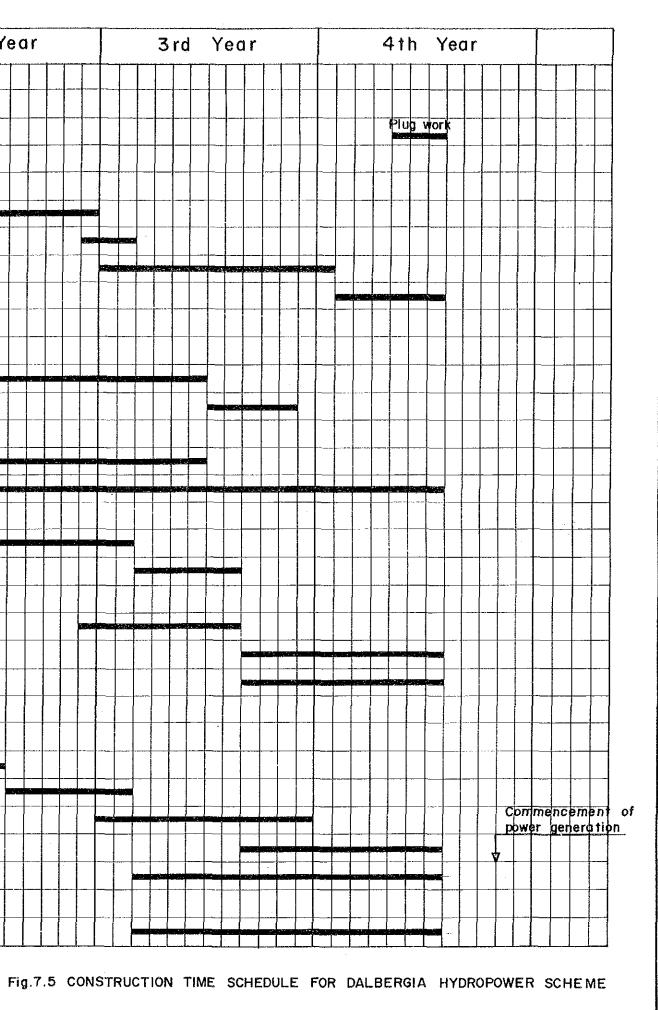
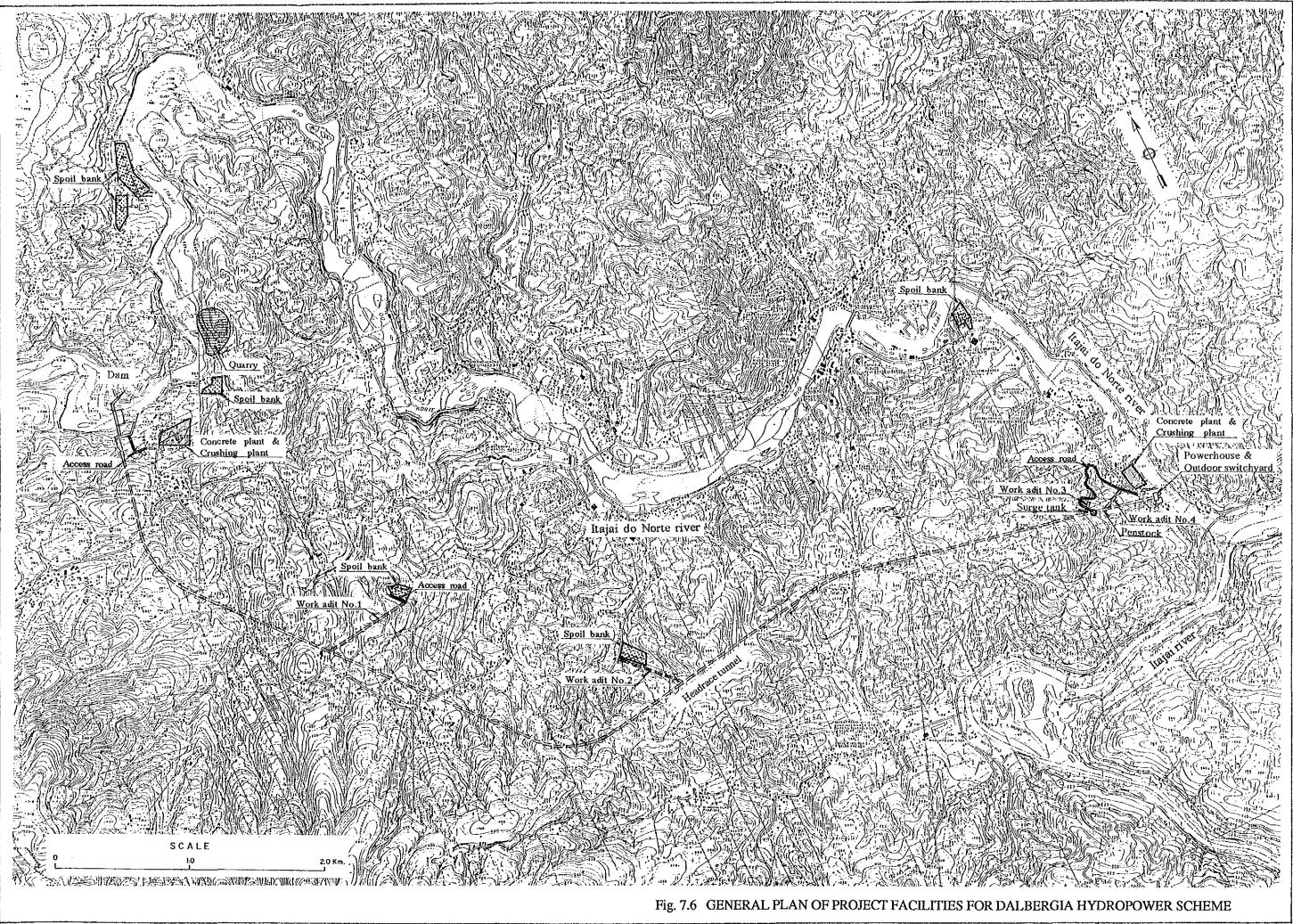
Commencement of Power Generation 9 th 8 th Fig. 7.4 IMPLEMENTATION SCHEDULE FOR DALBERGIA HYDROPOWER SCHEME 7 th 6 th 5 th 4 th З Id 2 nd 1 st YEAR (3) P/Q & tendering (1) Land acquisition (2) Detailed design (4) Construction A. Feasibility Study B. Detailed design (2) Financing (1) Financing C. Construction ACTION

