lviv	Equity	1,13	4%
DSIF	Grant	9,22	35%
Total sources available	**Blended**	**26,35**	**100%**

Total investment	**DKK 197 Million**

Budget for DSIF Grant

	DKK Million
Cash grant element of loan	69
Interest subsidy	0
Margin to Danish lending bank	0
EKF premium* (Export loan guarantee fee)	0
Technical Assistance	9
Budget margin**	1
DSIF Total Grant	79
DSIF Grant excl. budget margin	*78*
DSIF appropriation (excl. EKF premium)	**79**

* EKF guarantee is not needed since NEFCO is guaranteeing the loan.
** The budget margin is only applicable for Technical Assistance.

6. OVERALL ASSESSMENT

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Investment attractiveness/concluding remarks

- As a result of the Lviv WWTP Rehabilitation Project, the City of Lviv will have an upgraded wastewater treatment plant, which meets EU standards.
- The project will significantly reduce pollution sent to the Poltva River, and to the Baltic Sea Catchment Area from the Lviv Wastewater Treatment Plant. The project would eventually have a positive impact on health conditions, the marine environment and the climate footprint.
- The project will contribute to deepening the relationship between Denmark and Ukraine, and support on-going efforts to enable technology transfer between Denmark and Ukraine.
- The project contributes to SDG 6, SDG 17 (primary), and SDG 3, SDG 8, SDG 11, SDG 14 (secondary), and supports international environmental progress in line with the Danish Government's ambitious climate agenda.

Major risks, assumptions and development challenges

- The biggest external risk comes from political instability due to Russian aggression in Ukraine. Lviv is located relatively far from the border with Russia, and not in a area directly affected by the conflict.
- Rehabilitation of municipal waste water treatment plants is based on well proven concepts and technologies and the technological risks are low. Risk related to the work quality of the Contractor will be mitigated contractually via performance bonds.
- Corruption is a well-known risk in Ukraine, and extensive mitigation measures have been put in place by EBRD and NEFCO, based on their previous experience working in Ukraine. (See Section 4). Furthermore, DSIF-NEFCO Trust Fund Agreement will have a Right of Stoppage clause in case of corruption during project implementation.
- By far the highest risk is the risk of implementation delay due to the low client capacity. A Corporate Development Consultant has worked with Lviv for the past year (See Enclosure B), and during project implementation, a PIU consultant financed by DSIF will support project implementation.
- Project delays will primarily be an environmental risk as the pollution load to the Baltic Sea will continue to increase with time.

Summary of next steps

- The immediate next step in the project is an appraisal of the existing project documentation. DSIF is entering the Lviv WWTP Rehabilitation Project late in the project development process, after the Feasibility Study phase. It is therefore deemed necessary to allow for possible additional studies identified by the appraisal team to be conducted before final approval.

- During the appraisal, mitigation factors will be evaluated in case of delay of the Lviv Biogas Project. The two projects are closely connected, and this project is dependent on the timeline of the biogas project.

- During the appraisal, both the financial and technical capacity of Lviv Vodokanal to run the operation/plant after the implementation of the project will be further evaluated.

- After appropriation, a detailed definition of a utility-to-utility twinning agreement will be developed, in corporation with Lviv Vodokanal, EBRD and NEFCO. This agreement will contain a capability mapping og Lviv Vodokanal, building on preliminary work already carried out by EBRD and NEFCO.

- Just as for the other DSIF/NEFCO projects, DSIF plans to present the project to Danish companies in order to promote Danish participation, via the Danish Embassy in Kyiv and in dialogue-meetings with the resource base in Denmark.

- A Results Framework will be developed during appraisal. A preliminary version can be seen in Appendix D.

ENCLOSURES

A: PROCESS ACTION PLAN

DANIDA SUSTAINABLE INFRASTRUCTURE FINANCE

Action	By date	Responsible	Comments
Presentation/approval IFU IC/ MFA Program Committee	June 2020	DSIF	
Appraisal and preparation of Project Document	July – Sep 2020	DSIF + GJL	
Presentation/~~approval~~ UPR	Sep/Oct 2020	DSIF + GJL	
Appropriation by Minister	Oct 2020	DSIF + GJL	
Tender	Aug 2020 to Feb 2021	LVK	With assistance from NEFCO and EBRD
Contract Award	Feb 2021	Contractor	
Transfer funds to NEFCO	Feb 2021	DSIF	
Detailed design	Feb – April 2021	Contractor	
Rehabilitation starts	April 2021	Contractor	
Taking over of works	May 2023	LVK	

B. ASSESSMENT OF PARTNER

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Partner name	Core business	Importance	Influence	Contribution	Capacity	Exit strategy
What is the name of the main partner?	What is the main business, interest and goal of the partner?	How important is the project for the partner's activity-level (Low, medium high)?	How much influence does the partner have over the project (low, medium, high)?	What will be the partner's main contribution?	What are the main issues emerging from the assessment of the partner's capacity?	What is the strategy for exiting the partnership?
Lviv Vodokanal and The City Council of Lviv	The local partner has two major lines of activity a) Supply of drinking water and b) waste water treatment. This project addresses the treatment part of the activity. The Utility Company is by law responsible for wastewater treatment at a pre-defined quality. The company cannot comply with these standards as of today.	Without the project the utility company will not be able to treat the wastewater in any meaningful way and will not be able to comply with any standards. The rehabilitation project is a part of the City's high priority development projects.	The Utility Company's ability to influence the project is high during implementation and during operation. Likewise the partner has been a focal point for the development, verification and approval of the Rehabilitation Project.	The Partner / The utility company has the ultimate ownership of the project and will contribute in the following way: A) Staff is allocated to a Project Implementation Unit directly responsible for project implementation. B) Extensive co-financing of the project and C) City Guarantee for the Loan Amount (City of Lviv)	The Utility Company is lacking both financial, institutional and HR capacity. A "Corporate Development Consultant", financed by NEFCO, has worked with LVK for more than a year and a development plan with action points is formulated. For implementation of the project a strong focus shall be put on contracting with a strong monitoring consultant, which would bring in needed HR and institutional capacity to LVK.	Lviv is a cluster area for Danish business interest in Ukraine and the positive attitude towards Denmark has an indirect impact on Danish companies in the area. Lviv City is oriented towards integration into the West and has development priorities which are in line with Danish core competencies – such as Water, Waste Water, Waste management and District Heating and decarbonization.

