

APPENDICES

**with the advisory review of
the Hidrovía Paraguay-Paraná
navigation project**


(appendices 1 to 6)

APPENDIX 1

Letter from DGIS dated 16 September 1997, in which the Commission has been asked to submit an advisory review

Ministerie van Buitenlandse Zaken

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	Commissie voor de m.e.r. OS
Ingekomen:	17-09-97
nummer:	107-97
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kopie naar:	sc/sh/kh/Bb/bieb

Commissie MER
T.a.v. Mevr. Steinhouwer
Postbus 2345
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Datum **Doorkiesnummer**
16 september 1997 348.6114

Kenmerk
DML/MI-475/97

Onderwerp
Hidrovia (Act.nr. RL 014601)

Dienstonderdeel
DML/MI
Behandelend medewerker
T.J.J.M van Eijk

Geachte mevr. Steinhouwer,

In het kader van de afspraken tussen de Commissie MER en DGIS DML/MI mag ik U verzoeken een advies uit te brengen over de verzamelde werken met betrekking tot het Hidrovia project in Zuid-Amerika.

Naar aanleiding van de specifieke vragen over de adviesvraag in uw brief d.d.21/8/97, gaarne het volgende.

Waarvoor ?

Uw advies dient in eerste instantie uitsluitend ter bepaling van een standpunt van het DGIS, i.c. DML.

Waarover ?

Uw advies wordt gevraagd over de studies en samenvattingen van de lokale (Rios Vivos) NGO's, de u beschikbare IDB studies (EIA modulo A-task 10 en EIA modulo B2), de samenvatting van de review van het "panel of independent experts (en het volledige rapport als dat nog binnen afzienbare tijd beschikbaar komt).

Inhoudelijk betekent dit :

- Een algemeen oordeel over de kwaliteit van de studies mede aan de hand van een toetsing van de richtlijnen die hier voor zijn geschreven (de TOR's).
- Uw visie op de toegevoegde waarde van de NGO studies en die van het Panel of Experts t.o.v. het IDB werk.
- Een signalering van aperte strijdigheden in de rapportages en uw visie op de belangen tegenstellingen die hieraan ten grondslag kunnen liggen.

Wanneer ?

Als uw advies voor eind november 1997 beschikbaar komt, lijkt dat, voorzover nu te overzien, in orde.

DE MINISTER VOOR ONTWIKKELINGSSAMENWERKING,
Voor de Minister,
Directeur van de Directie Milieu en Ontwikkeling,



(Dr K.A. Koekkoek)

APPENDIX 2

Project information

Proposed activity: The governments of Argentina, Bolivia, Brazil, Paraguay and Uruguay propose to undertake the Hidrovía Paraguay-Paraná navigation project. The purpose of the proposed project is to construct and maintain a reliable and efficient waterway that would develop production in the region as well as regional and nonregional trade through lower transportation costs. This is to be achieved by dredging a deeper navigation channel along the 3400 kilometer river system, removing rock-outcroppings and straightening of bends and dredging of shallow sections. This low-cost transport corridor would mainly benefit the export of low-priced bulk commodities, such as soy beans and iron ore.

Categories: Inland water transport, DAC CRS code 71212

Project numbers: Hidrovía (Act.nr. RL 014601); Commission for EIA 029

Progress:

letter with request to submit an advisory review: 16 September 1997

advisory review submitted: 15 December 1997

Composition of the working group of the Commission for EIA:

Mr P.C.W.A. van Ginneken

Mr J.W. Kroon (chairman)

Mr R. Moor

Mr H.J. Opdam

Mr R. Slootweg

Mr T. de Wit

Technical secretary: Ms I.A. Steinhauer

APPENDIX 3

Documents subject to review by the Commission

Terms of Reference for the IDB-studies:

- Módulo A: The improvement of navigation of the Paraguay-Paraná Waterway from Santa Fé to Corumbá/Puerto Quijarro, and the installation of river traffic signals from Nueva Palmira to Corumbá/Puerto Quijarro
- Módulo B1: The engineering studies and plan of execution for the Paraguay-Paraná Waterway (Cáceres-Nueva Palmira) and the installation of signals from Corumbá to Cáceres
- Módulo B2: Performance of the Environmental Impact Evaluation of the Development of the Paraguay-Paraná Waterway.