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Description	Unit	Quantity	lst				Year				2nd Year				3rd Year																	
1. Preparatory Works															1	Τ	1					Τ			T			Τ			[+	
2. River Diversion																					-								_			
a. Diversion tunnel	m	155	-														-					-							1			-
b. Coffering	m3	18,700 (Secondary)		<u>}</u>													1				1	1	<u>†</u>		_			1				
3. Dam and Spillway								-				-			_		-				1								-			
a.Excavation	m3	369,000																										-		~~~~		
b. Grouting	m	8,460								-																	1		-			
c. Concrete	m3	113,500																			-70					3.14	1220.2					
d.Installation of gates	t	680										- .									-	1			-				1			
4. Intake																						1										
a.Excavation	m3	91,000				. w men																-							1			
b. Concrete	m3	9,200											1															\top				
c.Installation of gates	t	60	•							·										-	1-				-							
5. Headrace Tunnel																				_	-			_†				1				-
a.Excavation	m3	149,000																														
b. Concrete	m3	35,900								-			-																			
6. Surge Tank								1			╈	1							\top													
a.Excavation	m3	54,200																														
b. Concrete	m3	3,370																														
7. Penstock		·												1		+					1							1				1
a.Excavation	m3	41,900	$\left \right $					1				+-															5 1 251					
b.Installation of penstock pipe	m	520										+				-																
c. Concrete	m3	3,350													1-																	
8. Powerhouse and Tailrace											-	╈			\uparrow				+	-	1.						+				-	+
- Substructure and Tailrace						İ	_		++											1				-	+							+
a.Excavation	m3	30,000						-																								+
b.Concrete	m3	15,300						+-															-				+			-+		
- Superstructure						Ť			╢╌┼		+																					┽
9. Switchyard						+								-						+												
O.Installation of Generating		2 Units		+								-							-										-			
Equipment and Testing	-		┼─┼			+			┼╾╌┼												╂──				-						╞	+
11. Transmission Line	Km	2									+	+		+		$\left - \right $	\rightarrow	+	+						_							

