



The European Commission - World Bank Partnership Programm Part III for Europe and Central Asia Programmatic Single-Donor Trust Fund (TF0473423) - Public Finance Management Support Program for Ukraine (EUR4PFM) - Component 2 Activities



Project appraisal in Ukraine

**International best
practices
recommendations**

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A photograph of a young green plant with several leaves growing out of a crack in dry, cracked earth. The soil is light brown and shows deep, irregular cracks. The plant is positioned on the left side of the frame, with its roots visible at the base. The background is slightly blurred, showing more of the cracked earth.

PROJECT SELECTION AND APPRAISAL FOR THE ENVIRONMENTAL SECTOR

RECOMMENDATIONS TO INTEGRATE CLIMATE
CHANGE CONSIDERATIONS



01

CLIMATE CHANGE AND THE ENVIRONMENT

NT TOOLS AND PRACTICES

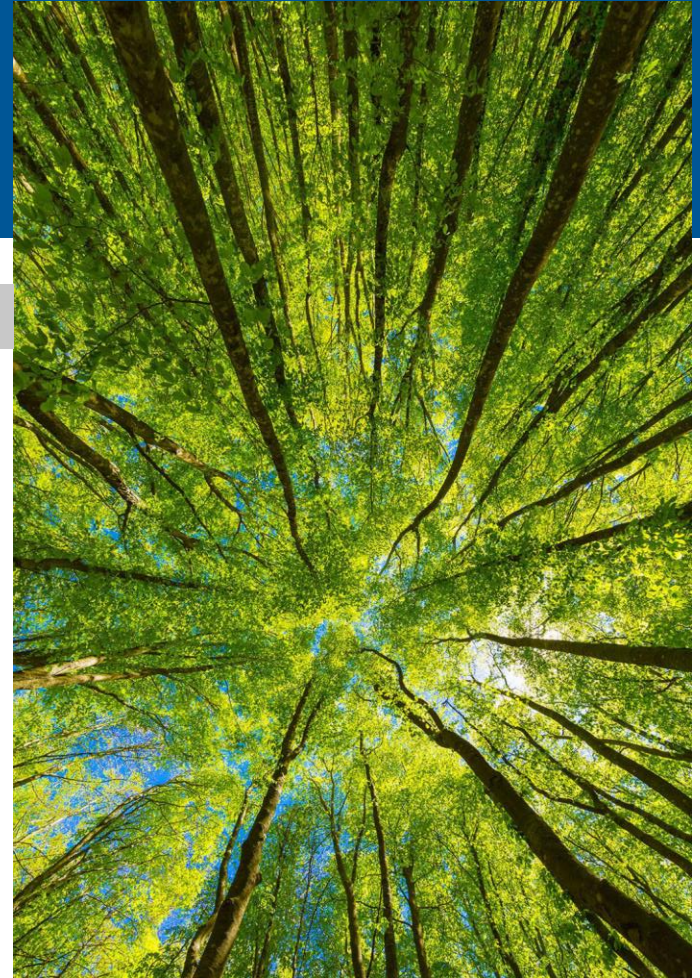
KEY CONCEPTS AND CONSIDERATIONS

'Humanitarian crises'

Climate Change is the biggest concern and challenge of the century :

- Deterioration of ecosystems
- Negative effects on the health of people
- Loss of income and livelihoods
- Damage to critical infrastructure
- Reduction of food and water security

*6th Assessment Report of the Intergovernmental Panel on
Climate Change (IPCC AR6)*



KEY INTERNATIONAL COMMITMENTS

SDG 13

Calls for urgent action to tackle climate change and its impact through five targets

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters
- Integrate climate change measures into national policies, strategies, and planning
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning
- Implement the UN Framework Convention on Climate Change
- Promote mechanisms to raise power for planning and management

2015 PARIS AGREEMENT

Commitment to keep a global temperature rise this century below 2 degrees Celsius and “pursue efforts” to prevent more than a 1.5°C increase in global temperatures

- 192 nations
- Submission of Nationally Determined Contributions (NDCs)
- Actions for climate change mitigation and adaptation