The IDB-studies:

- Estudios de ingeniería y viabilidad técnica y económica del mejoramiento de las condiciones de navegación de la Hidrovía Paraguay-Paraná (Módulo A y B1), Diciembre 1996, Consorcio Hidroservice-Louis Berger-EIH.
- Evaluación del impacto ambiental del mejoramiento de la Hidrovía Paraguay-Paraná (Módulo B2), Febrero 1997, Consorcio Taylor-Golder-Consular-Connal.

The Panel of experts' study

- The Hidrovía Paraguay-Paraná Navigation Project, Report of an Independent Review, July 1997

The NGO's study

- Bases para la Evaluación del Proyecto de la Hidrovía Paraguay-Paraná: Compilación y Sistematización de Información Básica sobre la Cuenca del Río Paraguay; Agosto 1997. ECOA, Brazil, ASEO, Bolivia, Sobrevivencia, Paraguay

APPENDIX 4

Notes on transport economy and economic/financial evaluation

- The projected cargo flows depend upon projected developments in the region, with and without the project. According to the IDB-studies, soybeans and soya would compose almost 50% or more of the tonnage of commodities conveyed on the Hidrovia. The Panel criticizes the projections made for the soya production for several reasons: (1) soya expansion will be accelerated by Hidrovia, whereas the IDB-studies conclude that the increase of cultivated area will be roughly the same with and without the project; (2) overestimation of future increase in soya yields per hectare; and (3) not incorporating an assessment of production cost increases. The Panel concludes that soya production could either expand or contract: 'in the absence of analysis, it is impossible to say which of these trends - expansion or contraction would dominate in any region. The former would require rethinking of the project's environmental impacts and the latter, of the project itself. CIH should carry out a sensitivity analysis under different development scenarios for the region, to substantiate their cargo forecast.
- The Hidrovia is being promoted as a project that will facilitate and enhance trade growth in the region. As the main commodities to be transported on the Hidrovia are low-cost bulk commodities for export (soy and iron ore), mainly to non-regional markets, it is doubtful that there is sufficient inter-country trade that will use the Hidrovia as its preferred transport mode. There is not enough evidence to support the expectation that the Hidrovia will contribute to regional inter-country trade.
- The economic benefits of Módulo B are to be confirmed and have to be looked at with care. If Ferronorte is implemented before 2005, the investments cannot be justified as bulk commodities (mainly soya) from Mato Grosso will for this transportation alternative.
- The modal split analysis is mainly based on transport cost comparisons; for this purpose the estimated costs for rail and road transport are not qualified, and it is not made clear whether or not they include depreciation and interest for the infrastructural investments.
- The channel dimensions follow the design rules of the American Corps of Civil Engineers for single lane traffic; the studies do not indicate what provisions are required for meeting convoys.
- The ration (adopted) between engine power and tonnage carried by the convoys is extremely low (1 to 6 or 7) when compared to what is used on the Rhine River (1 to 3); since this is immediately related to fuel consumption and sailing speed, it must have a significant impact on the transport costs, modal split and project benefits.
- Due to the uncertainties of the estimated volumes to be dredged, the costs of the project can not have a 15% accuracy.
- Critical remarks of the Panel that adjustment of the fleet (shallower draft vessels) of fleet operations (shorter annual operational window) are viable alternative options for the Hidrovia Project are questionable. Apart from the additional costs (fleet investments, operational costs and storage costs), the major problem of a successful inland waterway transport corridor is the reliability of the channel maintenance and channel marking services to ensure year-around navigation at sufficient draft; absence of this reliability necessarily leads to a decline of the inland waterway transport sector.
- The distribution of the costs between the member countries is different from the distribution of the project benefits; this requires a more detailed financial analysis and has institutional implications.
- The documents reviewed so far do not show an extensive and detailed sensitivity analysis of the economic evaluation for various important assumptions.
- Investments in fleet and ports have not been taken into account as project investments; they are taken into account in the operational transport costs and it is assumed that the tariffs will cover the integral costs of fleet and port operations. This is methodologically correct, although the Panel is right in its assessment that this assumption, like many other peripheral assumptions related to the economic and institutional setting, is critical for the viability of the Hidrovia project.

