資料-5 討議議事録 (M/D)

Minutes of Discussions on the Basic Design Study on the Project for Rehabilitation of the Bajina Basuta Pumped Storage Hydroelectric Power Plant in the Federal Republic of Yugoslavia

In response to a request from the Government of the Federal Republic of Yugoslavia (hereinafter referred to as "Yugoslavia"), the Government of Japan decided to conduct a Basic Design Study on the Project for Rehabilitation of the Bajina Basta Pumped Storage Hydroelectric Power Plant (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Yugoslavia the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Satoshi Nakano, Deputy Director of the Third Project Management Division, Grant Aid Management Department, JICA and is scheduled to stay in the country from November 21 to December 17, 2001.

The Team held discussions with the officials concerned of the Government of Yugoslavia and conducted a field survey at the study area.

In the course of discussions and the field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Belgrade, November 28, 2001

Satoshi Nakano Leader Basic Design Study Team Japan International Cooperation Agency

Vojislav Krstic Assistant Minister Ministry of Mining and Energy Republic of Serbia

Ljubomir Geric, Ph.D General Manager Electric Power Industry of Serbia Republic of Serbia

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Ambassador Ministry of Foreign Affairs Federal Republic of Yugoslavia

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Veljko Golubovic Assistant Minister Ministry of Finance Federal Republic of Yugoslavia

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Gordana Matic Secretary of Minister Ministry for International Economic Relations Republic of Serbia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to assist the rehabilitation of generating facilities of the Bajina Basta Pumped Storage Hydroelectric Power Plant.

2. Project Site

The site of the Project is shown in Annex-1.

3. Responsible and Implementing Organizations

The counterpart Ministry to the Government of Japan is the Ministry of Foreign Affairs of the Federal Republic of Yugoslavia.

The responsible Ministry is the Ministry of Mining and Energy (MME) of the Republic of the Serbia.

The implementing agencies are the Electric Power Industry of Serbia (EPS) and its subsidiary, the Public Enterprise of Bajina Basta for Generation of Electric Energy.

The organization chart of implementing agencies are shown in Annex-2.

4. Items requested by the Government of Yugoslavia

After discussions with the Team, the following components of the Project were finally requested by the Yugoslavian side.

- Procurement of parts and special tools, repair of existing runners, and dispatch of supervisors, necessary for the major overhaul of generating facilities in the Bajina Basta Pumped Storage Hydroelectric Power Plant.

JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

5-1. The Yugoslavian side understands the Japan's Grant Aid scheme explained by the Team, as described in ANNEX-3.

5-2. The Yugoslavian side will take the necessary measures, as described in Annex-4, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the Study

6-1. The consultants will proceed to further study in Yugoslavia until December 17, 2001.

6-2. JICA will prepare the draft report in English and dispatch a mission to Yugoslavia in order to explain its contents around February, 2002.

6-3. In case that the content of the report are accepted in principle by the Government of Yugoslavia, JICA will complete the final report and send it to the Government of Yugoslavia by May, 2002.

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7. Other Relevant Issues

7-1. The Yugoslavian side shall submit answers in English to the questionnaire which the Team handed to the Yugoslavian side by December 7, 2001.

7-2. The Yugoslavian side confirmed that the Public Enterprise of Bajina Basuta for Generation of Electric Energy would not be privatized in the foreseeable future.

7-3. The Team pointed out to the Yugoslavian side that it would take almost 30 months for the procurement of two new runners, which was additionally requested by the Yugoslavian side, and the procurement was practically impossible within the period of the Grant Aid. The Team proposed to the Yugoslavian side the repair of existing runners by welding instead, considering the urgency of the needed rehabilitation work, on the condition that the manufacturer of the runners consented and cooperated, and the Yugoslavian side accepted the proposal.

7-4. The Team explained that the following undertakings should be taken by the Yugoslavian side at the Yugoslavian expenses, and the Yugoslavian side accepted it.

- the workforce necessary for the disassembling and installation works,
- the machines, tools and consumables necessary for the disassembling and installation works,
- the additional procurement of parts, repair of parts which will be found after disassembling works,
- the rehabilitation of related facilities, such as transformers, transmission lines, rock filled dam, which is not included in the Scope of Works under the Grant Aid, if necessary.

7-5. The Yugoslavian side shall take necessary procedures for standstill of operation of generators before commencement of the installation of the procured equipment.

7-6. The Yugoslavian side shall implement necessary procedures on environmental protection according to the relevant laws and regulations of Yugoslavia, such as on disposal of scrap, and implement the Environmental Impact Assessment, if necessary.