ROLE OF THE GOVERNMENT

Mainstreaming steps and entry points

<i>Relevant activities</i>	<i>Stage in Policy Cycle</i>	<i>Decision-making</i>
	National Strategy	Strategic level decision making e.g. creating enabling environment
<i>Mainstreaming in national level policies</i>	National (Action) Planning	Initial prioritisation of policies and programmes
<i>Mainstreaming in sector plans</i>	Sector Planning	Impact assessment and prioritisation
<i>Mainstreaming in sector programmes or projects</i>	Programmes and Projects	Detailed (economic) appraisal

ROLE OF THE GOVERNMENT

GLOBAL AGENDA

In the last years, the emphasis has been put on the development of Public Financial Management (PFM) strategies and tools:

- Coalition of Finance Ministers for Climate Action (2019) – 70 member countries
- Climate Responsive Public Financial Management (CRPFM) framework (2020) - Public Expenditure and Financial Accountability (PEFA)
- Climate-Public Investment Management Assessment (Climate-PIMA) (2021) - International Monetary Fund (IMF)

COUNTRY-SPECIFIC ACTIONS

- Calculator of environmental impacts of infrastructure projects (The Netherlands)
- Climate-sensitive purchasing bodies (Austria, Korea)
- Guidelines for project appraisal with climate change considerations (UK, Ireland, European Commission)

CLIMATE CHANGE AND INFRASTRUCTURE

The relationship between climate change and infrastructure goes two ways:

1) Climate change → Infrastructure

- Climate change causes direct damage to physical assets and infrastructure and disrupts its related services
- Call for **climate-resilient infrastructure** that can withstand the effects of climate change in the long run and prevent the operational, financial, environmental, and social damage to the performance of significant fixed assets and infrastructure (including asset deterioration and reduced life, increases in OPEX and the need for additional CAPEX, loss of income, increased risks of environmental damage and litigation, reputation damage, changes in market demand for goods and services, and increased insurance costs or lack of insurance availability)

2) Infrastructure → Climate Change

- Decisions made today about infrastructure provision (materials, locations, etc.) will have significant implications for both the global level of GHG emissions and a country's resilience to natural disasters in the future
- Call for **Green infrastructure investment**: public investments must be well-chosen and provide long-term economic and social returns

02

CLIMATE CHANGE IN UKRAINE

CURRENT TOOLS AND PRACTICES



CLIMATE-RELATED PUBLIC INVESTMENT AND ASSET MANAGEMENT

1. Mainstreaming of CC into PIM is at very initial stage in Ukraine and improvements to the existing framework are required
2. Despite the lack of specific CC provisions in the regulatory framework for PIM, the existing framework provides a basis for further development of PIM procedures that incorporate CC
3. Ukraine has not yet introduced any comprehensive approach to climate resilience in infrastructure delivery
4. Disaster risk management is considered in the full EIA, but only from the perspective of dangers from the project, rather than dangers to the project
5. The legislative framework for PPP projects provides analysis of environmental impacts, but it does not refer to CC

KEY LEGISLATION RELATED TO ENVIRONMENTAL ISSUES

Key legislative acts in PIM related to CBA

<u>Resolution of CMU #571 as of 22.07.2015 on some issues of public investment management</u>	Requires CBA and environmental impact assessment within public investment project appraisal
<u>Order of MoE #1865 as of 22.12.2017 on approval of methodical recommendations for preparation and appraisal of public investment project</u>	Details CBA and environmental impact assessment within public investment project appraisal

