

4.3 Overview of Works of Environmental Impact Assessment (EIA)

4.3.1 Overview of Preparation of EIA Report

As for Environmental Impact Assessment (EIA) of Tashkent Thermal Power Plant Modernization Project (hereinafter called "the Project"), a draft EIA report (INTRODUCTION of the DRAFT STATEMENT ON ENVIRONMENTAL IMPACT, 1999) has been prepared in 1999 by Teploelectroproekt that is an associated company of Uzbekenergo. The report has been approved by Goscompliloda (State Committee of Nature Preservation of the Republic of Uzbekistan), and at that time, Goscompliloda requested to prepare detailed EIA report of the Project as condition for approval.

When S/W (Scope of Work) mission of Japan International Cooperation Agency (JICA) visited Uzbekistan, JICA and SJSC "Uzbekenergo" agreed that Uzbekistan side would prepare detailed EIA report of the Project and Japanese side would conduct assistance for the preparation work and make English translated version of the report. In this study, JICA Detailed Design Study Team (hereinafter called "the Study Team") therefore has assisted the preparation of detailed EIA report of Russian version by Uzbekistan side and made English translated version of the report.

The procedure of EIA regarding construction of thermal power station over 300MWe in Uzbekistan usually consists of three stages. At first stage, a draft of Environmental Impact Statement (Draft EIS) is prepared prior to funding for the projects. At second stage, Environmental Impact Statement (EIS) is prepared in case that Goscompliloda requires preparation because of necessity of additional survey, analysis, countermeasures, etc. for the projects. At the final stage of EIA procedure, Statement of Environmental Consequences (SEC) is prepared prior to commissioning. SEC is a position of updated version of EIS. Procedures of EIA are shown in **Attachment 4.3-1**. As for the Project the draft EIA report which is thought to be corresponding Draft EIS has already been prepared. Consequently, SJSC "Uzbekenergo" and Goscompliloda agreed that remaining EIS that means detailed EIA report and SEC should be prepared. The Study Team conducted assistance work and translation of this EIS.

The detailed EIA report has been conducted by Teploelectroproekt as well as the draft EIA report. Updating of the draft EIA report was proceeded as preliminary work after making the agreement mentioned above. During the first on-site study in October 2002, a kick-off meeting regarding preparation of the detailed EIA report was held and it was confirmed that SJSC "Uzbekenergo" entrusted Teploelectroproekt with the preparation.

Afterward, all works have been conducted between Teploelectroproekt and the Study Team.

Policy of preparation, table of contents, preparation schedule, etc. were discussed between both parties. Taking into consideration that the Project is funded by Japan Bank for International Cooperation (JBIC), the table of contents was agreed to meet "Guidelines for Confirmation of Environmental and Social Considerations, April 2002, JBIC". First edition of the detailed EIA report of Russian version was also agreed to be completed by December 2002.

The detailed EIA report of Russian version was submitted to the Study Team in December 2002 (in the period of the second on-site study) as almost scheduled. The Study Team translated the report into English chapter by chapter and checked and reviewed the report of English translated version. Solution of translation problems required a great deal of attention. The Study Team submitted results of the check and review summarized in comment sheets to Teploelectroproekt in February 2003 (in the period of the third on-site study).

At the same time, to promote implementation of the Project, Uzbekistan side submitted the first edition of detailed EIA report to Goscompliloda without waiting all comments completely reflected and took the procedure for approval of the report. Teploelectroproekt submitted the detailed EIA report to Goscompliloda through SJSC "Uzbekenergo" for review. The report was reviewed in detail between the person of Teploelectroproekt in charge and expertise committee of Goscompliloda. Finally, the detailed EIA report was approved by Goscompliloda about one month review after.

On the other hand, Teploelectroproekt responded the results of check and review conducted by the Study Team as well as review conducted by Goscompliloda. At the process of result confirmation of check and review between Teploelectroproekt and the Study Team, reflection work of comments from the Study Team to the report was time-consuming for many reasons including English-Russian and Russian-English translation, resignation of the person of Teploelectroproekt in charge of greenhouse gas reduction effect. E-mail communication was carried out through local interpreters during the Study Team was absent in Tashkent and it took time more. The final version of detailed EIA report was completed in November 2003 (in the period of the 5th on-site study).