7-7. The Yugoslavian side confirmed that there would be no duplication of requests between the Projects under the Japan's Grant Aid and by other donors.

7-8. The Yugoslavian side shall secure enough budget and personnel necessary for the operation and maintenance of the generating facilities rehabilitated by the Project, including the periodical maintenance work, after the completion of the Project.

7-9. The Yugoslavian side shall take all the necessary measures to exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes including Value Added Tax, and other physical levies which may be imposed in Yugoslavia regarding the procurement of equipment, materials and services under the verified contracts.

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(Annex-1)

Project Site



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The Organization Chart of the Electric Power Industry of Serbia (EPS)



The Organization Chart of the Public Enterprise of Bajina Basuta for Generation of Electric Energy

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JAPAN'S GRANT AID SCHEME

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid scheme is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of	(The Notes exchanged between the Governments of Japan
Implementation	and the recipient country)

Firstly, the application or request for a Grant Aid Project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (the Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the Project to see whether or not it is suitable for Japan's Grant Aid scheme, based on the Basic Design Study Report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the smooth implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

- 2. Basic Design Study
- 1) Contents of the Study

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The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid scheme from a technical, social and economic point of view.
 - Confirmation of items agreed upon by both parties concerning the basic concept of the

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Project.

- Preparation of a basic design of the Project.
- Estimation of cost of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid Project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses registered consulting firms. JICA selects firms based on proposals submitted by interested firms. The firms selected carry out a Basic Design Study and write a report, based upon terms of reference set by JICA.

The consulting firms used for the Study are recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals." (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) "Necessity of "Verification"

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The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to, Japanese taxpayers.

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5) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

- a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction,
- b) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities in and around the sites,
- c) To secure buildings prior to the procurement in case the installation of the equipment,
- d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies including Value Added Tax which will be imposed in the recipient country with respect to the supply of the products and services under the verified contracts,
- f) To accord Japanese nationals, whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.
- 6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

- 8) Banking Arrangement (B/A)
- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts,
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to Pay (A/P)

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The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

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Major Undertakings to be Taken by Each Government

NO	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A	_	······
	1) Advising Commission of A/P	1	٠
	2) Payment commission		•
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	•	<u> </u>
	2) Tax exemption and customs clearance of the products at the port of disembarkation		•
ļ	3) Internal transportation from the port of disembarkation to the project site	•	
3	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		٠
5	To execute overhaul works at the Project Site		۲
6	To dispatch appropriate engineers in order to supervise the overhaul works	•	
7	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		•
8	To bear all the expense, other than those to be borne by the Grant Aid, necessary for rehabilitation of the facilities		•

(B/A: Banking Arrangement, A/P: Authorization to Pay)

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Minutes of Discussions on the Basic Design Study on the Project for Rehabilitation of the Bajina Basta Pumped Storage Hydroelectric Power Plant in the Federal Republic of Yugoslavia (EXPLANATION OF DRAFT FINAL REPORT)

In November 2001, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Rehabilitation of the Bajina Basta Pumped Storage Hydroelectric Power Plant (hereinafter referred to as "the Project") to the Federal Republic of Yugoslavia (hereinafter referred to as "Yugoslavia"), and through discussions, field survey, and technical examination of the results in Japan, JICA prepared a draft final report of the study.

In order to explain and consult the Government of Yugoslavia on the components of the draft final report, JICA sent to Yugoslavia the Draft Final Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Satoshi Nakano, a Deputy Director of the Third Project Management Division, the Grant Aid Management Department, JICA, from February 20 to March 6, 2002.

As a result of discussions, both sides confirmed the main items described on the attached sheets.

Belgrade, February 27, 2002

Satoshi Nakano Leader Draft Final Report Explanation Team Japan International Cooperation Agency

Vojislav Krstić Deputy Minister Ministry of Mining and Energy Republic of Serbia

Ljubomir Gerîć, Ph.D General Manager Electric Power Industry of Serbia Republic of Serbia

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Ljiljana Trgovčević Head of Department of Bilateral Cooperation with Developed Countries Ministry of International Economic Relations Federal Republic of Yugoslavia

Dobrica Pantović Head of the Customs System Sector Federal Ministry of Finance Federal Republic of Yugoslavia

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Blaženka (Stojanović Secretary General Ministry of International Economic Relations Republic of Serbia

ATTACHMENT

1. Components of the Draft Final Report

The Yugoslavian side agreed and accepted in principle the components of the draft final report and draft detailed specifications of the equipment explained by the Team.

