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**TECHNICAL ANNEX
ON A PROPOSED LOAN
TO
THE REPUBLIC OF CROATIA
FOR AN
EMERGENCY TRANSPORT AND MINE CLEARING PROJECT**

October 15, 1996

CURRENCY AND EQUIVALENT UNITS

Currency Unit = Kuna
(Average Commercial Rates)

	1994	1995	August 1996
US \$ 1.00 =	5.995	5.220	5.2655

DM/US Dollar Exchange Rate (as of August 31, 1996) 1.4792

WEIGHTS AND MEASURES

Metric System

ABBREVIATIONS AND ACRONYMS

BiH	Bosnia and Herzegovina
CAS	Country Assistance Strategy
DC	Direct Contracting
DM	Deutsche Mark
EU	European Union
GPN	General Procurement Notice
ERP	Emergency Reconstruction Project
HBOR	Croatian Bank for Reconstruction and Development (formerly HKBO, Croatian Credit Bank for Reconstruction)
HC	Croatian Roads Administration
HZ	Croatian Railways Company
IFOR	Implementation Force (of NATO)
ICB	International Competitive Bidding
ICR	Implementation Completion Report
km	kilometer
LIB	Limited International Bidding
LIBOR	London Interbank Offered Rate
MAC	Mine Action Center
MMTC	Ministry of Maritime Affairs, Transport and Communications
MOI	Ministry of Interior
NA	Not Applicable
NATO	North Atlantic Treaty Organization
NCB	National Competitive Bidding
NGO	Non-Governmental Organization
PU	Project Unit (or <i>sluzba</i>)
SOP	Standard Operating Procedures
QA	Quality Assurance
UNTAES	UN Transitional Administration for Eastern Slavonia, Baranja, and Western Sirmium
UN	United Nations
UNPA	UN Protected Area

FISCAL YEAR

January 1 - December 31

**REPUBLIC OF CROATIA
EMERGENCY TRANSPORT AND MINE CLEARING PROJECT**

TECHNICAL ANNEX

Table of Contents

		Page No.
I.	THE PROJECT	1
	Project Objectives	1
	Project Design and Description	1
	Project Implementation	2
	Project Indicators	2
II.	TRANSPORT COMPONENT	3
III.	MINE CLEARING COMPONENT	10
IV.	PROJECT IMPLEMENTATION PLAN	13

ATTACHMENTS

1. Memorandum of Understanding for mutual reconstruction of transport connections between the Republic of Croatia and the Republic of Bosnia and Herzegovina
2. Resolution pursuant to the Memorandum of Understanding
3. A contract regarding the implementation of the agreement providing the Federation of Bosnia and Herzegovina with access to the Adriatic through the Territory of the Republic of Croatia (Ploce Agreement)
4. A contract of agreement implementation between the Republic of Croatia and the Federation of Bosnia and Herzegovina, securing Croatia's passage through the Territory of the Federation (Neum Agreement)
5. Terms of Reference - Quality Assurance Adviser
6. Terms of Reference for Procurement / Implementation Adviser
7. Notes on Mine Clearing Techniques and Technology
8. Lessons from Mine Clearing Programs

MAP

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REPUBLIC OF CROATIA
EMERGENCY TRANSPORT AND MINE CLEARING PROJECT

I. THE PROJECT

Project Objectives

1. The primary objectives of the Project are to: (1) repair and reconstruct the surface transport networks within Croatia and between Croatia and BiH and (2) clear landmines in areas of high economic priority for reconstruction. By rebuilding the transport system, it is expected that delivery of construction materials to BiH will be accelerated and that the traditional regional trade patterns will be reestablished. The repair and reconstruction of local transport networks will also provide some of the critical elements needed for the return of refugees and displaced persons. Clearing of landmines is an essential first step in the repair and reconstruction of infrastructure networks, in the rebuilding of other facilities (such as schools and clinics) and in the return of refugees and displaced persons to their homes.

Project Design and Description

2. The Project is part of a post-war infrastructure reconstruction program supported by three projects: (1) reconstruction of regional transport systems and clearing of landmines (the object of this report,) (2) rebuilding of regional water supply and sewerage networks, and (3) reconstruction of major infrastructure in the Eastern Slavonia region of Croatia. The first two projects are largely regional in nature, benefiting users in both Croatia and BiH. The Eastern Slavonia project would focus on infrastructure needed locally, but would also rebuild facilities needed for improved economic ties with neighboring countries. The water and sewerage project is in the final stages of preparation and will be presented once final agreement has been reached between Croatia and BiH on the arrangements for implementation and, if applicable, agreements concerning on-lending and repayment of funds. Initial preparatory work has also begun on the project in Eastern Slavonia. Among other issues, consideration will be given to the mechanisms for implementation and supervision of the project during the remaining period of the transitional administration.

3. The proposed Emergency Transport and Mine Clearing Project will cover the first phase of the reconstruction program. The transport sector was selected for Bank support since the needed agreements between Croatia and BiH have been signed and the joint implementation committee has been established and begun work. Design of the major investments has been completed and agreed and preparation of tenders await only the approval of the proposed Loan. (Additional information on funding of the transport investments is discussed under *Project Implementation*.) The Project finances only investments that could be implemented within a period of two to three years and does not include major upgrading of infrastructure or sector restructuring. Such larger investments have been left to separate projects under initial stages of preparation, for example, for Croatian railways and ports. Clearing of landmines is included in the Project as a necessary component of the reconstruction program.

4. The proposed Project investments are:

Transport Component

- *Roads and Bridges*: Repair and reconstruction of the Zupanja-Orasje bridge (the parts of the bridge located in the territory of Croatia) which crosses the Sava River into BiH from eastern Croatia, 130 kms of roads and about 30 road bridges primarily through Lika and Cordun in the former UNPA areas, and upgraded road access to Ploce Port. The estimated cost for roads and bridges, excluding contingencies, is US\$ 33.8 million.
- *Railways*: Reconstruction of the Lika line (Ostarije-Knin-Split/Zadar) and the Novska-Sisak line. The investments on the Lika line will consist of the Debeljak tunnel at Skabrnje near Zadar, safety equipment at the Skabrnje station, 9 automated barriers at road crossings along the line, renewal of 45 kms of track, and spare parts for 15 locomotives. On the Novska-Sisak line, two rail bridges (over the Strug and Sava Rivers) will be rebuilt. The estimated cost for railways, excluding contingencies, is US\$ 23.6 million.
- *Ploce Port*: Repairs and reconstruction of Pier 5 (main pier) and Pier 3, the pier ladder and fendering system, the roll-on-roll-off terminal, container handling equipment, and various war damages to equipment, piers and buildings. The estimated cost for the investments at the Port, excluding contingencies, is US\$ 18.6 million.

Mine Clearing Component

- Clearing of mines in areas of high priority for economic reconstruction (with first priority to Project areas,) quality assurance of cleared areas, initial screening based on mine maps, surveys to estimate the probability of areas being contaminated by mines, and technical assistance, including training for mine clearers, instructors, and possibly dogs, where such dogs are trained to identify the location of mines. Total investments in mine clearing, excluding contingencies, will be US\$ 27.2 million.

Project Implementation

5. The Project Implementation Plan is included as Chapter IV of the Technical Annex. The Project will be implemented by the agencies directly responsible for the respective programs.

Project Indicators

6. As an emergency operation, the relevant Project indicators relate to speed of procurement and Project implementation. These are: (1) percentage of Project funds committed by supplier contract; (2) funds disbursement (including issuance of Bank Special Commitments;) and (3) percentage of completion of Project.

II. TRANSPORT COMPONENT

Background

7. Traditionally Croatia has provided one of the main east-west transport links between western Europe and the Balkans. Since 1991, war has disrupted many of these links. Much of the main transport infrastructure was damaged due to war activities or deferred maintenance. With the signing of the Washington Accords in early 1994, the Government of Croatia began to rebuild the transport infrastructure. Following the approval of the Dayton Accords in December 1995 and the end of hostilities in the region, the Government began a full-scale reconstruction program.

8. Due to its central location, Croatia's infrastructure constitutes an essential part of the transport network for the regional economy, including BiH and Serbia. The regional network includes: the road and rail lines from Zagreb to Belgrade, the rail lines from Rijeka to Hungary, the road and rail bridges across the Sava and Una Rivers into Bosnia, and the sea-port at Ploce in southern Croatia. In addition, the Government of Croatia has initiated a program to repair and reconstruct the roads and bridges running parallel to the Adriatic through Lika and Cordun. These lines are located in the former Sectors North and South and, until 1995, were not accessible to the Government of Croatia.

9. Following the signing of the Dayton Accords, NATO has rebuilt (or plans to rebuild) parts of the transport network, as needed to move troops and supplies into Bosnia. IFOR has built two temporary pontoon bridges at Zupanja-Orasje in eastern Croatia and has plans to put in place a temporary rail bridge at Volinja between Bosanski Kostajnica and Bosanski Novi in northeastern Bosnia. While the bridges provided a quick means of handling military (and some civilian) traffic, traffic capacity is limited. To serve the needs of the regional economy, it will be necessary to replace the IFOR bridges with permanent facilities capable of handling normal traffic loads.

10. Since the 1960s, the Bank has been lending to Croatia (as part of the former Yugoslavia) for the transport sector. The Bank provided a loan in March 1995 for the Highway Sector Project (Loan Number 3869-HR) to finance building of the roads system in the areas then under Government control. In addition, the Bank has begun preparation on projects for the railways and ports. However, the transition to a market economy has meant substantial and material restructuring of the railways and ports in order to reduce the annual subsidies needed. To assist in the preparation of such restructuring, consultants' studies are underway and are expected to be completed by late 1996. The proposed program is independent of the outcome of the studies and will cover repairs and reconstruction that will be needed regardless of the details of the future sector strategy for the railways and the ports.

Objectives

11. The primary objective of the transport component of the Project is to finance the repair and rebuilding of essential regional transport infrastructure. The Project will: rebuild a major surface transport link between eastern Croatia and north-eastern Bosnia, upgrade the primary seaport (Ploce Port) serving Bosnia, and repair and rebuild the road and rail networks needed to improve efficiency of transport throughout Croatia.

Design

12. The Project design focuses on the crucial investments needed immediately by both Croatia and BiH for the reconstruction of the regional economy. Care was taken to ensure to avoid the major investments in rehabilitation and upgrading of transport infrastructure where such investments should be made only following the completion and full review of the sector restructuring studies. This particularly applies to the railways and the ports investments for the Project.

Description

Roads and Bridges

13. The Project will cover investments for roads and bridges, railways, and for the Port at Ploce. The most crucial investments for roads and bridges will cover: the Zupanja-Orasje bridge across the Sava River, roads and bridges primarily through Lika and Cordun, and the road access to the Ploce Port.

14. The Zupanja-Orasje bridge represents the main road link between Croatia and north-eastern Bosnia through Vukovar-Vinkovci-Tusla-Sarajevo. Almost 40 percent of the bridge has been destroyed, including all the main upper structure crossing the river and the two central piers. Only the structure in the north and south flood plains were undamaged. The existing foundations were only slightly damaged. The program thus includes rebuilding a 304 meter bridge section and constructing new piers using the existing foundations. The IFOR bridges built at Zupanja were removed in March-April due to the Spring floods. All the road bridges to be rebuilt were damaged or destroyed during the hostilities, with the amount of damage ranging from deterioration of surfaces and railings to complete destruction of the bridge, including foundations. The average cost for repairing the bridges is estimated at US\$ 500,000 per bridge. In addition, about 130 kms of roads through Lika and Cordun have been damaged or destroyed, due to shelling or deferred investments. Many of the roads also provide access to the bridges noted above. The roads program will also include construction of a new road to Ploce Port. The current road traverses the city of Ploce, creating inefficiencies and hazards for both port and city traffic. The new access road of 2.3 kms joins the Port to the Adriatic Highway (M2) about 2 kms west of the Port.

Railways

15. The railway components are located on two main lines, that is, the Lika line (Ostarije-Knin-Split/Zadar) and the line between Zagreb and Belgrade. The investments foreseen for the Lika line are:

- Skabrnje Station Safety Equipment. The Skabrnje station safety equipment was completely destroyed during the war. The cable network was damaged and the building itself was burnt down.
- Level Crossings. All 28 level crossings on the line were destroyed. All had light and sound signals (some with and some without barriers.) Nine light signals with barriers on the crossings will be installed on the roads with the heaviest traffic crossing the railway tracks.