C. PROJECT RISKS & RISK RESPONSE

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Risk Factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
Contextual risks					
Significant political instability due to Russian annexation.	Likely	Minor	None	Minor	Lviv is located in far west of Ukraine, away from the conflict zones.
Economic and social instability due to the extensive period of hardship in the country and the pessimistic perspectives for the future	Likely	Major	A thorough review of Lviv City and LVK has been carried out by EBRD/NEFCO to assess economic stability	Minor	NEFCO and in particular EBRD history in Lviv.
Programmatic risks					
Implementation delay due to the low client capacity.	Likely	Major	Funding of a PIU Support Consultant to facilitate the timely and cost effective implementation of the project.	Minor	NEFCO and EBRD expertise in project management in Ukraine.
Technology/knowledge transfer unsuccessful.	Unlikely	Major	Involve PUI consultant and Danish utilities early and throughout the process to enable mutual cooperation, clear communication, buy-in and optimal technology/knowledge transfer.	Minor	DSIF through NEFCO is already involved in similar project in Zaporizhzhia, through which experience will be gained.
The Biogas Project does not get implemented, and extra sludge handling is therefore not in place.	Unlikely	Minor	The project will be timed to correspond with the planning and approvals of the Biogas Project.	Minor	Lviv, NEFCO and EBRD have given final approval for the financing of the Biogas Project, and tendering is in process.
City of Lviv is the buyer and loan/grant taker – risk of default or cancellation of project due to local economic conditions, or currency losses.	Unlikely	Minor to DSIF. Major to project.	NEFCO pre-screening of project. The largest risk is the risk of rescheduling. The default risk is moderate.	Minor	NEFCO expertise in assessment of partners/Lenders in Ukraine. DSIF is providing grant (and not loan) administered by NEFCO.
Institutional risks					
Corruption.	Likely	Medium	Tendering and construction will follow all NEFCO and EBRD rules put in place specifically to avoid corruption in Ukraine.	Minor	NEFCO and EBRD expertise in project management in Ukraine.

D: DRAFT RESULTS FRAMEWORK

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Outcome		As an integrated part of Lviv Green City Action Plan, the objective of the rehabilitation and upgrade of Lviv Waste Water Treatment Plant is to reduce the pollution of the Poltva River and subsequently of the Baltic Sea. The rehabilitation will furthermore ensure retainment of sufficient sludge for the sustainability of a projected biogas plant, thereby increasing the production of renewable energy and reducing the CO_2 emissions.	
Outcome indicator		Cleaner water in Poltva River	
Baseline	Year	2020	Tbd (uncertainty whether metrics on water pollution levels in Poltva River can be obtained – will be assessed during appraisal)
Target	Year	2022	Tbd
Outcome indicator		Reduction of nutrients and organic matter in wastewater at current average wastewater flow (377,446 m^3/day)	
Baseline	Year	2019	Current values: BOD_5: 7,820 t/yr N_{total}: 1,940 t/yr P_{total}: 240 t/yr
Target	Year	2022	Targeted values: BOD_5: 2,067 t/yr N_{total}: 1,378 t/yr P_{total}: 69 t/yr
Outcome indicator		Increased collection of sludge for biogas production	
Baseline	Year	2019	56.2 t/day (not used)
Target	Year	2021	90 t/day
Target	Year	2022	120 t/day
Outcome indicator		Decreased CO2 emission from different handling of sludge	
Baseline	Year	2019	0
Target	Year	2022	1,000 t CO_2 equivalents/year

Output 1		Lviv WWTP rehabilitated and upgraded	
Output indicator 1.1		The wastewater treatment plant is tendered, constructed and fully operational according to design criteria	
Baseline	Year	2020	N.a.
Target	Year	2022	• Construction and installation work completed • X No. of WWTF staff trained • WWTP operates at full capacity
Output indicator 1.2		Provision of decent jobs	
Baseline	Year	2020	ESAP established and approved
Target	Year	2022	ESAP implemented

Output 2		LVK operate and maintain Lviv WWTP	
Output indicator 2.1		The wastewater treatment plant is operated according to design criteria	
Baseline	Year	2020	N.a.
Target	Year	2024	• WWTP operates at full capacity when needed • 90% of treated water meets the national and EU pollution standards • No. of overflows per year reduced to zero • Sludge is retained for the biogas plant

The wider impacts of the project are expected to include:

- Reduced degradation of natural habitats and halt the loss of biodiversity in and around Lviv River (SDG 15.5)
- Increased use of the river Poltva for recreational purposes and hence better livelihood for the people of Lviv

The achievements indicated in the results framework are depending on the following assumptions:

- External factors do not prevent the Project of being implemented as scheduled
- LVK will employ skilled staff for training and operation of the WWTP