Based on the final version of the report, main points of EIA for the Project are shown on **Table 4.3-1**.

Table 4.3-1 Main Points of EIA for the Project

Items	Impact of CCPP	Mitigation measures	Results expected
General	Environmental burdens	Employment of clean and high-efficiency CCPP technology	Reduction of fuel consumption and pollutant emission per MWh
Air quality	Emission of NO _x , SO _x and dust	Utilization of gas as a fuel and employment of gas turbine with low emission	Reduction of emission of NO _x , SO _x , and dust
Water quality	Wastewater discharged from CCPP	Installation of wastewater treatment system and implementation of storm water treatment	Reduction of impacts on water quality of Canal Boz-su
Thermal effluent	Thermal effluent discharged to Canal Boz-su	Less amount of water usage and strict limit of temperature increase	Reduction of impacts on water environment of Canal Boz-su
Soil and underground water	Oil leakage to soil and underground water	Establishment and implementation of preventive measures	Prevention of soil and underground water pollution
Wastes	Waste generation	Establishment of appropriate disposal of wastes	Reduction of possible harmful and chemical impacts on human body
Noise and Vibration	Noise in operation	Installation of CCPP at the site in existing power station and implementation of soundproof measures	Compliance with noise standards in residential area and working positions
Ecology	Impacts on flora and fauna	Installation of CCPP at the site in existing power station	Increase of impacts on living environment of flora and fauna are not anticipated basically.
Socio-economy	Replacement of existing plants	Positive effects	Improvement of safety and stability of power generation Less operators Ensuring employment and improvement of workers' skill
Construction works	Noise, vibration and traffic jams	Limitation of conducting construction works with huge noise and vibration during daytime Planning of transportation schedule with traffic situation taken into consideration	Conservation of living environment and avoidance of traffic jams around the site
Emergency	Possibility of accidents	Employment of automatic control system, implementation of environmental risk assessment, safety procedures and employee training	Reduction of probability of accidents Establishment of countermeasures against emergency cases Employee having skills of emergency response

4.3.2 Overview of Public Hearing Regarding EIA Report

Accompanied with progress of preparation of the detailed EIA report, conducting public hearing regarding the detailed EIA report (hereinafter called "EIA public hearing") was proposed by JICA and JBIC. The work concerning EIA public hearing was added to scope of work of the Study Team in second fiscal year. The Study Team informed SJSC "Uzbekenergo" of intention of JICA and JBIC that it was desirable to conduct EIA public hearing, and SJSC "Uzbekenergo" accepted that. The Study Team requested SJSC "Uzbekenergo" to submit method and schedule of EIA public hearing with paying serious attention to practice in Uzbekistan. SJSC "Uzbekenergo" accepted the offer and asked Teploelectroproekt to plan and conduct EIA public hearing. The method and schedule prepared by Teploelectroproekt was submitted to the Study Team through SJSC "Uzbekenergo".

According to the schedule submitted, the process of conducting EIA public hearing consists of five stages. At first stage, conducting EIA public hearing is familiarized to related parties. At second stage, summaries of the detailed EIA report are prepared and distributed to related parties and the detailed EIA report (complete version) is made available for public inspection. At third stage, EIA public hearing meeting is held. At fourth stage, opinions of residents are collected and analyzed by questionnaire survey. At final stage, results of EIA public hearing activities are reported to Japanese side (**Table 4.3-2**).

Table 4.3-2 Implementation Plan of EIA Public Hearing

(Received from SJSC "Uzbekenergo" in the end of May 2003)

Stages	Activities	Time	Parties Responsible
Stage 1	To familiarize related parties (local authorities, mahalla committee, residence, etc.) with conducting EIA public hearing	~June 10, 2003	Teploelectroproekt Tashkent Thermal Power Plant (hereinafter called DC "TASHTPP") SJSC "Uzbekenergo"
Stage 2	To prepare summaries of the detailed EIA report and distribute summaries to related parties To make the detailed EIA report available for public inspection at Tashkent Thermal Power Plant and mahalla committee	~June 20, 2003	Teploelectroproekt DC "TASHTPP"
Stage 3	To hold EIA public hearing meeting	~June 30, 2003	Teploelectroproekt DC "TASHTPP"
Stage 4	To conduct questionnaire survey of residents and analyze it	~ August 10, 2003	Teploelectroproekt DC "TASHTPP"
Stage 5	To report the results of EIA public hearing to JICA and JBIC	~ August 30, 2003	Teploelectroproekt DC "TASHTPP" SJSC "Uzbekenergo"

Each activity was carried out as almost scheduled. The summaries of detailed EIA report were prepared in Uzbek (official language) and Russian and were distributed to related parties (Refer to **Attachment 4.3-2**). The detailed EIA report of complete version in Russian was made available for public inspection at DC "TASHTPP" and mahalla committee that was an organization like residents' association.