- The Debeljak Tunnel. The Debeljak tunnel has a length of 1.3 kms and is located on the section Skabrnje-Bibinje. During the war, a wagon full of explosives was placed on the line in the direction of Zadar. The wagon exploded at the entry to the tunnel, destroying 70 meters of the entry and 330 meters of the tunnel lining. Under the program, the tunnel will be rebuilt.
 - Track Renewal. On the Ostarije-Knin line, three sections totaling 45 kms have been selected for renewal. The track on these sections is in bad condition. It was last repaired over 20 years ago, and then with used material. The sections are: Ostarije-Plaski (20 kms) Gracac-Malovan (6 kms) and Licko Lesce-Perusic (19 kms.)
 - Spare Parts. Spare parts for 15 locomotives will also be purchased, including diesel motors and electrical equipment, air conditioning systems and electric heating equipment.
16. On the Novska-Sisak line the repair of two bridges is included under the Project.
- Strug River Bridge. This bridge is 110 meters long and has three spans. During the war the first span structure was destroyed while the other two were damaged. The Project covers a full repair of the bridge.
 - Sava River Bridge. The bridge and the damages and destruction are similar to that at the Strug River bridge. Both bridges are located near Novska.

Ploce Port

17. The Port of Ploce has historically served BiH as well as Hungary and Serbia. The war reduced the traffic through the Port to about five percent of prewar levels. Port installations were damaged by air and naval bombardments in 1992 and pier 5, the main facility for loading and unloading bulk cargo, has been damaged due to lack of repair and maintenance, overloading, and possibly original construction deficiencies. In its current state, Ploce Port is unable to handle more than minimal levels of cargo traffic. The Project includes the following urgent investments.

- Pier 5 Rehabilitation. In order to define and design the necessary works, consultants have been engaged. They will also work out the bidding documents. The assignment started in June and will take about four months. Financing is provided by the Dutch Government under a separate project.
- Handling Equipment. There is a need to replace the destroyed equipment and acquire equipment to handle containers, that is, a mobile tired crane, a stacker, tractors, and trailers.
- Repair of Various War Damages. Damages to be repaired were inflicted to mechanical equipment as well as to buildings and piers. Repairs will be made to: the grain terminal, warehouse 4A, pier cranes 2 and 3, repair of windows and doors in various buildings, pier 2 pavement, and warehouse 9.

- **Pier Ladder and Fendering System.** Pier ladders and a proper fendering system are lacking and needed to allow for efficient operation of the Port. Relevant support is provided under the Project.
- **Pier 3 Repairs.** Pier 3, which is the oldest pier in the port, is in a poor condition with serious deformations and risks a possible collapse. Part of the pier has already been rebuilt and the remainder will be built as part of the Project.
- **Roll-on-roll-off Terminal Renewal.** The roll-on-roll-off terminal, which dates from the 1960s is located close to the main square of the town of Ploce. The terminal was used by tanks and heavy military trucks. As a result, more than half of the pavement is broken or in poor condition and will be repaired under the Project.

Estimated Costs

18. The table below summarizes the cost estimates over the period 1996-1998.

	(US\$ millions)			Total
	1996	1997	1998	
Roads and Bridges				
Zupanja-Orasje Bridge	2.0	1.6		3.6
Regional bridges	6.6	7.4		14.0
Road rehabilitation	5.0	5.1	5.1	15.2
Access to Ploce Port		1.0		1.0
Subtotal	13.6	15.1	5.1	33.8
Railways				
Skabrnje Station	0.3	0.5		0.8
Level crossings	0.8	1.1		1.9
Debeljak Tunnel	2.1			2.1
Track renewal	5.0	5.0	5.0	15.0
Spare parts	1.2	1.2		2.4
Strug River Bridge	0.3	0.4		0.7
Sava River Bridge	0.3	0.4		0.7
Subtotal	10.0	8.6	5.0	23.6
Ploce Port				
Pier 5 rehabilitation		6.3	4.2	10.5
Handling equipment		4.2		4.2
Miscellaneous war damages	0.6	1.3		1.9
Pier ladder and fendering		0.2	0.2	0.4
Pier 3 repairs		0.6		0.6
Roll-on-roll-off terminal renewal		0.5	0.5	1.0
Subtotal	0.6	13.1	4.9	18.6
Base cost	24.2	36.6	15.0	76.0
Contingencies ¹	3.9	5.8	2.6	12.3
TOTAL	28.1	42.6	17.6	88.3

¹ Contingencies have been estimated as follows: physical contingencies, allowance of 10 percent, price contingencies 6 percent. For price inflation, the Bank's standard adjustment factors were used, assuming 1988 as a mid-point for disbursement.

Financing Plan

19. The total cost of the transport component of the Project is estimated at \$88.3 million. The Bank Loan will finance an average of 82 percent of the Project, that is, 80 percent of works and 100 percent of goods (excluding taxes and duties.) Costs not financed by the Bank Loan will be covered by the state budget.

Financing Plan²
(US\$ millions)

	Government of Croatia	Bank Loan	Project
Roads and Bridges	8.1	30.9	39.0
Railways	5.0	22.8	27.8
Ploce Port	<u>3.2</u>	<u>18.3</u>	<u>21.5</u>
<i>Total Transport</i>	16.3	72.0	88.3

Implementation

20. In the transport sector, roads and bridges will be implemented by Croatian Roads (HC,) railways by Croatian Railways (HZ,) and ports by the Ploce Port Authority. For the transport component, the MMTC is establishing a small Project Unit (PU) which will prepare all disbursement requests for the transport component and will consolidate reports by the transport agencies under the Project.

21. The implementation schedules for the various investments reflect a three year program (1996-98) with the major part of the activity falling in 1997. For many of the investments, designs have been completed and the implementing agencies are ready to start (or have already begun) procurement. For example, for the Zupanja-Orasje bridge, design for reconstruction has been completed and some of the damaged pieces have been cleared from the river. However, for some investments, such as the rehabilitation of pier 5 in Ploce Port and the repairs to the Lika railway, construction might not be completed until the third quarter of 1999.

22. For all investments except the Zupanja-Orasje bridge, implementation of the transport investments in the proposed Project will be the sole responsibility of the Croatian agency, that is, HC, HZ, or the Ploce Port Authority. For the bridge, the Governments of Croatia and Bosnia have agreed that the costs will be shared 50:50 and have established a joint bridge commission to implement the investment. Most of the work in procurement and implementation will be conducted by HC and the joint commission will approve only final decisions for the program. Recognizing the importance of close cooperation for the bridge, in March 1996, the Governments of Croatia and of BiH signed a memorandum of understanding with regard to transport connections between Croatia and BiH (Attachment 1.) In April 1996, the Governments signed a resolution on joint implementation. The resolution names the members of the eight person commission and the responsibilities of the commission (Attachment 2.)

² Excluding taxes and duties. Detailed numbers may not add to totals due to rounding.

23. For the Ploce Port, in May 1996 the Governments of Croatia and BiH signed an agreement giving Bosnia access to the Adriatic Sea through Ploce (Attachment 3) and an agreement giving Croatia passage through BiH at Neum (Attachment 4.) The Ploce agreement allows passage of goods on a duty-free basis and ensures that tariffs at Ploce Port are set no higher than those charged at other major Croatian ports (such as Rijeka.) Specific concession contracts will be negotiated by private investors with the Port, and in the case of long-term concessions, with the Government. The inter-governmental agreement provides a framework for such concessions and is satisfactory to the Bank. The agreement is in accordance with the 1982 Convention on the Law of the Sea, the 1965 Convention on Transit Trade of Land-Locked Countries and the 1923 Convention and Statute on the International Regime of Maritime Ports.

24. Procurement information provided to the Bank will include: prompt reporting of contract award information; and comprehensive explanation of revised cost estimates for individual contracts and the total Project, revised timing of procurement actions, and compliance with aggregate limits on specified methods of procurement. During negotiations, agreement was reached with the Government on all procurement arrangements.

Economic Evaluation

25. Many of the components deal with repairing and putting into operation installations. These repairs are prerequisites for the functioning of wider systems. This applies to most of the bridges and the Ploce Port components as well as to the repair of railway installations which have been directly or indirectly damaged through war activities such as the station installations and tunnel repair. For such components no explicit economic evaluations have been carried out. For some of the major components the Croatian authorities have carried out evaluations. These concern the road rehabilitation, repair of the regional bridges and the Lika line track renewal. These investments account for two-thirds of the total.

26. *Road Rehabilitation.* The IRR (internal rate of return) varies from 14 to 49 percent. The evaluation was prepared by Croatian authorities in accordance with conventional methods for this type of works. The appraisal and results are included in the Project File.

27. *Regional Bridges.* For this group, a system of ranking was established taking into account the importance of the road section, forecasted traffic, route length without the bridge, importance of reconstruction for the economy and environmental considerations. The results are included in the Project File.

28. *Lika line Track Rehabilitation.* In the feasibility study prepared by HZ, the economic rate of return is estimated at 12 percent. The study is in the Project File.

Risks

29. The risks involved mainly concern those investments which depend on an agreement between Croatia and BiH. This concerns the Zupanja-Orasje bridge and the Ploce Port. For the Zupanja-Orasje bridge an agreement between the two governments, spelling out the intentions and principles for reconstructing the bridge, was signed on March 14, 1996. The Croatian/BiH Implementation Commission foreseen in the agreement has been established. For the Port of Ploce, as noted above, a bi-lateral framework agreement has been signed (May 1996.)

III. MINE CLEARING COMPONENT

Background

30. Landmine contamination is expected to be a problem for much of Croatia's program to rebuild war-damaged infrastructure. At the end of 1995, there were an estimated three million landmines, dispersed primarily along the 1,180 former lines of confrontation. The major areas affected were former sectors south and north (Lika and Cordun) and sectors west and east (Western and Eastern Slavonia.) The area south of Karlovac is thought to be heavily contaminated, as it was previously used as a military training camp. Landmines were used as invisible barriers, denying access to facilities of all kinds: residential housing, public buildings, agricultural land, roads, railways, bridges, power and gas networks, water and sewerage systems. Most of the mines are difficult to detect, since they were made primarily from plastic. Many of the existing minefield maps and records are unreliable, many minefields have not been mapped, and some areas have been mined and re-mined by both sides, in patterns which make subsequent detection difficult. Clearing all the mines will take years, probably decades, and will be very costly. In addition, considerable quantity of unexploded ordnance (perhaps as much as ten percent of all bombs) remains along the former confrontation lines. All references in the text to mine clearing also apply to ordnance disposal programs.

31. Priority is being given to mine clearing in support of infrastructure reconstruction needs, but the exercise is unlikely to cover all the priority sites. Until recently all de-mined areas were cleared to military, rather than civilian (humanitarian) standards and will require verification. Despite the efforts to date, the majority of mines have not yet been cleared and a major effort to complete clearing is now required.

32. In all the areas where there have been hostilities, particularly where there has not been continual presence of civilians, there is a risk of mines and unexploded ordnance. The return of displaced people and refugees, which is anticipated to gather momentum in the spring and summer of 1997 lends added urgency to the problem. The presence of mines within towns as well as in agricultural areas is cause for concern. In addition, no reconstruction of major infrastructure can take place until their sites have been cleared of mines. The economic costs imposed by the delays in the reconstruction and recovery program thus make the need for mine clearing urgent.

33. Until recently, most mine clearing in Croatia was conducted by the army, with assistance from local special defense forces. However, the Government of Croatia has recognized that mine clearing for economic reconstruction and other civilian purposes should be conducted by civilian, rather than military, organizations. In March 1996, Parliament approved the Act on Clearing of Mines. Among other things, the Law provides for a state mine clearing company (MUNGOS) under the MOI.

34. In a plan prepared in January 1996 by the MOI and the Ministry of Reconstruction and Development, the Government of Croatia described the proposed national mine clearing program. The program summarizes the Government plans to establish a national mine clearing capability. The program also sets out in general terms the proposed training of mine clearing staff and the deployment of trained groups of mine clearers. The plan also identified clear priorities for mine clearing. They are: facilities needed for economic reconstruction, power lines, rail and road networks, public buildings, residential housing, and agricultural areas.