2. Japan's Grant Aid Scheme

The Yugoslavian side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Yugoslavia as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both sides on November 28, 2001.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Yugoslavia by May, 2002.

4. Other Relevant Issues

- 4-1. The Yugoslavian side confirmed that the counterpart Ministry on the Project to the Government of Japan had changed from the Federal Ministry of Foreign Affaires of the Federal Republic of Yugoslavia to the Federal Ministry of International Economic Relations of the Federal Republic of Yugoslavia.
- 4-2. The Yugoslavian side confirmed that "the Public Enterprise of Bajina Bašta for Generation of Electric Energy" in the Article 3 and 7-2 of the Minutes of Discussions signed by both sides on November 28, 2001, should be replaced by "the Public Company "Drinske Hydropower Plants"."
- **4-3.** The Yugoslavian side shall implement the undertakings, which were described in the Chapter 2 of the draft final report and the Article 5 and 7 of the Minutes od Discussions signed by both sides on November 28, 2001.
- 4-4. Although the Team proposed the repair of the existing runners by welding to the Yugoslavian side, but after considering on the results of field survey and technical examination in Japan, the Team proposed to the Yugoslavian side the repair of existing runners by grinding off insted as the most appropriate method, and the Yugoslavian side accepted it.
- **4-5.** The Yugoslavian side understands that only one (1) year warranty shall be considered as an obligation of manufactures of newly installed equipment and parts in the rehabilitation work, and performance guarantees will not be applicable to the rehabilitation work.
- **4-6.** The Yugoslavian side requested the Team to explain the datailed payment procedures, and the Team confirmed that the supplement paper should be prepared and explained to the Yugoslavian side until March 6, 2002.



資料-6 事前評価表

事業事前評価表(無償資金協力)

1. 協力対象事業名

ユーゴースラヴィア連邦共和国 バイナ・バシュタ揚水発電所改修計画

2. わが国が援助することの必要性・妥当性

- (1) ユーゴースラヴィア国は、約10年間にわたるミロシェヴィッチ前大統領下の民族主義的な政策の後、2000年10月にコシュトゥニツァ新政権が誕生した。国際社会はこの民主的な政権交代を歓迎し、各国が協調しつつ同国の民主化や国際社会への復帰を支援する考えである。 その一環として EU をはじめとする各国は2000年10月に経済制裁を原則解除し、越冬対策等の緊急援助を実施した。本プロジェクトはその後2001年6月に行われた新生ユーゴースラヴィア国支援国会合において、わが国が表明した総額5,000万ドルの無償資金協力案件のコンポーネントのひとつとして位置付けられている。
- (2) ユーゴースラヴィア国の近年における電力需給バランスは、1992年以来の国連を初めとする 欧米諸国の経済制裁に起因する資金不足が原因で、発電設備の維持管理や予備品が不足し電 力供給量の減少がある一方、利便性が高く安価な電力の使用量が増大し(冬季の電力需要の 約40%は住民の暖房用)大幅な電力不足をきたしている。ユーゴースラヴィア国はこの不足電 力を近隣国からの輸入(2000年度は必要電力量の約13%)に依存しているため、財政負担が 増大するのみならず、計画停電が一層広がり、結果として市民生活の安定化における大きな 支障となっている。
- (3)本プロジェクト対象発電所であるバイナ・バシュタ揚水発電所は、日本輸出入銀行(現国際協力銀行)の融資をもとに建設され、1982年より運転を開始している。本発電所はユーゴースラヴィア国唯一の揚水発電設備であり、需要の少ない時間帯の余剰電力を利用して揚水し、需要の高い時間帯に発電する最も経済的な発電設備であるとともに、電力需要のピーク時にはユーゴースラヴィア国全土の約1割の電力需要を担う重要な発電設備である。しかし、運転開始から既に20年が経過しているが、過去一度もメジャー・オーバーホールを実施しておらず、経年劣化および予備品不足により設備の安全な稼働に支障をきたしている。

3. 協力対象事業の目的(プロジェクト目標)

バイナ・バシュタ揚水発電所が安定した信頼性の高い電力供給を行うとともに、設備稼働率が 向上することを目的とする。

4. 協力対象事業の内容

(1) 対象地域

ユーゴースラヴィア国全域

(2) アウトプット

バイナ・バシュタ揚水発電所の1および2号機の主要部品が更新される。

(3) インプット

1 および 2 号ポンプ水車、発電電動機および関連設備のメジャー・オーバーホールに必要な 資機材および消耗品、特殊工具の調達および据付の指導 (4) 総事業費

概算事業費 14.12 億円(日本側 13.39 億円、ユーゴースラヴィア国側 7,350 万円)