KEY LEGISLATION RELATED TO ENVIRONMENTAL ISSUES

Regulations on environmental impact	
<u>The Law of Ukraine on Strategic Environmental Assessment, adopted in 2018</u>	Regulates strategic environmental assessment of draft public planning documents and complements the procedures for the preparation and adoption of public planning documents ensuring the strategic environmental assessment thereof.
<u>Resolution #1272 of CMU as of 16.12.2020</u>	Sets rules for monitoring according to the Law of Ukraine on Strategic Environmental Assessment. <u>on approval of the procedure for monitoring of consequences of execution of the document of the state planning for environment, including for health of the population</u>
<u>The Law of Ukraine on regulation of construction activity (adopted in 2011)</u>	Requires environmental impact assessment of certain type of construction projects
<u>Order #45 of the Ministry for Development of Territories and Communities on development of the design documentation for construction</u>	Requires EIA of certain type of construction projects
<u>Resolution of the CMU # 1026 as of 13/12/2017</u>	Sets the rules for EIA of construction projects. <u>On approval of the procedure for submission of documentation for issuing an opinion on environmental impact assessment and financing of environmental impact assessment and the procedure for maintaining the Unified Register of Environmental Impact Assessment</u>
<u>Order of the Ministry of Environmental Protection and Natural Resources of Ukraine # 193 as of 15.03.2021</u>	<u>On approval of the general methodological recommendations on the content and procedure for compiling reports on environmental impact assessment</u>
<u>Order #136 as of 02/03/2020 of the Ministry of Energy and Environmental Protection of Ukraine</u>	<u>on approval of the methodological recommendations for the development of the report on environmental impact assessment in the field of forestry</u>

KEY LEGISLATION RELATED TO ENVIRONMENTAL ISSUES

Regulations on disaster management

Order # 637 of the Ministry of Labour and Social Policy of Ukraine as of 04.12.2002 on approval of methodology for definition of risks and their acceptable levels for declaration of safety of objects of increased danger

Provides methodology for identification of disaster risks

Order #98 of the Ministry for Emergencies and Protection of the Population from the Consequences of the Chernobyl Disaster (reorganised to State Emergency Service of Ukraine) as of 23.02.2006 on Approval of the Methodology for identification of potentially dangerous objects (facilities/assets)

Provides methodology for identification of disaster risks



03

GUIDELINES FOR PROJECT APPRAISAL

STRATEGIES, TOOLS AND INTERNATIONAL BEST PRACTICES

CLIMATE-RELATED PORTFOLIO

i. **“Pure Climate Change” Projects:**

Projects with specific climate-related projects

Adaptation + Mitigation

ii. **“Climate-sensitive” projects**

Climate change is a horizontal issue: all projects can potentially influence or be influenced by climate change

MAIN STEPS AT WHICH CLIMATE CHANGE CONSIDERATIONS CAN BE INTEGRATED



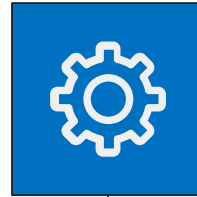
RISKS

Identification of potential climate change risks



OPTIONS

List of relevant project options that consider the risks identified



APPRAISAL

Compare options with and without adaptation measures (CBA)



OTHERS

Consider alternative appraisal techniques

1. IDENTIFICATION OF RISKS

i. Preliminary Risk Assessment

Based on previously defined criteria (UK's Green Book):

- The project has assets or elements affected by the weather and effects of climate change (variability, extremes)
- The project is associated with the natural environment
- The project involves a significant investment, involves high operational or maintenance costs, or has a high value at stake (human wellbeing, biodiversity)
- The project is associated with critical national infrastructure
- The project has significant interdependencies with other government activities or the wider economy
- The project involves decisions that will result in 'lock-in' to a particular future
- The project responds to CCRA risks

ii. In-depth risk-assessment

1. Identify and estimate key climate drivers
2. Carry a vulnerability analysis
3. Evaluate exposure of the infrastructure and assets



Climate Models and numerical tools
(ref. ECONOADAPT, World Bank's Climate & Disaster Risk Screening Tool)

2. DEVELOPING OPTIONS

i. **Develop Climate Scenarios**

- Baseline scenario: should always include expected climate changes
- Global warming scenarios: At a minimum, different climate scenarios should be set to match those of the Paris Agreement. Projects with lifetimes up to 2035 should be appraised against a global warming scenario where temperature rises 2°C. Projects with a longer time horizon, should also be appraised against a worldwide temperature rise of 4°C¹

¹ Based on scenarios established by the UK's Department for Environment Food and Rural Affairs. (2020). *Accounting for the Effects of Climate Change. Supplementary Green Book Guidance*