Objectives and Design

35. The objectives of the proposed program in mine clearing is to: (1) clear landmines in the Project areas and (2) clear mines in other high priority areas needed for economic reconstruction. The program will ensure rapid and efficient clearing of the areas for the investments in the transport component and will provide a base for full development of the national capacity for mine clearing. In preparing the mine clearing component of the Project, the Bank has been in close coordination with the UN agencies directly involved in mine clearing, including the UN MAC in Zagreb and the Department of Humanitarian Affairs in New York.

Description

36. The investments will cover: mines in areas of high priority for economic reconstruction (with first priority to Project areas,) quality assurance checking of cleared areas, initial screening based on mine maps, surveys to estimate the probability of areas being contaminated by mines, and technical assistance, including training for mine clearers, instructors, and possibly dogs, where such dogs are trained to identify the location of mines.

Estimated Costs and Financing Plan

37. The estimated costs and the financing plan are given below.

(US\$ millions)

	Government of Croatia	Bank Loan	Total
Mine clearing	2.5	16.3	18.8
QA, mine screening, surveys, training	1.5	13.7	15.2
Total	4.0	30.0	34.0

Implementation

38. Implementation of the Mine Clearing program will be done through the MOI, which has established a PU for the component. The mine clearing work will be completed by contractors selected through a competitive process (i.e. ICB.) Possible bidders could include the state mine clearing company (MUNGOS,) foreign mine clearing companies and joint ventures between qualified foreign and domestic enterprises. The MOI will let contracts and evaluate bids.

39. In addition, a specialized Quality Assurance Unit has been established in the Ministry. Assisting the QA Unit will be representatives of the United Nations Mine Action Center (MAC) or other internationally recognized technical experts, who will provide technical and implementation advice to the QA Unit. (Draft terms of reference are included in Attachment 5.) The QA Unit will set the standards to be met -- generally 99.6 percent of all mines -- and will review the standard operating procedures of the contractors. In addition, the QA Unit will be responsible for conducting QA of areas cleared by contractors or by others, such as military forces.

40. The Bank's experience in the mine clearing program for BiH can be applied for the program in Croatia. In particular, the Bank's standard bidding documentation has been reviewed, and for mine clearing, customized to reflect the specific issues related to mine clearing contracts. All mine clearing works will be procured using ICB (see *Project Implementation Plan*.) Procurement of QA equipment will be conducted by ICB, NCB and LIB and contracts for consultant services and other technical services will follow Bank guidelines on the hiring of consultants. In addition, the MOI may require some technical assistance in procurement and in administering and supervising contracts. For this, an external adviser should be hired for advice and assistance and funded either by donors or the Ministry's budget. (Sample terms of reference for the technical experts is included in Attachment 6.)

41. Given that civilian mine clearing is a new activity in Croatia, the Ministry of the Interior is reviewing acceptable quality targets for mine clearing and acceptable methods of clearing and of establishing quality assurance. The targets and acceptable methods for mine clearing and quality assurance will be included in the tender documents for bidders. A discussion of current mine clearing techniques -- and some of the lessons learned -- is included in Attachments 7 and 8.)

IV. PROJECT IMPLEMENTATION PLAN

Implementation Arrangements

42. For the World Bank Loan of DM 150.9 million for an Emergency Transport and Mine Clearing Project, the Borrower is the Government of Croatia represented by the Ministry of Finance. It has been agreed that the Finance Ministry will delegate implementation responsibility to the Ministry of Maritime Affairs, Transport and Communications (MMTC) and the Ministry of Interior (MOI.) A Project Coordinator within the Finance Ministry will be responsible only for monitoring Project activities. Implementation of the Project (including all aspects of procurement documentation and submission of disbursement requests) will be the responsibility of the implementing agencies.

43. The agencies responsible for the activities to be implemented under the Project are described below. Apart from the MOI, all agencies have demonstrated capacity to successfully implement the Bank procurement procedures, having completed procurement for other Bank projects. Training in Bank procurement will be made available to the MOI as needed to ensure smooth Project implementation.

- *MMTC* - Within the MMTC, a Project Unit (PU) is being created. Two of the transport agencies -- the Croatian Railways Company, the Croatian Roads Administration -- have extensive experience with Bank procurement guidelines and have successfully implemented the transport components of the Emergency Reconstruction Project. The Ploce Port Authority is a new agency, but has staff experienced in Bank procurement procedures and will call on the Roads Administration for assistance in procurement, as needed. It is expected that the Port Authority will be able to efficiently conduct procurement for the Port investments. For investments to be implemented under the transport component, the PU will consolidate reports prepared by the direct implementing units and will submit disbursement requests to the Bank for investments in the transport component.
- *MOI* - Implementation of the Mine Clearing Component will be conducted by the MOI, through the PU. Clearing of areas will be awarded by contracts, with selection by a competitive tender to be conducted by the Ministry of the Interior. The MOI will also conduct tenders for the purchase of QA equipment and will hire consultants as needed for training etc. Since the Ministry has little experience in Bank procurement, technical assistance will likely be needed for procurement and initial implementation of the Project.

44. Project monitoring will be conducted by the Project Coordinator within the Finance Ministry. The Project Coordinator was established under the Capital Markets Project and will have also coordination responsibility for the Enterprise and Financial Sector Project and the related Technical Assistance Project. (Under the Emergency Reconstruction Project, coordination was provided by the Croatian Bank for Reconstruction and Development, HBOR, formerly HKBO, due to the complexity of the Project and the large number of beneficiaries under the Emergency Reconstruction Project.) In addition a procurement workshop will be held (in late October 1996) with a focus on procurement of mine clearing contracts.

45. The Project Coordinator reports directly to the Assistant Minister of Finance. The functions of the Project Coordinator are to: ensure preparation and distribution of consolidated periodic reports to the relevant Government agencies and financial institutions; summarize disbursement requests submitted by the beneficiary agencies to the Bank; prepare reports required for the interim review and prepare recommendations for the reallocation of funds among Project components, where funds have not been committed under supplier contracts; and ensure preparation of the Government's contribution to the Implementation Completion Report (ICR.)

46. The implementing agencies will be responsible for implementation of the parts of the Project that include the hiring and supervision of consultants. The procurement process followed will be in compliance with the *Guidelines for the Use of Consultants by World Bank Borrowers and by the World Bank as Executing Agency*.

Procurement Arrangements

47. Due to the urgent nature of the Project, the program need to be contracted and supplied quickly. Procurement will follow the Bank Guidelines developed for the Bosnian emergency projects, except that ICB will be used for all contracts for works and goods over US\$ 2 million (rather than US\$ 5 million as in the Bosnian program.)

48. To the extent practicable, items to be procured under the Project have been grouped into major packages to encourage competitive bidding. Under the Project, the proposed methods of procurement will include International Competitive Bidding (ICB) National Competitive Bidding (NCB) Limited International Bidding (LIB) and Direct Contracting (DC.) A General Procurement Notice (GPN) will be published in *The Development Business* in October 1996.

Summary of Proposed Procurement Arrangements³
(US\$ millions)

	ICB	NCB	LIB	DC	Consult.	Total
Works						
Roads & Bridges	11.1 (8.7)	26.3 (21.0)		1.6 (1.2)		39.0 (30.9)
Railways	20.0 (16.0)	4.7 (3.7)				24.7 (19.7)
Ploce Port	12.2 (9.8)	4.0 (3.2)				16.2 (13.0)
<i>Transport Subtotal</i>	43.3 (34.5)	35.0 (27.9)		1.6 (1.2)		79.9 (63.6)
Mine Clearing	19.9 (15.9)					19.9 (15.9)
Goods						
Railways	0.8 (0.8)			2.3 (2.3)		3.1 (3.1)
Ploce Port	1.5 (1.5)	3.8 (3.8)				5.3 (5.3)
<i>Transport Subtotal</i>	2.3 (2.3)	3.8 (3.8)		2.3 (2.3)		8.4 (8.4)
Mine Clearing	4.2 (4.2)	3.2 (3.2)	6.0 (6.0)			13.4 (13.4)
Consultant Services						
Mine Clearing					0.7 (0.7)	0.7 (0.7)
TOTAL	69.7 (56.9)	42.0 (34.9)	6.0 (6.0)	3.9 (3.5)	0.7 (0.7)	122.3 (102.0)

³ ICB International Competitive Bidding
 NCB National (Local) Competitive Bidding
 LIB Limited International Bidding
 DC Direct Contracting
 Consult. Consulting Services

Note: Numbers in parentheses reflect financed amounts.

Transport

Works

49. *International Competitive Bidding (ICB)* Procurement packages for civil works exceeding the equivalent of US\$ 2 million per contract will be procured through ICB. In addition, where a procurement package includes a subcomponent where the cost of a single section (such as a road section) is estimated to exceed US\$ 1 million, the full package will be bid under ICB procedures, even if its estimated cost is less than US\$ 2 million. (The limits of \$ 2 million and \$ 1 million were set for the First Highway Transport Project for Croatia and the same limits will be maintained for the proposed Project.) For the transport component, the equivalent of US\$ 43.3 million for about six ICB packages will finance civil works.

50. All ICB packages for civil works will be prequalified. The Bank's standard prequalification documents will be followed. In the interests of expediency, the notice inviting contractors to apply for prequalification will be published as part of the GPN. The information in the completed questionnaires submitted by firms will be used to carry out their general prequalification for different levels in terms of contract values. The prequalified firms will be listed in a registry and the registry will remain open for additions and deletions over the course of Project implementation. The prequalification criteria will be approved by the Bank.

51. *National Competitive Bidding (NCB)* Packages of civil works contracts between US\$ 1 million and US\$ 2 million will be procured through NCB. With respect to roads and bridges, civil works are dispersed and of small value (the equivalent of less than US\$ 2 million per contract.) Foreign bidders are unlikely to be interested because of the limited size of the contracts, the often remote locations of the sites and the presence of competitive and strong domestic civil works contractors.

52. *Direct Contracting (DC)* will be used for the repair of existing structures, using proprietary technology and equipment. For the transport component, DC will be used to finance pre-stressed elements of up to three partially destroyed bridges. The bridges were built using proprietary methods and the replacement elements will use the same technology. About three packages will be procured for transport works for a total of \$1.6 million.

Goods

53. ICB will be followed for procurement packages estimated to cost more than US\$ 2 million per package. In the case of procurement of goods through ICB, eligible domestic firms will be accorded a preference margin equal to 15 percent or the prevailing duty (for the purpose of bid evaluation only) whichever is lower, in accordance with the Bank's Procurement Guidelines. For the transport component, packages for goods and materials equivalent to US\$ 2.3 million for one or two packages will be procured through ICB.

54. DC will be used for proprietary items, where justified to maintain compatibility and standardization and where the Bank agrees procurement can be made only from the original suppliers. For the transport component, DC will be used for spare parts for rail locomotives. DC will cover about 2 packages for an aggregate value of \$ 2.3 million. DC not identified in the procurement plan will be subject to the Bank's prior approval.

Mine Clearing

55. Because of the urgent nature of the Project, procurement for the mine clearing program will follow the expedited procurement procedures developed for emergency projects in BiH. Works will cover contracts for clearing mines in specified areas. All works for mine clearing will be procured through ICB (with no preference margin for domestic firms.)

56. Mine clearing equipment will be financed through ICB, NCB and LIB. *Limited International Bidding* (LIB) that is, tendering by invitation, will be used to finance specialized mine detection equipment, such as protective clothing, which is only available from a limited number of suppliers worldwide. The list of LIB bidders will be based on expressions of interest received in response to the GPN as well as other sources, including the direct experience of the implementing agency. For goods under mine clearing component, about three packages totaling \$4.2 million will be financed through ICB, two totaling \$3.2 million by NCB and about four packages totaling \$6.0 million by LIB.

57. In addition, for the mine clearing component, consulting services will be used for training, mine surveys and mine awareness programs consisting of about four packages with an aggregate value of \$0.7 million. Consulting Services will be procured in accordance with Bank Guidelines.

