

UNECE INQUIRY COMMISSION

Adopted Methodology
Bystre Chanel Project

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GENERAL FRAMEWORK

- Definitions of terms
- Technical details of disputed activities
- Statement of controversies
- Expert views on controversies
- Evaluation by the Commission
- Conclusions
- Recommendations

DEFINITION OF TERMS

ESPOO convention requires the determination that an activity has a

- Likely
- Significant
- Adverse
- Transboundary
- Impact

DEFINITION OF TERMS

- The terms “transboundary” and “impact” are well defined in the ESPOO Convention documents.
- “adverse”: negative for the environment
- Problem: scientific sound definition of “likely significant”

LIKELY SIGNIFICANT

- Difference between a-biotic and biotic impact assessment:
- A-biotic world: knowledge \Rightarrow models \Rightarrow nature checks \Rightarrow statistical techniques \Rightarrow significance of impact
- Biotic world:
this approach hardly possible

Inquiry Commission adapted 4 categories of likeliness:

- Very likely: *far outside* range normal variation
- Likely: *outside* range normal variation
- Hardly likely: *hardly outside* range normal variation
- Unlikely: *within* range normal variation

A-BIOTIC EVALUATION

WATER AND SEDIMENT FLOW

- Use of water- and sediment transport models
- Criteria of impact: outside the normal variations of discharge, water levels, turbidity, alongshore water and sediment transport, sediment influx to the sea

A-BIOTIC EVALUATION

Result WATER AND SEDIMENT FLOW:

Table with entrances

- Engineering activity
- Possible impact
- Transboundary impact
 - significance
 - impact duration
 - impact spatial extent

Summary of findings

Operations	Possible impact	* Transboundary impact? • Likely significant? • Impact duration * Impact spatial extent
Widening and deepening shipping channel (phase 1 and phase 2 of construction)	Modification of discharge distribution over main Danube branches (Chilia -Sulina)	• Transboundary impact • Phases 1 and 2: unlikely to be significant in view of natural variability • Permanent impact • Affects whole delta
	Modification of water level dynamics in main Danube branches (Chilia)	• Transboundary impact • Phases 1 and 2: unlikely to be significant in view of natural variability • Permanent impact • Affects whole delta
	Modification of sediment transport distribution over main Danube branches (Chilia)	• Transboundary impact • Phases 1 and 2: unlikely to be significant in view of natural variability • Permanent impact • Affects whole delta
	Modification of discharge distribution over Chilia Delta branches (Bystre, Starostambulski)	• Transboundary impact • Phases 1 and 2: likely significant in view of natural variability • Permanent impact • Affects Ukrainian Chilia delta
	Modification of water level dynamics in Chilia Delta branches	• Transboundary impact • Phases 1 and 2: likely significant in view of natural variability • Permanent impact • Affects Ukrainian Chilia delta
	Modification of sediment transport distribution over Chilia Delta branches (Bystre, Starostambulski)	• Transboundary impact • Phases 1 and 2: likely significant in view of natural variability • Permanent impact • Affects Ukrainian Chilia delta

A-BIOTIC EVALUATION

GEOCHEMISTRY

- Use of international standards for toxicity of metals and micro-pollutants
- For dissolved, suspended matter and sediment and dumping of dredged material
- Confrontation with measured values
- Judgement of significance

BIOTIC WORLD:

- Ecosystem relationships very complicated
- Knowledge often insufficient
- Speed of adaptation variable for different organisms
- Impacts may interfere; cumulative impacts may occur
- Quantitative predictions often impossible
- Therefore: qualitative expert assessment

BIOTIC EVALUATION

Classification of adverse impacts

- Loss of habitat
- Degradation of habitat
- Disturbance
- Lethal removal

Loss of habitat: in percentage of total; in single large area or in many small areas; fragmentation

Degradation of habitat: availability of sites; food density or range; water levels and regimes; addition of materials (siltation, nutrients, pollutants)

Disturbance: visual (humans, boats); noise; physical (wash from boats etc)

Lethal removal: hunting; fishing

Expert Judgement

Significance Biotic factors

Loss of habitat

- Size of loss in relation to total
- Diversity of organisms
- Function in the food web
- Robustness
- Rareness

BIRD EVALUATION

- Will bird habitats move from favourable to unfavourable ecological conditions
- Are there changes to the size, extent and viability of bird populations
- Likelihood of such changes

BIRD EVALUATION

IMPACTS:

- Permanent or transient
- Direct or indirect
- Transboundary or not
- Probable, improbable or uncertain
- Local or widespread

BIRD EVALUATION

Results

Table with entrances

- Engineering activity
- Potential consequences for birds and habitats
- Impact: duration, direct/indirect, transboundary
- Impact: likelihood, spatial extent, significance

FISH/FISHERY EVALUATION

Similar approach as for birdlife

Table with entrances:

- Engineering activity
- Consequences for fish
- Impacts on fish
- Level of significance

Operational aim	Operational activity	Consequences for fish	Impacts on fish	Level of significance
Construction of the navigation channel in the Chilia arm downstream to the sea	Dredging of sills	Increased turbidity at dredging sites	Fish kills at dredging sites	Severe effect, but at very small scale => Unlikely significant
		Fish and fish food entrainment by dredging machines	Lethal	Severe effect, but at very small scale => Unlikely significant
		Increased turbidity downstream of dredging sites	Behavioural and physiological changes in the plume - chronic effects	In total a significant area chronically affected => Likely significant
		Reduction of flooding magnitude and frequency	Potential loss of spawning and nursery floodplain habitat	Potentially large areas are affected at long-term => Likely significant
		Deterioration of water quality parameters incl. toxics	No significant exceedance of standards	No effects => Unlikely significant
		Saltwater intrusion	Loss of freshwater habitat	Long term, severe impacts but spatially limited => Unlikely significant

GENERAL CONCLUSIONS

- Difference in evaluation methodology between a-biotic and biotic aspects
- Model, standards and effect evaluations on the basis of expert judgement may lead to an acceptable labelling of the degree of significance of activities