2. DEVELOPING OPTIONS

ii. Determine no and low-regret adaptation options + Climate-smart designs

Adaptative measures to climate change risks per aim

Aim	Measure	Applicability
Bear losses and manage impacts	This is a 'do-nothing approach', where the risks that result from climate change are accepted, and the consequences and costs are bared.	When benefits of taking adaptive action do not justify the costs.
Minimize losses or reduce consequences	This a 'preventive approach': <ul style="list-style-type: none">- Structural or technological methods to reduce the probability of damage occurring- Measures to enhance resilience to reduce consequences and impacts, and shorten recovery time- Avoiding impacts by changing the location of an activity- Legislative, regulatory or institutional changes, such as amending building standards- Emergency, contingency or disaster planning to deal with extremes	When benefits of taking adaptive action are higher than the costs.

3. APPRAISAL OF OPTIONS

Compare options with and without adaptation measures under climate scenarios

- Preferred assessment method: CBA
- All costs and benefits of alternative options should be identified, quantified, and monetized:
 - Valuation of externalities: Use of Total Economic Value (TEV) framework (including noise, air pollution, GHG emissions, soil contamination, water pollution, ecosystem degradation, landscape deterioration, and vibrations)
 - Valuation of GHG: Avoided damage due to reduced emissions

$$B_t = \Delta C02_e * P_c$$

B_t are the GHG benefits produced in year t

P_c is the carbon price*

$\Delta C02_e$ is the change in C02e emissions relative to baseline or an alternative project

3. APPRAISAL OF OPTIONS

Different approaches have been developed to set a carbon price:

1. The Social Cost of Carbon estimates the monetary value of damages caused by a one-ton increase in GHG emissions
2. The Target-consistent cost means setting the price of a ton of CO₂ to be equal to the marginal abatement cost (MAC) of achieving a given target
3. The Market valuation method is based on the market value of emissions allowances in a carbon trading scheme or Emissions Trading Scheme (ETS).

Obs: Very wide ranges found in the literature. World Bank recommendation: US\$40-80 per ton of CO₂e in 2020, rising to US\$50-100 by 2030 (values may be extrapolated for years after 2030)

Carbon price estimation methods

Method	Economic rationale	Values
Social Cost of Carbon	Value of future marginal climate-change damages	\$33 - \$220/tCO ₂ e
Target-consistent cost	Marginal abatement cost (MAC)	£150 - £250/tCO ₂ by 2025 £270 to £370/tCO ₂ by 2045
Market valuation	Unitary price of 1 ton of traded CO ₂ e (ETS)	€80 in 2022

Source: Own elaboration

3. APPRAISAL OF OPTIONS

- **Social discount rate (SDR):** Once all costs and benefits are estimated, future values must be discounted using a **social discount rate**. In the context of environmental and climate change projects, the selection of a SDR represents a vital aspect of the appraisal process:
 - **Declining discount rates** is commonplace in many OECD countries. It allows all long-term costs and benefits to remain relevant when brought to present values.
 - *It applies to any type of project with a long time horizon, not just projects with long-duration environmental effects, although evidently the application of a declining discount rate is more relevant for projects with long-duration environmental effects, including CC impacts.*

Long-term Social discount rates used in Europe

Country	Approach and values
France	Declining discounting: 2.5% for years up to 2070, 1.5% afterwards
UK	Declining discounting: 3,5% overall discount rate; declines gradually to 1% after 300 years
Norway	Declining discounting: 3% to 1% after 100 years
US	No guidance on long-term analysis

Source: Own elaboration, based on OECD (2018) and Cahill and O'Connell (2018)

3. APPRAISAL OF OPTIONS

- **Time Horizon:** In the context of environmental and climate-related projects, there's been a call to adopt longer time horizons in CBA. However, the longer the time frame embraced, the greater the uncertainty attached to costs and benefits projections. Pragmatic approach: adoption of medium-term time horizons (40-60 years) for general infrastructure projects, while projects specifically designed to mitigate climate change, protect biodiversity or other environmental assets, may require the selection of a much longer time horizon