Procurement Review and Use of Standard Bidding Documents

58. The Bank will conduct a prior review of procurement documentation for all ICB, LIB, DC, for first two NCB packages, in accordance with paras. 2 and 4 of Appendix 1 of the Bank's guidelines. Procurement documentation for contracts with consulting firms procured competitively and exceeding US\$ 200,000 per contract will also be subject to the Bank's prior review. For consultants hired as individuals (rather than through companies) the prior review threshold will be US\$ 50,000. Follow up assignments will be permissible to the extent that this is indicated in the initial terms of reference for the assignment.

59. The Bank's standard bidding documents will be used, although the period allowed for submission of bids may be reduced to four weeks. With regard to mine clearing works, the bidding documents prepared for the Bosnian mine clearing program will be adapted for Croatia. For the Bosnian program, a section on requirements specific to landmine clearing was added to the bidding documents with the technical specifications. The documents have been shown to OPR, in advance of the requirement that will come into effect under the proposed Operational Guidelines for projects that include financing for landmine clearing. OPR has cleared the documents for the Bosnian Mine Clearing Project.

Retroactive Financing

60. In order to accelerate the Project, the Loan will allow for retroactive financing for up to \$17.5 million equivalent. Retroactive financing could be used for procurement within four months prior to expected Loan signing, where such procurement followed Bank guidelines. Retroactive financing will be used for reconstruction of the Sava River bridge at Zupanja-Orasje and repairs and rehabilitation to the Lika rail line for amounts contracted prior to August 1, 1996.

Disbursements/Statements of Expenditure

61. To facilitate timely Project implementation, MTTC and MOI will each establish, maintain, and operate under conditions acceptable to the Bank a special account in Deutsche Marks to be held in a commercial bank, in the Central Bank, or with HBOR. The authorized allocations of the special accounts will be limited to DM 19.3 million for the transport component's account and DM 10.4 million for the mine clearing component's account. Replenishment applications should be submitted monthly, or more frequently as needed, and should be accompanied by reconciled bank statements or other appropriate documentation.

62. Disbursements will be made against Statements of Expenditure for: (a) goods and works up to US\$1 million equivalent (b) consulting services up to US\$200,000 equivalent; (c) individual consultants' services up to US\$50,000 and (d) all training expenditures for which detailed documents evidencing expenditures will be reviewed by the applicable sector ministries and will be made available for review during the annual audit and Bank supervision missions. For contracts exceeding these limits, full documentation will be required.

Disbursement

Disbursement Categories

63. The Loan will be disbursed against Project components based on the following:

Proposed Disbursement Categories by Loan Component

	Loan Amount (US\$ millions)	Percent of Expenditures
Works		
Transport	53.4}	
Mine Clearing	12.9}	80%
Goods		
Transport	7.1}	
Mine Clearing	10.1}	100 % of foreign and local (ex-factory cost) and 85 % of local expenditures for other items procured locally
Consultant Services		
Mine Clearing	0.6	100%
Unallocated		
Transport	11.5}	
Mine Clearing	6.4}	
TOTAL	102.0	

Disbursement Schedule

64. Estimated disbursements are given in the table below. The completion date for the Project is December 31, 1999 and the closing date is June 30, 2000.

Fiscal Year		1997		1998				1999					
Quarter	Total	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
Transport	72.0	1.0	2.0	5.0	8.0	8.0	8.0	8.0	9.0	8.0	8.0	4.0	3.0
Mine Clearing	30.0	1.0	2.0	3.0	3.0	3.0	4.0	4.0	4.0	2.0	2.0	1.0	1.0
Total	102.0	2.0	4.0	8.0	11.0	11.0	12.0	12.0	13.0	10.0	10.0	5.0	4.0
Cumulative		2.0	6.0	14.0	25.0	36.0	48.0	60.0	73.0	83.0	93.0	98.0	102.0
Cumulative as % of Total		2%	6%	14%	25%	35%	47%	59%	72%	81%	91%	96%	100%

Accounts and Audits

65. Separate and auditable Project accounts will be established by each of the implementing agencies. The Project accounts will consist of: a record of all withdrawals with copies of disbursement requests and supporting documentation, and a record of transactions of the special account and the copies of the bank statements for the special account. Documentation for Project accounts will be maintained for one year after the accounts had been audited.

66. The Project accounts will be audited at the end of the Borrower's fiscal year. The audits will be conducted by independent auditors under terms of reference acceptable to the Bank. Separate audit statements will be prepared for the special account and statements of expenditures. All audit reports will be made available to the Bank no later than six months after the end of the Borrower's fiscal year.

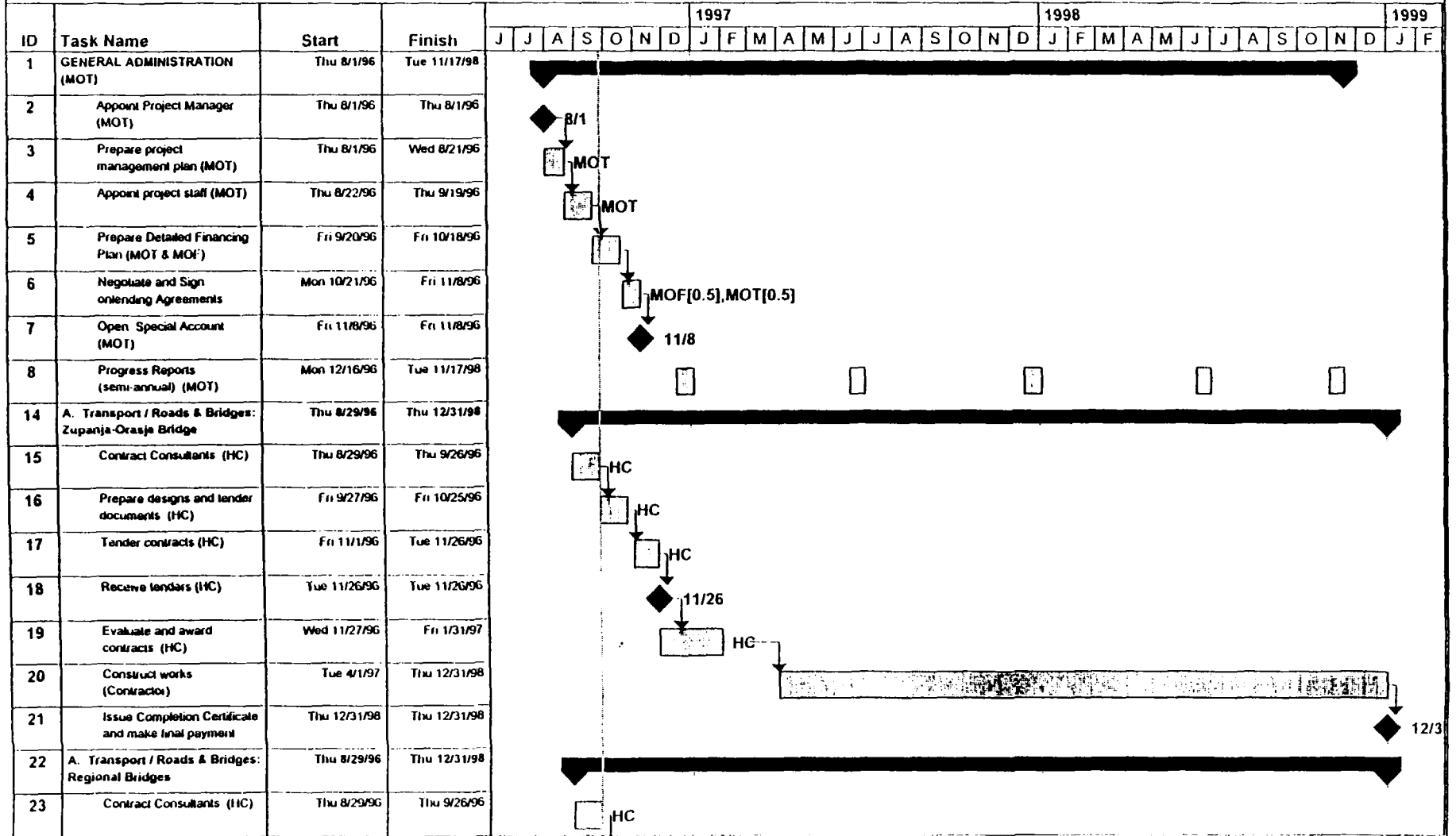
Reporting and Supervision

67. The MMTC and the MOI will each prepare and furnish to the Project Coordinator a quarterly progress report showing the status of implementation of the Project in a format acceptable to the Bank. The Project Coordinator will consolidate the information presented by the implementing agencies and submit to the Bank a consolidated report (as well as the reports from the individual implementing agencies.) Project implementation will incorporate maximum flexibility in view of the fact that the Project may need to be adapted to changing circumstances. Implementation progress will be reviewed at the end of 12 months after effectiveness, that is just before the mid-term of the Project. The review will assess the need for any adjustments based on the implementation experience to date. In light of the need for expedited implementation of the Project, supervision missions will be conducted approximately every three months after effectiveness.

Project Procurement Plan

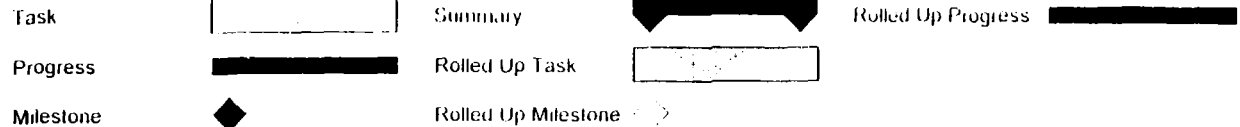
	Cost ⁴ (US\$ million)	Procurement Method	Invitation to Bid	Contract Awards	Work/ Delivery Begins	Work/ Delivery Complete
Roads & Bridges						
Zupanja-Orasje Bridge	3.6	ICB	11/1/96	2/1/97	4/1/97	12/31/98
Regional bridges	3.3	ICB	11/1/96	2/1/97	4/1/97	12/31/98
Regional bridges	9.3	NCB	11/1/96	2/1/97	4/1/97	12/31/98
Regional bridges	1.4	DC	11/1/96	2/1/97	4/1/97	12/31/98
Road rehabilitation	4.0	ICB	11/1/96	2/1/97	4/1/97	12/31/98
Road rehabilitation	11.2	NCB	11/1/96	2/1/97	4/1/97	12/31/98
Access to Ploce Port	1.0	NCB	11/1/96	2/1/97	4/1/97	12/31/98
<i>Subtotal</i>	33.8					
Railways						
Skabrnje Station	0.8	NCB	11/30/96	2/1/97	3/2/97	12/1/97
Level crossings	1.9	NCB	11/30/96	2/1/97	3/1/97	3/1/98
Debeljak Tunnel	2.1	ICB	11/1/96	3/3/97	3/1/97	9/17/97
Track renewal	15.0	ICB	11/15/96	1/1/97	2/1/97	4/1/98
Spare parts	2.4	DC	1/15/97	3/15/97	5/15/97	10/1/97
Strug River Bridge	0.7	NCB	11/15/96	2/1/97	3/1/97	10/1/97
Sava River Bridge	0.7	NCB	11/15/96	2/1/97	3/1/97	10/1/97
<i>Subtotal</i>	23.6					
Ploce Port						
Pier 5 rehabilitation	10.5	ICB	1/15/97	3/15/97	5/15/97	10/1/98
Handling equipment	4.2	ICB	2/1/97	4/1/97	6/1/97	6/1/98
Miscellaneous war damages	1.9	NCB	3/1/97	5/1/97	7/5/97	11/1/97
Pier ladder and fendering	0.4	NCB	3/15/97	5/15/97	8/1/97	12/1/97
Pier 3 repairs	0.6	NCB	7/1/97	9/1/97	11/1/97	3/1/98
Roll-on-roll-off terminal renewal	1.0	NCB	2/1/97	4/1/97	6/1/97	12/1/97
<i>Subtotal</i>	18.6					
Mine Clearing						
Area clearing	1.8	ICB	2/1/97	4/1/97	5/1/97	11/1/97
Area clearing	2.1	ICB	3/1/97	4/15/97	6/15/97	6/15/98
Area clearing	3.0	ICB	12/1/97	3/1/98	4/1/98	10/1/98
Area clearing	4.4	ICB	12/1/97	4/1/98	5/1/98	11/1/98
Area clearing	4.1	ICB	12/1/97	4/1/98	5/1/98	11/1/98
Purchase of QA Equipment	3.6	ICB	2/15/97	6/15/97	8/1/97	2/1/98
Purchase of QA Equipment	2.7	NCB	2/1/97	6/1/97	8/1/97	10/1/97
Purchase of QA Equipment	5.0	LIB	1/15/97	5/1/97	6/15/97	10/15/97
Consulting Services	0.5	Consultants	1/15/97	3/4/97	4/4/97	4/4/98
<i>Subtotal</i>	27.2					
TOTAL	103.2					