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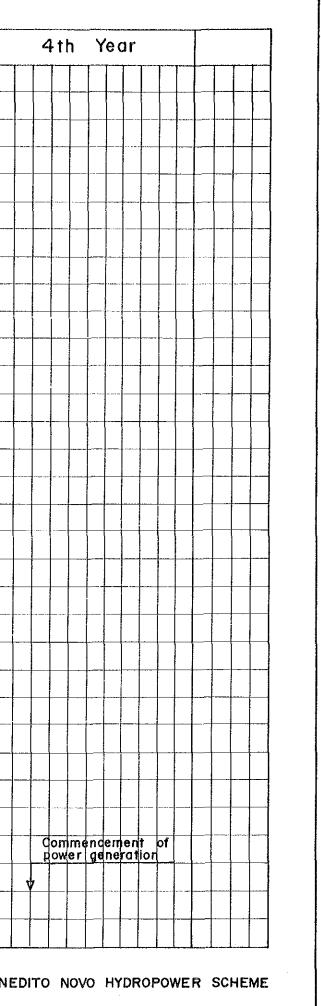


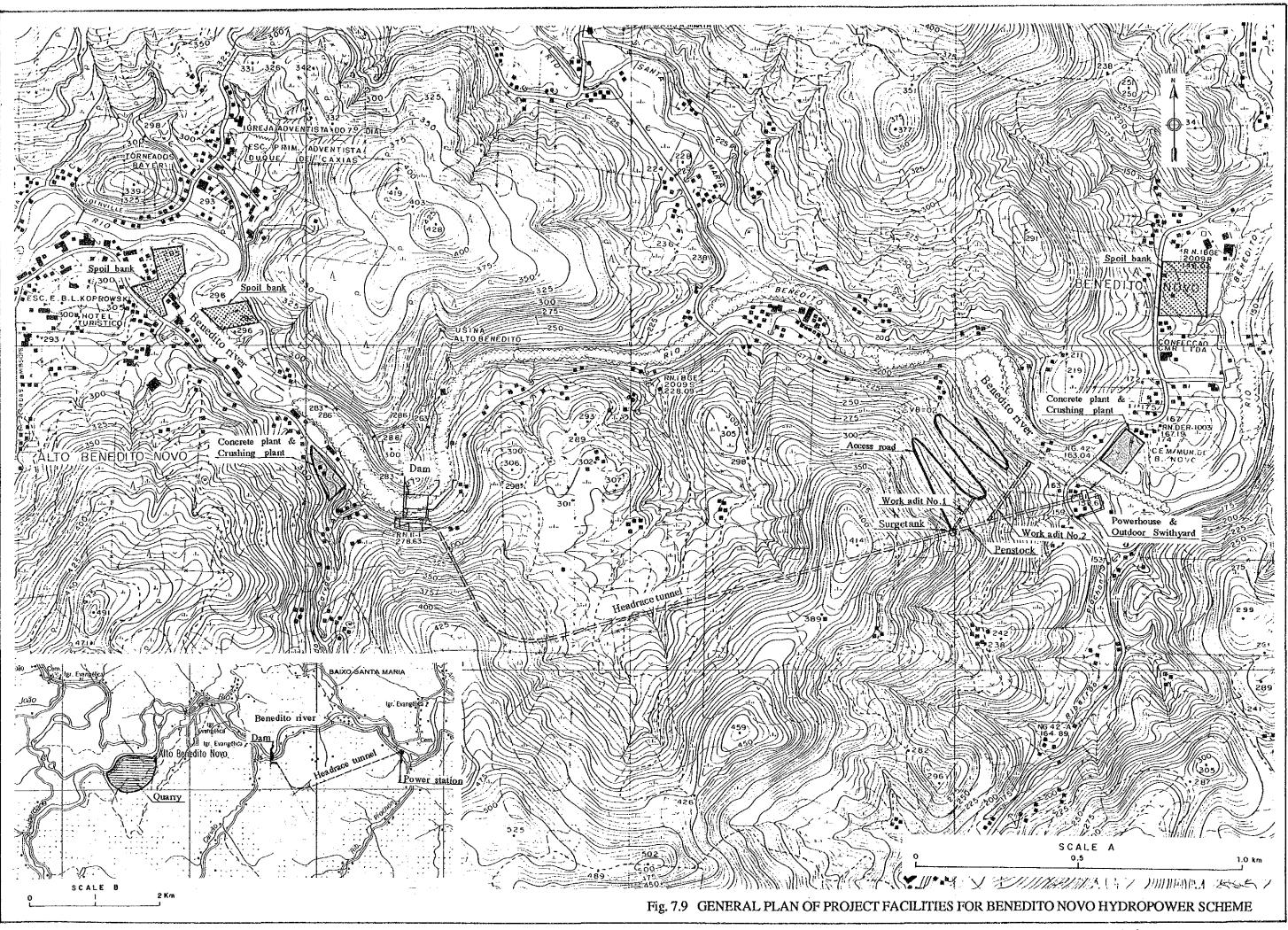
2010		, ,				Commencement of	Power Generation			
2009 20										
2008										
2007										
2006										
2005										
2004										
2003										
ACTION YEAR	A. Feasibility Study	B. Detailed design	(1) Financing	(2) Detailed design	C. Construction	(1) Land acquisition	(2) Financing	(3) P/Q & tendering	(4) Construction	