(5) スケジュール

詳細設計を含め28ヶ月の予定

- (6) 実施体制
 - 1) 主管官庁: セルビア共和国鉱業エネルギー省(MME)
 - 実施機関: セルビア電力産業公社(EPS)
 (実際の改修作業は EPS の傘下にあるドリナ水力発電公社(DHP)が行う。)

5. プロジェクトの成果

- (1) プロジェクトにて裨益をうける対象の範囲および規模ユーゴースラヴィア国民約1,060万人
- (2) 事業の目的(プロジェクト目標)を示す成果指標

1) 電力供給信頼性の向上(年間緊急停止回数の減少)

項目	改修前 (2001 年)	改修後 (2007 年)
1号発電設備	7 回	3回以下
2 号発電設備	11 回	3回以下
共通設備	6 回	3回以下
合計	24 回	9回以下

*改修後の回数は、2001年の緊急停止回数のうち、本計画にて調達・据付される部品以外の原因 により発生する回数。

(年間)

2) 設備稼働率の向上

項目	改修前 (2001 年)	改修後 (2007 年)	
年間稼働時間	2,918 *1	3,000以上	
設備利用率*3	12.4 % *2	15 %以上	

*1:過去 20 年間の平均、 *2:2000 年度実績

*3:設備稼働率=(発電出力×年間稼働時間)/(最大発電出力614 MW×365日×24時間) 註)揚水発電所はその性質上、需要ピーク時に稼動(発電)するため、1日約3~4時間程度の 稼働が一般的。なお、稼働率が2.6%上昇することにより、約140 MWhの発電が可能となり、こ れはユーゴースラヴィア国の一般家庭約27,000軒分の年間消費量に相当する。

- (3) その他の成果指標
 - 1)維持管理費の低減

現状の維持管理費が低減する。

項目	改修前 (2000 年)	改修後 (2007 年)	
維持管理費	8.8 Din./kWh	7 Din./kWh以下	

*Din. =ディナール 1Din. =約 1.98 円 (2001 年 3 月現在)

参考) 2000 年度の発電電力量は 668, 230kWh であり、維持管理費は 588 万 Din. (約 1, 164 万円) であった。

6. 外部要因リスク

(1) ユーゴースラヴィア国側によるオーバーホール作業の実施

調達機材の据付(既存設備の分解・組み立てを含む)はユーゴースラヴィア国 側が実施するが、実施に必要な予算および作業員の確保を行い、日本側から派遣 された技術者の指導の下、適切なオーバーホール作業を実施する必要がある。

(2) ユーゴースラヴィア国側によるオーバーホール作業後の維持管理の実施

オーバーホール作業後、予備品購入等に必要な予算を確保し、対象発電設備の 定期的な点検・保守作業を実施する必要がある。

(3) 電力需要の大幅な減少

天候(冬季)の激変等がなく、平年通りの電力需要が見込まれること。

7. 今後の評価計画

- (1) 事後評価に用いる成果指標
 - 1) 1および2号機の緊急停止回数
 - 2) 設備稼働率
 - 3) 維持管理費
- (2) 評価のタイミング

事業終了後、3年後を目途に事後評価予定

資料-7 参考資料/入手資料リスト

収集資料リスト

調査名 ユーゴースラヴィア連邦共和国 バイナ・バシュタ揚水発電所改修計画基本設計調査

番号	名称	形態 図書・ビデオ 地図・写真等	オリシ゛ナル・コヒ゜ー	発 行 機 関	発行年
1	Mid Term Plan (2002 \sim 2006)	図書	コピー	Electric Power Industry of Serbia (EPS)	
2	An Outline of EPS	図書	コピー	EPS	
3	Light, Despite of	図書	コピー	EPS	
4	Annual Report: 2000	図書	コピー	EPS	
5	Annual Report: 1999	図書	コピー	EPS	
6	Annual Report: 1997	図書	コピー	EPS	
7	Federal Republic of Yugoslavia: Breaking with the Past The Path to Stability and Growth Volume 2: Assistance Priorities and Sectoral Analyses	図書	コピー	WB/EU	
8	Project Appraisal Document on a Proposed Grant in the Amount of US\$6.0 Million Equivalent to the Federal Republic of Yugoslavia for a Electric Power Emergency Reconstruction Project	図書	コピー	WB	2001 年
9	Federal Republic of Yugoslavia: 2001 Action Plan	図書	コピー	European Bank for Reconstruction and Development (EBRD)	
10	Progress of the main components of the programme	図書	コピー	European Agency for Reconstruction Operation division in Serbia	2001年

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