Republic of Croatia
Emergency Regional Infrastructure Project
Project Implementation Schedule

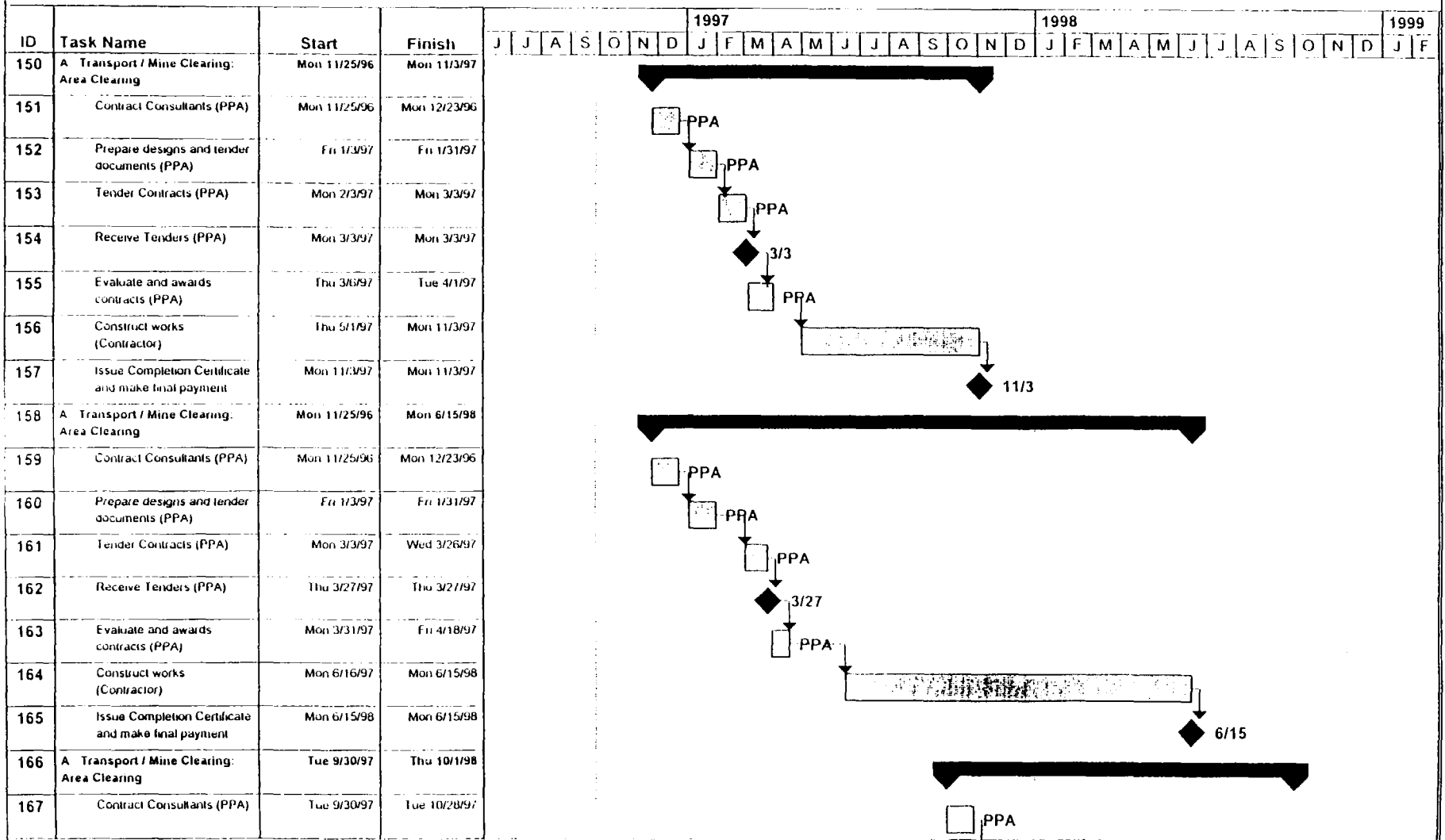


MOT - Ministry of Transport
MOF - Ministry of Finance
PPA - Ploce Port Authority

HZ - Croatian Railways
HC - Croatian Roads
C - Contractor



Republic of Croatia
Emergency Regional Infrastructure Project
Project Implementation Schedule



MOT - Ministry of Transport	HZ - Croatian Railways	Task	[Summary bar]	Summary	[Summary bar]	Rolled Up Progress	[Summary bar]
MOF - Ministry of Finance	HIC - Croatian Roads	Progress	[Summary bar]	Rolled Up Task	[Summary bar]		
PPA - Ploce Port Authority	C - Contractor	Milestone	[Milestone diamond]	Rolled Up Milestone	[Milestone diamond]		

MEMORANDUM OF UNDERSTANDING

**for mutual reconstruction of transport connections between
the Republic of Croatia and the Republic of Bosnia and Herzegovina**

GIVING PRIORITY to rehabilitation of the national transport infrastructure and in connection with this the transport connections between the Republic of Croatia and the Republic of Bosnia and Herzegovina;

WITH INTENTION to establish normal flow of people, goods and services in reconstruction and development of economy of the Republic of Croatia and the Republic of Bosnia and Herzegovina , as well as the traffic between them;

WISHING the continuous entire cooperation as well as the increased individual and mutual economical effect;

WITH THE BEST WILL AND FAITH that the further development of mutual bilateral state relations and connections is of the individual, common and regional interest;

The Republic of Croatia and the Republic of Bosnia and Herzegovina irrevocably, unconditionally and with pleasure state as follows:

I

Indispensable and undeferrable need is expressed for mutual coordination of plans and programs for reconstruction of infrastructure in the places where the traffic systems of the two countries are connected, as well as the need for coordination of the strategic traffic lines which are in function of connecting the two countries as well as connecting with the third countries.

II

The Republic of Croatia and the Republic of Bosnia and Herzegovina undertake to appear mutually before the international financing institutions regarding the projects which are established as the first priorities according to the clause I.

III

The urgent need is established for reconstruction of the demolished road bridge over river Sava, located on the main road M 18, between Zupanja in the Republic of Croatia and Orasje in the Republic of Bosnia and Herzegovina.

IV

Expenses for rehabilitation and reconstruction of the bridge mentioned in clause II of this Memorandum will be borne by both sides in proportion 50 : 50 %.

V

Conditions, procedure, rights, obligations, relations and terms of rehabilitation and reconstructions for the above mentioned bridge will be established by the separate agreement.

VI

With the objective of the preparation works and implementation of the rehabilitation and reconstruction of the bridge mentioned in clause III of this Memorandum, the signatories will establish a mutual mixed body for which each side will nominate equal number of representatives within seven (7) days counting from the day of signing of this Memorandum.

In Sarajevo, March 14, 1996

**FOR THE GOVERNMENT
OF THE REPUBLIC OF CROATIA**

**FOR THE GOVERNMENT
OF THE REPUBLIC OF
BOSNIA AND HERZEGOVINA**

RESOLUTION PURSUANT TO THE MEMORANDUM OF UNDERSTANDING

Pursuant to point VI of the Memorandum of Understanding on Joint Reconstruction of Traffic Links between the Republic of Croatia and the Republic of Bosnia and Herzegovina dated March 14, 1995,

R E S O L U T I O N

I

Following officials are appointed into the joint body for renewal and construction of the destroyed bridge over the Sava river, situated on the major road M1.8 between Županja in the Republic of Croatia and Orašje in Bosnia and Herzegovina:

1. From Bosnia and Herzegovina:

- Pavo Boban
- Kemal Karkin
- Jozo Krivić and
- Arif Dilberović

2. From the Republic of Croatia:

- Ivan Legac, Ph. D.
- Aleksandar Čaklović
- Božidar Santini, Ph. D.
- Zvonimir Nagy.

II

The objective of the intergovernmental joint body is preparation and realization of reconstruction of the aforementioned bridge, in particular:

- initiation, proposals, implementation of bridge reconstruction operational policy;
- supervision over soliciting for international tenders for selection of executor of works;
- supervision over implementation of the contract on realization of works;
- harmonization of the two countries' interests;
- coordination of contacts with IBRD, other financial institutions, consultants and works executors;
- determining of bearer of the bridge reconstruction realization and
- other activities required for bridge renewal, construction, use and management.

III

In case of any dispute that might occur in exerting responsibilities of the intergovernmental joint body, both states agreed to accept the final solution to be reached by the Minister of Foreign Trade and International Communications of Bosnia and Herzegovina and Minister of Maritime Affairs, Transport and Communications of the Republic of Croatia.

IV

Head and Deputy Head of the Joint body shall be appointed by May 10, 1996 at the latest, while the decision on appointing the bearer of bridge reconstruction realization, as well as all other decisions of operational nature required for urgent realization of the project shall be passed during the constituting session.

Place and time of the Joint Body constituting session shall be determined by mutual agreement of Mr. Pavo Boban and Mr. Ivan Legac, Ph. D.

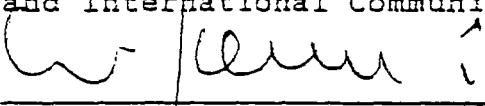
V

This Resolution shall be distributed to all members of the Intergovernmental Joint Body and to the World Bank (IBRD).

Zagreb, April 29, 1996

For Bosnia and Herzegovina:

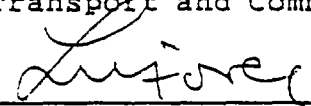
Minister of Foreign Trade
and International Communications



(Neven Tomić, B. Ecc.)

For the Republic of Croatia:

Minister of Maritime Affairs,
Transport and Communications



(Željko Lužavec, B. Eng.)

PLOCE AGREEMENT

Pursuant to mutual interest in developing comprehensive bilateral cooperation on an equal and mutually-beneficial basis, the Government of Bosnia and Herzegovina and the Government of the Republic of Croatia, intending to advance the "good-neighbor" relations between the two countries, strengthen friendship, understanding and trust, peace and stability, with complete respect for political independence, sovereignty, territorial integrity for each of the countries on the basis of the Agreement between the Federation of Bosnia and Herzegovina (heretofore, the Federation) and the Republic of Croatia (heretofore, Croatia) secures the Federation access to the Adriatic through the territory of the Republic of Croatia. Therefore, in the spirit of implementing the Washington and Dayton Accords, the following has been reached:

A CONTRACT

REGARDING THE IMPLEMENTATION OF THE AGREEMENT PROVIDING THE FEDERATION OF BOSNIA AND HERZEGOVINA WITH ACCESS TO THE ADRIATIC THROUGH THE TERRITORY OF THE REPUBLIC OF CROATIA

Article 1 (Ploce Agreement)

The Republic of Croatia, by providing the unrestricted and safe traffic of goods, by land, river and air, to and from the Federation, through the territory of the Republic of Croatia, makes possible the flow of all goods through the existing customs zone in the Port of Ploce (heretofore, Port of Ploce).

Goods passing through the Port of Ploce into and from the Federation, are considered goods in a duty-free zone status and, as such, are not subject to customs nor other fees nor taxes by the Republic of Croatia, require no customs declarations, nor evidences of customs records, nor, based upon the above, any payment of fees.

As mentioned in the first paragraph of this article, customs authorities for the Republic of Croatia are to receive notifications of goods.

Article 2

In the Port of Ploce, the goods as described in Article 1 of this Contract, may be loaded, unloaded, transferred, stored, reorganized, dried, sorted, packaged, repackaged and labeled.