Description	Unit	Quantity	lst	Year	2nd	Year	3rd Year
1. Preparatory Works							
2. River Diversion							
a. Diversion tunnel	m	155					Plug wo
b. Coffering	mЗ	3,930 (Secondary)					
3. Dam and Spillway							
a. Excavation	m ³	69,000					
b. Grouting	m	1,900					
c. Concrete	m3	53, 100					
d.Installation of gates	t	650					
4. Intake							
a.Excavation	m ³	115,000					
b. Concrete	m ³	2 1,400					
c.Installation of gates	t	120					
5. Headrace Tunnel							
a.Excavation	m ³	21,500					
b. Concrete	m3	6, 100					
6. Surge Tank							
a.Excavation	m3	29,600					
b. Concrete	m ³	1,100					
7. Penstock							
a. Excavation	m3	16,000					
b.Installation of penstock pipe	m	450					
c. Concrete	m3	2,400					
8. Powerhouse and Tailrace							
- Substructure and Tailrace							
a. Excavation	m3	14,000					
b. Concrete	m3	10,300					
- Superstructure							
9. Switchyard							
10. Installation of Generating		2 Units					
Equipment and Testing							
11. Transmission Line	Km	17	┼╌┼╌┧╾┾╼┼╼				

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Fig. 7.8 CONSTRUCTION TIME SCHEDULE FOR BENEDITO NOVO HYDROPOWER SCHEME





K, 10 (F/R) σ ∞ r Project month 6 (F/R) ŝ 4 ന 2 1g -- Environmental and Compensation Surveys 2. Feasibility Studies and Designs - Environmental Impact Study Work Items - Preparation of Reports - Socio-economic Study - Construction Planning - Evaluation of Project - Electric Power Study - Topographic Survey - Hydrological Study - Geological Survey - Feasibility Design - Plan Formulation - Cost Estimate 1. Field Works

Fig. 10.1 WORK SCHEDULE FOR F/S ON SALTO PILAO (1) HYDROPOWER SCHEME

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10 9 000000 00 5 Project months Ś ŝ 4 ო 2 -----, Speciality of Expert - Hydropower Planner (A) - Hydropower Planner (B) - Engineering Geologist - Construction Planner - Design Engineer (A) - Design Engineer (B) - Electrical Engineer - Environmentalist - Socio-economist - Survey Expert - Tean Leader - Hydrologist

Fig. 10.2 ASSIGNMENT SCHEDULE FOR JICA STUDY TEAM

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LIST OF STUDY TEAM MEMBERS AND COUNTERPART PERSONNEL

JICA Study Team

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I. KUNO S. OHNUMA O. NAKAHIRA M. SAKAMOTO S. IKEDA M. KANDA R. KUBOTA S. MINATO T. HIRUTA J. IWAMOTO (Interpreter) JOSÉ AFFONSO DA SILVA JARDIM ÁLVARO CAMARGO HARILTON SAVI PEDRO PAULO ALVES CUNHA BENHOUR DE CASTRO ROMARIZ FILHO IVO D'AQUINO NORBERTO SCHAEFFER OLGA MARIA CARNEIRO DOS SANTOS NICOLAU JORGGE SARDÁ MÁRIO CONSUELO SILVA SANTOS ROBERTO MASSAO TATEMOTO JOÃO ALCIONE COVOLAN AGUINALDO CHILOMER MÁRCIO FERNANDO ZIESEMER ALTAIR WAGNER