Time Horizons used in Europe

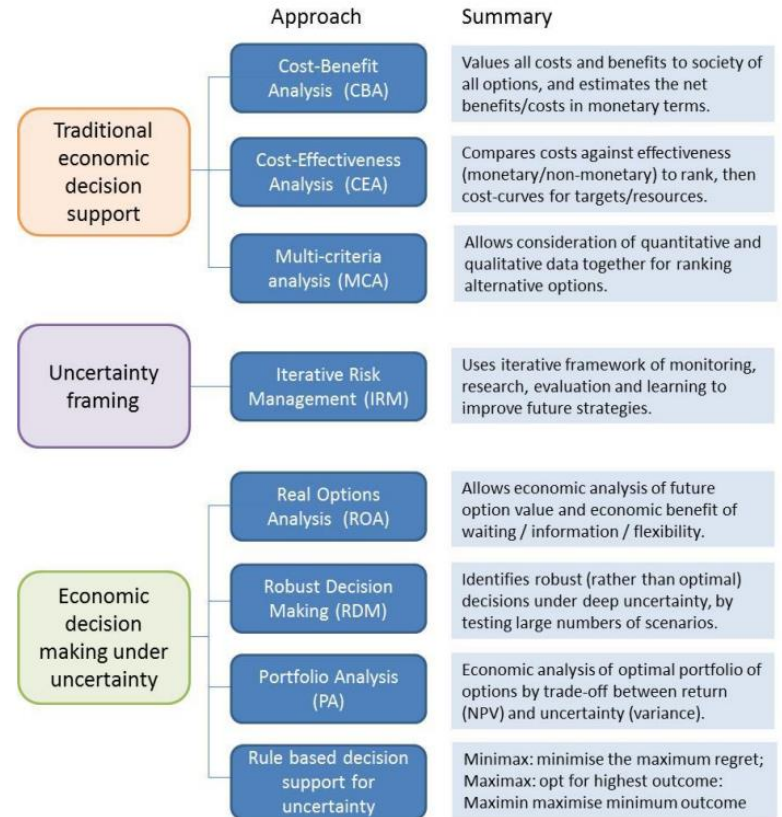
Country	Approach and values
France	General long-term approach: Set it to 2070 and calculate residual value for the next 70 years. In the case of GHG emissions, calculations would extend beyond 2140
UK, Green Book	General medium-term approach: 10 to 60 years, depending on project. Projects of GHG up to 2100
Netherlands	General long-term approach: variable time horizons. No explicit reference to GHG projects
Norway	General long-term approach: "Up to where all relevant effects are manifested". But medium term for transport projects 40-75 years
US	General medium-term approach: Transport projects 40-50 years. Environment-related projects: 36 years power plants, up to 2300 for the social costs of carbon and 10,000 years for a radioactive waste facility.
Ireland	General medium-term approach: 60 years. Climate change projects with longer time periods (variable).

Source: Own elaboration, based on the review carried by Cahill and O'Connell (2018)

4. ADDITIONAL CRITERIA

Methods for Climate Resilient Appraisal

Source: Watkiss and Cimato (2016)



CONCLUSIONS AND FUTURE WORK

1. Climate Change is one of the biggest challenges of modern society. Human activities cause climate change through changes in atmospheric composition due to emissions of greenhouse gases or aerosols or land use changes
2. Public policy, particularly public investment in infrastructure, has the potential to not only help reduce CO₂e emissions but also set the basis for more climate-resilient development. Considering climate change impacts and risks in the design and provision of infrastructure is critical for resilience and human wellbeing
3. These Guidelines provide a first approach to mainstreaming climate change at the level of PIM and public infrastructure provision. To maximize the benefits of applying the recommendations and practices portrayed, policy-makers will have to reflect on some of the critical variables and definitions that determine the results of a project's appraisal:
 - a. Shift towards longer time horizons in project appraisal
 - b. Focus on lower or dual social discount rates
 - c. Estimation of a suitable carbon price
 - d. Distributional effects of climate-related projects

Thanks for your attention

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