Article 3

Storage of goods is not subject to time limitation.

Article 4

The Port of Ploce will be open for traffic of all goods for Federation needs, regardless of nature, quantity, country of origin, excluding those goods whose trafficking is prohibited by international trade.

Limiting traffic of goods is also founded when required for protecting public law and order and the security of the Republic of Croatia.

Article 5

The port fees for the Port of Ploce regarding compensations and services rendered for these Article 1 Federation goods, cannot be less favorable than existing fees in large Croatian ports, nor fees in similar foreign ports.

Article 6

Necessary port objects in the Port of Ploce will be built and remodeled in accordance with the Port of Ploce area urban development regulations, taking into consideration traffic needs and zoning needs.

Article 7

In implementing this Contract, the Republic of Croatia is obliged to apply the decrees of the 1924 Convention and Statute on International Sea Ports Regime.

Article 8

Federation goods, vessels and land transit vehicles enjoy all benefits under the 1965 Convention on Transit of Landlocked Countries.

Article 9

The republic of Croatia is required to maintain land transit routes (roads and rail) from the Port of Ploce to the point where it enters Federation territory.

The parties of the Contract will agree on common participation in financing by separate Contract.

Article 10

For the needs of Federation, the Republic of Croatia will provide unharmed passage to and from the Port of Ploce:

- to ships and boats in the coastal waters of the Republic of Croatia (i.e., territorial waters and internal waterways in accordance with the UN Convention on Sea Rights from 1982)
- to the ships or barges along the Neretva river and to trains from the Port of Ploce and from the Federation territory to the Port of Ploce.

The Republic of Croatia will not discriminate against Federation ships nor other vessels in the Port of Ploce area, regardless of ownership or country of origin

Article 11

In case of natural disasters, war or threat of war affecting either the Federation or the Republic of Croatia, the goods shipped to or from the Federation, or to or from the Republic of Croatia will have preference in shipping and handling, regardless of the economic and technical conditions of shipment.

Article 12

As access to and from the Port of Ploce, the Federations enjoys the right to free and unrestricted railway transit across Republic of Croatia territory.

Article 13

Freedom of transit refers to the transit of goods, baggage and modes of transportation throughout the territory of the Republic of Croatia as described in the preceding article, when said transit through the territory represents only a portion of complete travel which begins or ends in the Federation, to include (or not) the reloading, storage, change-of-load purpose or change of traffic mode within the Port of Ploce.

The change-of-load purpose in the Port of Ploce, in the sense of its assembly, disassembly or reassembly does not exclude that load from the freedom of transit.

Article 14

There will be no discrimination against origin, affiliation, entry, exit nor destination, ownership of goods nor ownership of land vehicles nor other vehicles, place of registration nor state origin.

Article 15

Transit, as described in this Contract, is relieved of any customs, taxes or other fees for modes of transportation and goods, except for compensations prescribed for use of rail, air and road commutes which will be established in a separate Annex to this Contract and which cannot be higher than the ones charged for those transportation modes registered in Croatia.

The Federation and the Republic of Croatia are required to use simplified documentation and expeditious methods regarding traffic and other administrative works with respect to transit.

Article 16

The Republic of Croatia will not initiate measures to obstruct nor hinder free and unobstructed traffic in transit

The Federation and the Republic of Croatia will, at the request of one of the parties of this Contract, take part in talks to adopt measures which will ensure and simplify this transit. Towards that end, measures will be considered with regard to traffic infrastructure improvements which will be utilized for transit through the territory of the Republic of Croatia, especially such towards the improvement of roads between the Port of Ploče and the border of Bosnia and Herzegovina; to the point where that roadway enters the area of the Federation. Therefore, the Republic of Croatia and the Federation, as necessary, will have common representation before international bodies to establish traffic infrastructure prerequisites for unobstructed access to the Port of Ploče to and from Bosnia and Herzegovina.

Article 17

The parties to the Contract will agree upon necessary measures so that goods and transit vehicles, which freely travel through the area of the Republic of Croatia, are, in fact, in transit.

Until such time as special roadways are built from the customs zone of the Port of Ploče to the border of Bosnia and Herzegovina, to the point where that roadway enters the Federation and vice versa, transit vehicular traffic on currently-existing roads will be maintained under the supervision of Croatian police.

Conditions for road vehicular transit as described in the previous paragraph will be regulated by separate Annex to this Contract.

Article 18

As for persons and goods directed towards traffic in the Port of Ploče, Bosnia and Herzegovina is required to ensure that such traffic flows in accordance with international laws. Bosnia and Herzegovina is responsible for all failures and harmful consequences which are the result of violation or failure to meet the norms of international law.

Article 19

Free transit on the Neretva River, in terms of this Contract, relates to those transit goods, baggage, ships and barges which do not sail into the Port of Ploče, as well as those ships and barges which sail to the Port of Ploče in transit.

Article 20

Railroad traffic through the territory of the Republic of Croatia will be conducted according to the established schedule of passenger and freight traffic.

Article 21

The parties will attempt to resolve disputes regarding the interpretation and implementation of this Contract, by mutual agreement.

If such agreement is not achieved within a period of one month from the time one of the governments has made written request, the dispute will be presented to an Arbitration Committee. It will comprise of three members and will be established ad hoc.

Each party will appoint one of the members of the Arbitration Committee, and, the third member, who will preside over the Committee, will be appointed by mutual agreement.

In case the necessary appointments are not completed within a period of one month from the time one of the sides had appointed its arbiter and, in doing so, has notified the other side, the appointment can be made, upon request from one of the sides, by the Committee for Cooperation of Bosnia and Herzegovina/Federation of BiH and the Republic of Croatia.

Article 22

This Contract is reached until the conclusion of a contract which will, in the spirit of Washington and Dayton agreements, permanently regulate the access of the Federation of Bosnia and Herzegovina to the Adriatic through the territory of the Republic of Croatia.

Article 24

This Contract becomes effective 30 days after the receipt of final notification by which the parties, through diplomatic channels, notify each other about the fulfillment of all the conditions required by national legislation for making this contract effective. It will be applied temporarily from the day of its signing.

This Contract will be effective as long as the Contract Regarding the Implementation of Agreement between the Federation of Bosnia and Herzegovina and the Republic of Croatia, securing Croatia's passage through the Federation territory, remains in effect.

Drafted in Zagreb, on May 11th, 1996, in two original texts, in the Bosnian and the Croatian languages, both of which are equally credible.

FOR BOSNIA AND HERZEGOVINA
(SIGNATURE)

Prime Minister Muratovic

FOR THE FEDERATION OF BOSNIA AND HERZEGOVINA

(SIGNATURE)

Prime Minister Kapetanovic

FOR THE REPUBLIC OF CROATIA
(SIGNATURE)

Prime Minister Matesa

NEUM AGREEMENT

Pursuant to mutual interest in developing comprehensive bilateral cooperation on an equal and mutually-beneficial basis, the Government of the Republic of Croatia and the Government of the Republic of Bosnia and Herzegovina, intending to advance the "good-neighbor" relations between the two countries, strengthen friendship, understanding and trust, peace and stability, with complete respect for political independence, sovereignty, territorial integrity for each of the countries on the basis of the Agreement between the Federation of Bosnia and Herzegovina (heretofore, the Federation) and the Republic of Croatia (heretofore, Croatia) secures Croatia's passage through the territory of the Federation. Therefore, in the spirit of implementing the Washington and Dayton Accords, the following has been reached:

A CONTRACT

OF AGREEMENT IMPLEMENTATION

BETWEEN THE REPUBLIC OF CROATIA AND THE FEDERATION OF BOSNIA AND HERZEGOVINA, SECURING CROATIA'S PASSAGE THROUGH THE TERRITORY OF THE FEDERATION (Neum Agreement)

Article 1.

Bosnia and Herzegovina provides for the unobstructed passage to and from Croatia by road through the Neum Municipality (road no. E65) between the east and west borders of the Neum Municipality and Croatia for ground-transit vehicles which transport goods and passengers.

Article 2.

The road between the eastern and western border of the Neum Municipality with Croatia is a part of Federation territory and is subject to its sovereignty.

Unless otherwise stated in this Contract, the regulations of the Federation of Bosnia and Herzegovina are applicable on the Neum Municipality road.

Article 3.

Ground transit vehicles which travel the road through the Neum Municipality will not be checked nor will they be stopped by government officials of the Federation unless:

- a) the driver of the ground transit vehicle, on the road through the Neum Municipality, commits a criminal act which is punishable according to the regulations of the Federation and the regulations of Bosnia Herzegovina which are effective in the Federation.
- b) the driver of the ground transit vehicle, on the road through the Neum Municipality, commits a traffic, customs or other violation which is punishable according to the regulations of the Federation and the regulations of Bosnia and Herzegovina which are effective in the Federation.

Article 4.

There will be no customs check-points for ground transit vehicles in transit to and from Croatia through the Neum Municipality.

Article 5.

The Croatian origin of a ground transit vehicle can be verified by a vehicle license and registration license plates which are issued by authorized offices in Croatia.

The rights named in articles 3 and 4 of this Contract are applicable to passenger vehicles and other personal vehicles of foreign, third-country registration and, to persons in them when they are travelling through the area of the Neum Municipality, provided that that travel is a portion of said transit which begins and ends in Croatia.

There will be no discrimination towards origin, affiliation, entry, exit nor destination, ownership of goods nor ownership of ground vehicles, nor their place of registration nor state of origin.

Article 6.

The freedom of transit outlined in article one of this Contract relates to the transport of persons, baggage, goods and ground transit vehicles through the Neum Municipality with no loading nor unloading of passengers, no loading nor unloading of goods nor change in mode of transportation, provided that that travel is a portion of said transit which originates and ends in Croatia.

As an exception to the first paragraph of this article, the loading and unloading of passengers, or of goods or a change in the mode of transportation is allowed in the event of a traffic accident or a ground transit vehicle break-down which occurs in the area of the Neum Municipality or by mutual agreement of the overseeing body of Croatia and the Federation.

Article 7

The transit regulated in this Contract is free from customs, compensation levies, taxation or other fees for transit vehicles, goods or persons, other than for special services rendered for such transit.

Special services and fees thereof, mentioned in the previous paragraph, will be determined in an Annex of this Contract.

The Federation is required to recognize regulation documents authorized by Croatia for ground vehicles in transit.

Article 8

The Federation is not required, by this Contract to permit the transit of goods whose import is not permitted due to prevention of illness to persons, animals and plants.

Article 9.

The parties of the Contract will decide on the necessary measures they will take in order to ensure that persons and goods and transit vehicles, for whom free transit is provided through the Neum Municipality (i.e., the Federation), actually are in transit.

Article 10.

The transit of exceptional over-sized loads shall be carried out in conjunction with special regulations of Croatia, with prior approval from Federation Police.

Article 11

The Federation/ Bosnia and Herzegovina will not enlist measures to disallow nor impede the free and unobstructed traffic flow of transit.

Croatia and Bosnia and Herzegovina will, at the request of any party of this Contract, begin discussions on measures ensuring and simplifying this transit. Towards that end, measures to improve roads infrastructure will be considered for the area which is used in transit in the territory of the Neum Municipality, i.e., the Federation, and, as necessary, both parties will be represented before international bodies in order to meet roads-infrastructure prerequisites for unobstructed transit of persons and goods through the Neum Municipality.

Article 12.

The parties of the Contract shall try to resolve, by agreement, all disagreements with respect to the understanding and the application of this Contract.

In the event that a resolution is not reached within one month of the date from which one of the Governments has asked for such by notice, the argument will be held before an Arbitration Committee which will be founded ad hoc and which will consist of three members.

Each of the parties will appoint one member of the Arbitration Committee and the third member, who will preside over the Committee, will be appointed by both parties.

In the event that the necessary appointments are not made within one month of the date that one of the parties has appointed its arbiter and, in doing so, informed the other party, the appointment may be carried out by the Committee for Cooperation of the Republic of Croatia and Bosnia and Herzegovina/ the Federation of Bosnia and Herzegovina, upon the request of one of the parties of the Contract.

Article 13.

This Contract is in effect until the conclusion of the Contract which will permanently regulate passage of Croatia through Federation territory by ground and rail path, as in the spirit of the Washington and Dayton Accords.