APPENDIX 5

Technical and methodological remarks

Technical remarks

- A geomorphological analysis based on satellite imageries and aerial photographs has not been reported and was also missed by the Panel of Experts. Such analysis could provide a better understanding of the river morphological processes.
- The major conclusions on river behaviour have been based on the results of one-dimensional model computations. These models have not been calibrated properly and it is not clear whether or not the models reflect the specific characteristics of the various river stretches (single meander or composed river channels, including flood plains or not). The analysis of the impacts of interventions on the (upstream) water level is not specific. Model computations have been reportedly carried out for the stretch from Porto de Manga (km 2685) and Puerto Pinasco (km 2080). No estimates have been given for the impacts of the measures more upstream (Ladarío km 2755 - Cáceres km 3411) of more particular interest to the Pantanal wetlands. No detailed technical information on the modelling has been reported in the documents provided.
- Often general non-qualified and non-substantiated observations are made referring to evaluations made and/or practice and experience in USA and Europe (dredging capacity available, transport costs etc.).
- The Panel correctly points out that the studies underestimate the volume of sediment to be dredged due to the (limited) selection of the past 25 years of hydrological information, so that the 1962-1973 period of low discharges has not been taken into account.
- The highly varying river discharge between periods, which may last for decades, leads to navigation problems in dry spells. In the IDB-funded studies, the present day shipping practice is taken as the point of departure. The present day situation with respect to river discharge is characterised as a prolonged high water period, in which river transport has been intensified. In other words, the calculated future navigational capacity is based on a period of high river discharge. Given the dynamic character of the river this does not seem logical. Similarly, the risk of occurrences of prolonged low water periods underestimates the future maintenance dredging required and, consequently, underestimates the future long term project costs.
- The design criteria applied follow the guidelines of the American Corps of Civil Engineers 'Lay-out and Design of Shallow Draft Waterways'. They apply an under-keel-clearance of 0.30 m which, for the Hidrovía is rather low. This criterion has a direct negative impact on the estimated volumes to be dredged.
- The volume of sediment to be dredged initially (4.4 Mm³ between Santa Fé and Asunción; 9.9 Mm³ between Asunción and Río Apa) and annually (1.7 Mm³ respectively) are low in comparison to the dredging works already carried out on the Lower Paraná in the period 1980-1994. This illustrates that the qualification 'megaproject' does not apply to the technical aspects of the Hidrovía project. When considering the impacts of the project on the physical river system alone, it can be qualified as a marginal project to improve the navigability of the river system, at moderate costs.

Methodological remarks

- The analysis takes into account the public opinion, but it is interpreted from documents, news paper articles, etc. No direct consultations and dialogues with the local communities have been reported. Only using secondary sources of information makes the claim questionable that public opinion has been taken into account.
- The impacts that are described in more detail are often trivial, such as influence of noise by boats on fish while effects of dredging on fisheries is totally ignored. The significance of impacts should be weighed as well.
- The EIA is typically the result of a deficient or non-existent scoping procedure, resulting in labourious descriptions such as lists of plant and animal species, without indicating the use of this information. Another good example is the section on air quality. Machines produce exhaust fumes. This is something which is related to any mechanised activity and is the result of the world economy floating on fossil fuel. This can only be dealt with at (inter)national policy level. It has nothing to do with Hidrovia in particular.
- Richness in biodiversity is expressed in numbers of species, without taking into account their regional or global significance. No explanation is given for the classification of plants and animals in relation to their way of life. Indicator species are chosen without any explanation.
- Concerning terminology, the Pantanal is described as an area with 'serious drainage problems, which leads to flooding and serious losses to evapo-transpiration'. This way of describing the Pantanal ignores the functions of the area for example as sediment trap, its climatological regulation function, its water storage function which is of such magnitude that in years of low rainfall, the downstream section of the river receives accumulated waters from former seasons. Furthermore, the Pantanal holds up floods for about 3 months, thus preventing the floods from Río Paraguay to coincide with those from Río Paraná thus extending the season for navigation. Water is not lost, but performs other relevant functions.
The regime in the Pantanal and Paraná river is described as 'abnormal since the interannual variation in river discharge can be significant; on a longer time scale variation in discharge can also be significant'. The hydrological regimes of other (tropical and non-tropical) rivers in the world show that the dynamic hydrological regime of the Paraguay and Paraná rivers are by no means exceptional.
- The methodology of defining areas of high sensitivity is unclear. Is a complex system more vulnerable?
- The EIA does not show any methodology on how to deal with non-monetary impacts. The studies go into a lengthy, not convincing explanation that this is a difficult issue.
- Whereas the ToR for Módulo B2 demand a number of programmes to be developed for averting and mitigating adverse impacts, no such programmes are prepared by the consultants but instead this task is delegated to a technical office attached to CIH as part of the implementation of the project.

APPENDIX 6

Map of South America showing the location of the La Plata River basin and the Paraguay-Paraná Waterway (Hidrovia)