Article 14

This contract takes effect thirty days after the receipt of final notice by diplomatic channels in which the parties mutually give notice that all foreseeable conditions have been met by national legislation in order for this Contract to take effect. However, it will temporarily go into effect on the date of its signing.

This Contract will be in effect for as long as the Contract of Agreement Implementation is in effect which ensures the Federation of Bosnia and Herzegovina access to the Adriatic through the territory of the Republic of Croatia.

Drafted in Zagreb on the day of May 11, 1996 in two original texts, in the Croatian and the Bosnian languages, both texts of which are equally credible.

FOR THE GOVERNMENT OF THE REPUBLIC OF CROATIA
(SIGNATURE)

Prime Minister Matesa

FOR THE GOVERNMENT OF BOSNIA AND HERZEGOVINA
(SIGNATURE)

Prime Minister Muratovic

FOR THE FEDERATION OF BOSNIA AND HERZEGOVINA
(SIGNATURE)

Prime Minister Kapetanovic

TERMS OF REFERENCE - QUALITY ASSURANCE ADVISER

1. The Quality Assurance Adviser will provide assistance and guidance to the Ministry of Interior, directly or through the United Nations (UN) Mine Action Centre, on all matters concerning the application of Quality Assurance (QA) disciplines to mine clearing in the Republic of Croatia.
2. The Adviser will be responsible for monitoring the quality of mine and unexploded ordinance (UXO) clearing work undertaken by the Croatian State mine clearing company (MUNGOS) and any commercial mine clearing companies, whether Croatian or foreign. This work will be carried out in support of the Government of Croatia.
3. The Adviser will provide advice and assistance to the independent QA group established under the authority of the Ministry of the Interior. He will provide such guidance as necessary to the Head of that group, in support of their QA duties, especially in the areas outlined below.
4. The Adviser will ensure that the QA Group receives copies of the Standard Operating Procedures and Safety Regulations of any company wishing to carry out mine or UXO clearing, and assess these documents in the light of experience and current international best practice. The adviser will assist the Group in assessing the probability of the company carrying out safe and cost effective mine clearing.
5. For contracts let by Croatian Government for mine or UXO clearing, the Adviser may be asked to assist by providing technical opinion during the bid evaluation process, especially where the company has been asked to provide a QA plan as a part of the bidding documents.
6. Before the start of mine clearing operations by a new company or organization, the Adviser will assist the independent QA Group in attending a full briefing by the company on their methods of operation. He will then participate in the preparation of the Group's plan for the monitoring of the clearing work undertaken by the company.
7. The Adviser will participate in the random visits to the clearing worksites undertaken by the Group, to monitor work in progress. The Adviser will assist in setting up random sampling of areas of completed clearing work, and will advise on the percentage of sampling to be undertaken, the methodology of sampling and the equipment needed for the sampling operation. In both these areas the Adviser will report any findings to the Head of the QA Group.
8. The Adviser will provide specialized information to specific financing or donor organizations, such as the World Bank, on the quality aspects of mine clearing programs funded by them.
9. The Adviser will report to the World Bank Program Manager for Croatia, or the Mine Clearing Task Manager as appropriate, at the start and finish of the Adviser's contract and at any time thought necessary during the contract period.

MINE CLEARING AGENCY

TERMS OF REFERENCE FOR PROCUREMENT / IMPLEMENTATION ADVISER

Project Implementation

The Government will be responsible for the implementation of mine clearing policies and programs within Croatia, and will carry out its mine clearing commitments through the Ministry of Interior (MOI.) However the mine action programs will affect many other Government agencies, specifically those responsible for the roads and railways networks. Although these agencies are experienced in the World Bank's procurement procedures, the letting and implementation of contracts for mine clearing is a specialized area, and MOI will become the focal point for the letting, implementation and monitoring of all mine clearing contracts, whether carried out by Croatian mine clearing agencies or specialized international companies.

Although the MOI has been tasked with setting up a structure necessary to establish, implement and monitor mine clearing programs, they have little previous experience in these processes, and initially will need some guidance in the more specialized areas involved, such as the letting of contracts, and the measures necessary to ensure compliance with the requirements of the contract, especially in the areas of maintenance of safety standards and Quality Assurance.

The exact method of contracting for mine and munitions clearing has not yet been determined. There are two main options; the letting of clearing contracts centrally, or the letting of contracts for clearing by the reconstruction company on whose behalf the mine clearing is being carried out. Whichever option is chosen, advice will be sought from the MOI, either by the agencies or the reconstruction contractors, and the MOI may still insist on the Quality Assurance aspects of the clearing function being carried out under central arrangements, to ensure uniform high standards of clearing.

Duties

As Procurement Adviser, the Consultant will be responsible for ensuring that the procurement and implementation of all contracted mine and munitions clearing services are carried out in a timely and effective manner, so that the clearing can be carried out in advance of contracts for roads and railway reconstruction, and so that the reconstruction programs for these services can be carried out without threat of mine and munitions hazard to the reconstruction contractor's staff and equipment. The Consultant will report to the head of the MOI Project Unit responsible for the Project.

a. On his way to Croatia, the Consultant should visit the World Bank's headquarters in Washington for consultations with the Procurement Specialist, the Project Manager, and the Sector Task Manager for Transportation. He should also make contact by phone with the Task Manager for Mine Clearing.

b. Bid Preparation The Consultant will assist MOI in preparing bids for contracted mine clearing programs, to be carried out either centrally or as part of an infrastructure reconstruction

project. He should also prepare invitations packages for Quality Assurance monitoring and assessment, where these functions are to be carried out by a specialized contractor.

c. Bid Issue The Consultant will assist MOI in inviting bids from qualified mine clearing and Explosive Ordnance Disposal companies, following the procurement guidelines of the World Bank.

d. Evaluation and Contract Negotiation The Consultant will advise and assist in the establishment of a bid evaluation committee, composed of suitably qualified experts, to verify compliance of bids received with the tender requirements, and to assess the likely technical competence of the bidders. The bid evaluation committee will prepare evaluation reports with recommendations on contract award. As required, the Consultant will arrange for, and in conjunction with the MOI, will carry out the necessary contract negotiations.

e. Advice to the MOI The Consultant will advise and assist the MOI on procurement matters, as needed, throughout the period of assignment. The Consultant will also train the local procurement staff in the MOI on all matters pertaining to the letting and implementation of contracts, and the special considerations to be borne in mind for mine and explosive ordnance clearing contracts. In conjunction with the Mine Action Program Manager and the Task Manager for Mine Clearing, the Consultant will assist the MOI in setting up a structure within MOI for supervising contracts, and for carrying out Quality Assurance procedures.

f. Monitoring and Reporting The Consultant will advise the MOI on matters related to monitoring and reporting, particularly in respect of reporting progress on clearing to the mine information section of the Mine Action headquarters. The Consultant will also ensure the reporting of progress by the contractors in accordance with the terms of the contracts.

NOTES ON MINE CLEARING TECHNIQUES AND TECHNOLOGY

Mine Clearing Capacity

There are several sources from which mine clearers can be drawn. Each has advantages and disadvantages:

- **Military teams:** Local military teams have been conducting mine clearing since the conflict, but their utility is often problematic because donors and reconstruction program managers have little control over military clearing priorities and standards. Donors and aid organizations in general are reluctant to fund military organizations. Military teams are, in general, experienced in laying mines or in breaching minefields but do not have experience in clearing mines to a high standard (to humanitarian or civilian standards), and this has caused accidents. Nor do they have any incentive to clear mines to a high standard without receiving additional pay. Difficulties in monitoring military operations is also a consideration.
- **Police and civil defense:** these have an important and continuing role in responding to emergency calls for assistance, especially in situations involving an isolated mine or unexploded bomb. Civil defense teams have usually operated on a volunteer basis through the war, and typically need to return to their normal employment after the war.
- **Commercial mine clearing companies:** commercial mine clearing organizations are typically formed in response to the large-scale need for mine clearing as a result of protracted hostilities. Several such companies exist internationally, with experience developed in Angola and/or Cambodia, for example, but they vary in experience and competence.
- **Explosive ordnance disposal teams:** In Croatia, some local commercial specialized companies were still carrying out disposal activities from time to time on WWII ordnance, but large-scale mine clearing requires a different organizational approach from unexploded ordnance, for which additional training is necessary.
- **Non-governmental organization (NGO) mine clearing teams:** NGO mine clearing teams have considerable experience, and may be willing to assist in mine clearing programs, and can often (but not always) offer lower prices, because of voluntary or donor country contributions. They tend to be familiar with civilian (humanitarian) clearing requirements, and can design their programs to train and use local personnel; but they operate on a smaller scale than commercial companies.
- **Local “developmental” mine clearing capacity:** A local capacity, trained in civilian mine clearing standards, is essential to address the wide-scale and long-term needs of Croatia. Although this capacity may not initially be sufficient to address the most immediate needs, it is important that international assistance focuses on local management and training from the beginning, so that local teams and companies can play an increasing role as the overall mine clearing program is developed.

Mine Detection Methods

The choice of technology depends on the task, and no method is effective for clearing all mines. In practice, several methods of mine clearing may be used, and several methods of detection used in sequence to improve coverage.

- **Manual probing:** Due to the preponderance of non-metallic or minimum metallic mines throughout the former Yugoslavia, the primary mine detection is “mine probing” supplemented by magnetic mine detection. This involves the insertion of a lightweight mine probe or prodder into the ground, at an angle of 30°, to a depth of 100 mm, repeated every 3 cm across the area being searched. The operator uses the probe to feel for hard objects buried under the surface. The insertion angle of 30° is intended to minimize the risk of the operator inadvertently pressing on the top of the mine. A trained mine clearer can expect to clear about 2m² per hour using this method.
- **Mine sensing dogs:** Dogs can be trained to react to the smell of explosives, thus indicating the presence of mines. In mine clearing, the primary use of dogs is to screen large areas very quickly, and allow mine clearers to focus operations on the areas where the dogs indicate the presence of mines. The dogs require skilled handlers who are able to interpret their signals and maximize their limited endurance. Mechanical enhancements to dog-detecting operations are increasingly becoming available (e.g., collecting samples of materials, with the location of the samples recorded, and then using dogs to detect the presence of explosives). Vapor emission detection systems have also been developed, but none yet have the sensitivities of a trained dog.
- **Satellite or aerial photography:** Detection of mined areas depends on the identification of systematic or unusual disturbance of the earth. This method is only effective for identifying relatively recent disturbances in open country. Ground verification is required; and within the mined area, individual mines still need to be located. No system has yet been demonstrated that will successfully detect mines in the Croatian environment.

Mine Clearing Devices

- **Mechanical clearing devices,** such as flails are rarely able to guarantee a level of clearing greater than 80%. Although they offer fast coverage, they require skilled operators and are greatly affected by the type of terrain they encounter. They may be used in support of manual clearing operations, but may not, on their own, provide the necessary level of clearing. For example, mechanical methods may be used as a proving (testing or verification) method in areas where mines are suspected, as part of the quality assurance process after manual clearing operations, as part of a route clearing operation, or to clear vegetation before manual clearing.
- **Explosive clearing devices,** such as fuel-air explosives or explosive hoses, have a limited effective range and a large explosive area; they can damage infrastructure in the mined area, and are difficult to deploy in areas covered by vegetation or rocks, or in built-up areas. Their effectiveness is greatly reduced when deployed against blast-

resistant mines. They are therefore regarded as breaching devices and are not considered suitable for use in normal civilian operations. They are also several orders of magnitude more expensive than manual clearing.

- **Mine protected vehicles** are not clearing devices, but are a valuable asset to mine clearing operations, particularly to reconnaissance parties attempting to assess the extent of mined or possibly mined areas. They can also transport goods and personnel over routes which may be mined, thus facilitating reconstruction even while demining is taking place. As such, they are valuable life-saving equipment for those operating in mine contaminated areas.
- **Other methods.** Other devices may be appropriate where the potential user can demonstrate that the equipment can achieve the necessary level of clearing. Considerable research and development needs to be undertaken to identify and develop faster means of detecting the presence of minimum metallic mines; at present, no such technology is yet suitable for field use. Any proposal for the use of new technology needs to be accompanied by substantial proof that it is capable of reaching the minimum clearing standard for civilian mine clearing operation.

Mine Clearing Standards

- **Military mine clearing.** Many soldiers (particularly field or combat engineers) are trained in minefield breaching operations, carried out to “punch a hole” through a minefield during combat. A minefield breach is normally carried out in support of an immediate tactical objective, and may involve a situation where the local commander judges that the risk of breaching the minefield, with whatever resources are available, is necessary in view of the tactical aims -- given that minefields, like other military obstacles, are often covered by defensive fire under such circumstances. A minefield breaching operation may result in significant casualties among the conducting troops or subsequent users. Mine breaching techniques are designed for speed, and often merely push mines aside without destroying them. They are therefore rarely suitable for civilian mine clearing operations.
- **Civilian (humanitarian) mine clearing standards.** For civilian use of land, there is no “acceptable” level of residual landmine contamination. However, although 100% clearing is the objective of all civilian mine clearing efforts, a total guarantee that all the mines have been removed will never be given by any reputable mine clearer. The UN advocates that humanitarian mine clearing operations should aim to achieve 100% clearing, with a minimum standard “in excess of 99% clear.” At present, the only method capable of providing this level of clearing is manual clearing using mine probes supported (but not replaced by) mine detectors and sniffing dogs. The other military or mechanical methods described above may be used to complement manual mine clearing, particularly in survey or “proving” operations intended to establish whether mines are present. They should not be regarded as primary means of mine clearing.

Quality Assurance

Mine and munitions clearing must be done with great thoroughness, to prevent mines or munitions being missed during the clearing process, which could result in tragic accidents, and a collapse of confidence in the value of the work done. No mine clearing organization can ever guarantee that all mines and munitions have been removed, but the establishment of a strict Quality Assurance (QA) regime can do much to ensure that clearing is carried out to the highest practical standards. It also maintains pressure on the clearers to work to high standards. QA should be built into every mine clearing program. It usually takes place at three levels; before the work begins, the QA authority studies the clearing proposals put forward by the clearing organization, and looks at their Standing Operational Procedures (SOPs) and safety regulations. If these are inadequate, they either have to be corrected, or the contractor is not selected. At the second level, QA is carried out at the work site to ensure that the organization is carrying out its operating procedures properly and thoroughly. This involves watching the progress of the clearing, and the actions of the clearing management staff. At the third level, samples of the cleared areas are re-inspected. If any mines or munitions are found, the area will be declared insufficiently cleared, and the clearing done again at the contractor's expense. Should many mines be found, the contract may be terminated due to the contractor's poor workmanship. The QA requirements have to be built into the contract, and agreed with the contractor before the contract is signed. The QA has to be done by a totally independent agency. A contractor can be used, provided that this contractor has no other contractual commitments in the country.

LESSONS FROM MINE CLEARING PROGRAMS

1. Large scale civilian mine clearing is comparatively new. Clearing after World War II was done sporadically in several countries, often by soldiers. The end of the cold war allowed the world to look at the mine contamination conditions in Afghanistan, Cambodia, and several countries in Africa and Latin America, and to establish civilian programs to deal with them. The first major program was set up by the United Nations in Afghanistan, where mine clearing started in early 1990. The clean-up after the Gulf War in 1991 and 1992 brought major civilian contractors into the mine clearing business, and many lessons were learnt during this period. These have been confirmed or modified as a result of other programs in Mozambique, Somalia, Rwanda, El Salvador and Angola. Although the mine problems and their solutions have been unique to each country, the fundamental principles remain the same.

2. **Mine Clearing by Soldiers.** It is tempting to assume that, because soldiers lay mines easily, they should be able to remove them with equal facility. The lessons of the past indicate that unfortunately this is not the case. Removing mines requires a different order of discipline, training and equipment to carry out large-scale humanitarian mine clearing, which is (or should be) more like an industrial process than its military counterpart, minefield breaching. Soldiers tend to hurry the mine clearing process, which usually results in casualties. Soldiers can be trained in civilian mine clearing methods, and regiments of Bangladeshi, Egyptian, and Pakistani soldiers were trained in Kuwait. It has been found that ex-soldiers, who have chosen to make their living clearing mines are often more mature, and make better mine clearers.

3. **Mechanical Mine Clearing.** Every mine clearing program has searched for a mechanical solution to the mine clearing problem; the circumstances in Kuwait should have been ideal for such a solution. In fact, the lessons of Kuwait, and other programs, have shown that hand clearing is still the only truly thorough method of mine clearing. There is no shortage of ideas for new techniques and technologies, but most of these fail to take fully into account the destructive energy of an anti-tank mine. They also tend to assume that mines always work according to their design parameters. Mines, however, become unreliable and unpredictable, which increase their danger, and the difficulty of finding a safe and reliable method of clearing them.

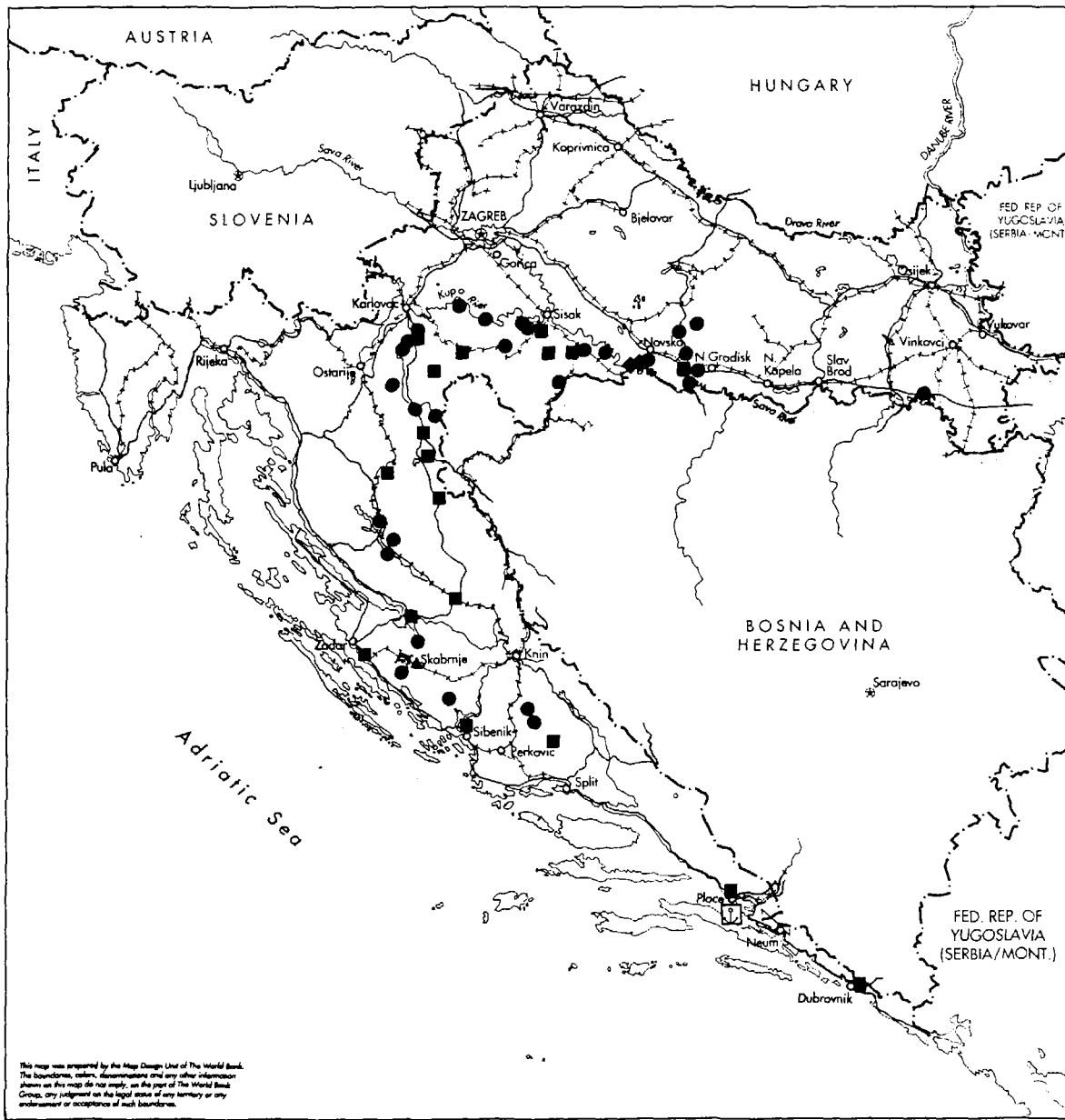
4. **Management and Administration.** The lesson that has been repeated in almost all programs is that a capability in mine clearing alone is insufficient. The mine clearing capability has to be backed by capable and experienced managed and sound administration. Many small mine companies ceased operations in Kuwait because of poor management and the resulting accidents. It is difficult to eradicate all accidents, because, ultimately, during the clearing process, a mine clearer has to deal directly with the mine, and many accidents are due to the human failings of inattention, lapses of discipline, or lapses of memory.

5. **Support Systems.** Another lesson of experience is the folly of rushing into a clearing program, without proper attention to the medical, communications, casualty evacuation and support systems that have to be in place before the first mine clearer steps into a minefield. These preparations take time, but cannot be ignored or set aside in the interest of more rapid action.

6. **Enhancing Local Capacity.** It is also essential to think in detail about how local capacity is to be created and supported. It has been found that setting up an organization to train mine clearers is only part of the problem. More important is establishing the management organization that will deploy them after training. In three major programs, more students were trained than could be employed; many drifted into other jobs, so their skills were lost. Others needed expensive re-training before they could be employed in mine clearing. Setting up a mine clearing capacity therefore requires detailed planning and careful coordination of training and employment opportunities. This, in turn, means identifying and scheduling mine clearing priorities and, at the same time, securing adequate funding (including fitting cash flows to the priority schedule) from donors, loans, and other sources.

7. **Risks and Public Perception.** The lessons of the past six years have shown that until successful new technologies for mine detection and clearing can be developed (which will require substantial funding), mine clearing will continue to be a slow, dangerous, and expensive business. Any mine clearing program faces the probability that there will be fatal or serious accidents, which will spark criticism from those who are divorced from the problem. However, there is less likely to be criticism from those whose lives are endangered by the mines, or whose access to utilities, services, shelter, or employment is curtailed by mine contamination.

MAP SECTION

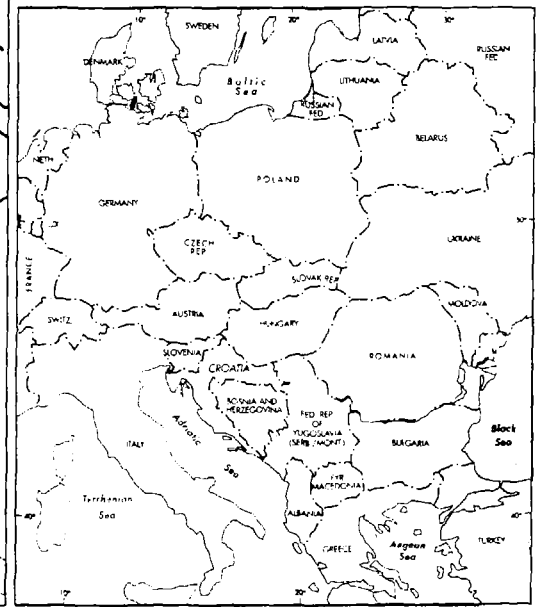


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CROATIA EMERGENCY TRANSPORT AND MINE CLEARING PROJECT

TRANSPORT COMPONENTS UNDER PROJECT

- ROAD BRIDGES
- ROAD SECTIONS
- +— RAILWAY
- ◆ RAILWAY BRIDGES
- PLOČE PORT AND PORT ACCESS ROAD
- +— RAILWAY TUNNEL
- ▲ RAILWAY STATION
- OTHER ROADS
- - - OTHER RAILWAYS
- MAJOR TOWNS
- ⊙ NATIONAL CAPITALS
- ~ RIVERS
- - - INTERNATIONAL BOUNDARIES



IMAGING

Report No: ~~P-~~ T- 7010 HR
Type: ~~MSP~~ TAN