EIA public hearing meeting, a direct dialogue with residence, was held at DC "TASHTPP" on 8 July 2003. Many staffs of DC "TASHTPP" and residents not worked at DC "TASHTPP" were attended because many staffs lived around DC "TASHTPP". Explanations of outline of the Project, benefit of newly constructed combined cycle power plant (CCPP) and environmental impact of the Project were given by staffs of DC "TASHTPP" and person of Teploelectroproekt in charge. Question-and-answer session was also conducted. Main opinions of residents consisted of following three points. First point

is concern about noise from gas turbine. It came from confusing gas turbine and jet engine of aircraft. It was explained that new plant would be taken necessary countermeasures against noise and there was nothing to worry about. Second one is fear of job loss caused by stop of some existing units accompanied with operation of CCPP. Third one is request to plant trees around DC "TASHTPP" and to make playground for children. But looking overall, objection in regard to promote the Project was not presented, and it was recognized that understanding of residents was gotten. Minutes of meeting of the public hearing are shown in **Attachment 4.3-3**.

At fourth stage, questionnaire was distributed to residents and collection of residents' opinions and its analysis were conducted. 100 copies of questionnaire were distributed and 88 copies were collected. The results of questionnaire analysis are shown in **Figure 4.3-1**.

1. What do you think about the environmental status of your living area (DC "TASHTPP" village)?

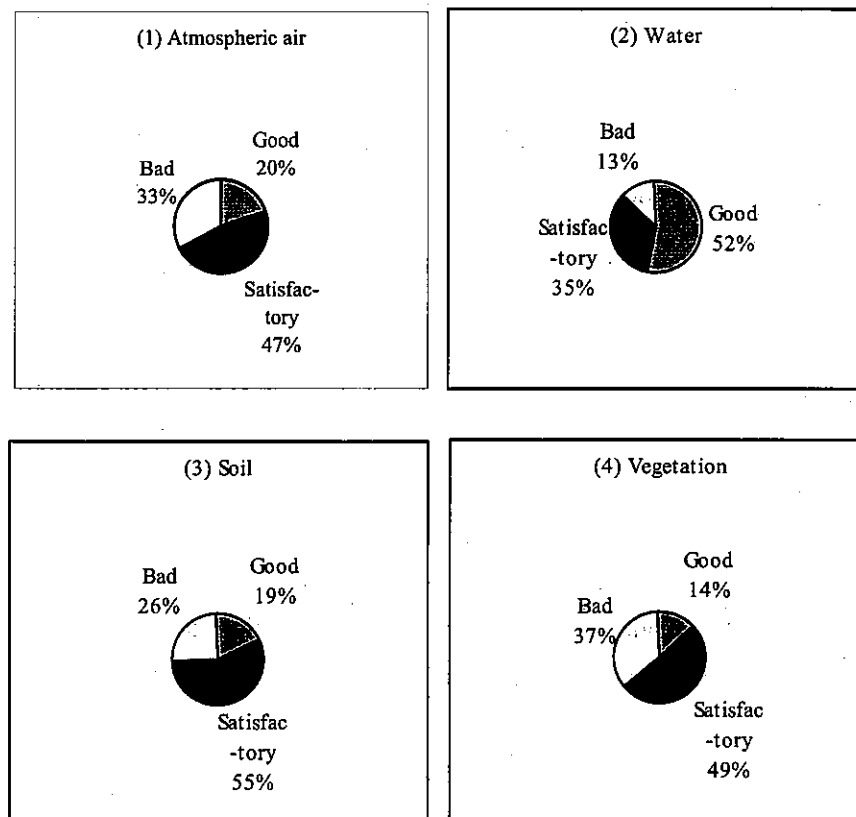


Figure 4.3-1(a) Results of Questionnaire Survey of Residents Regarding the Project

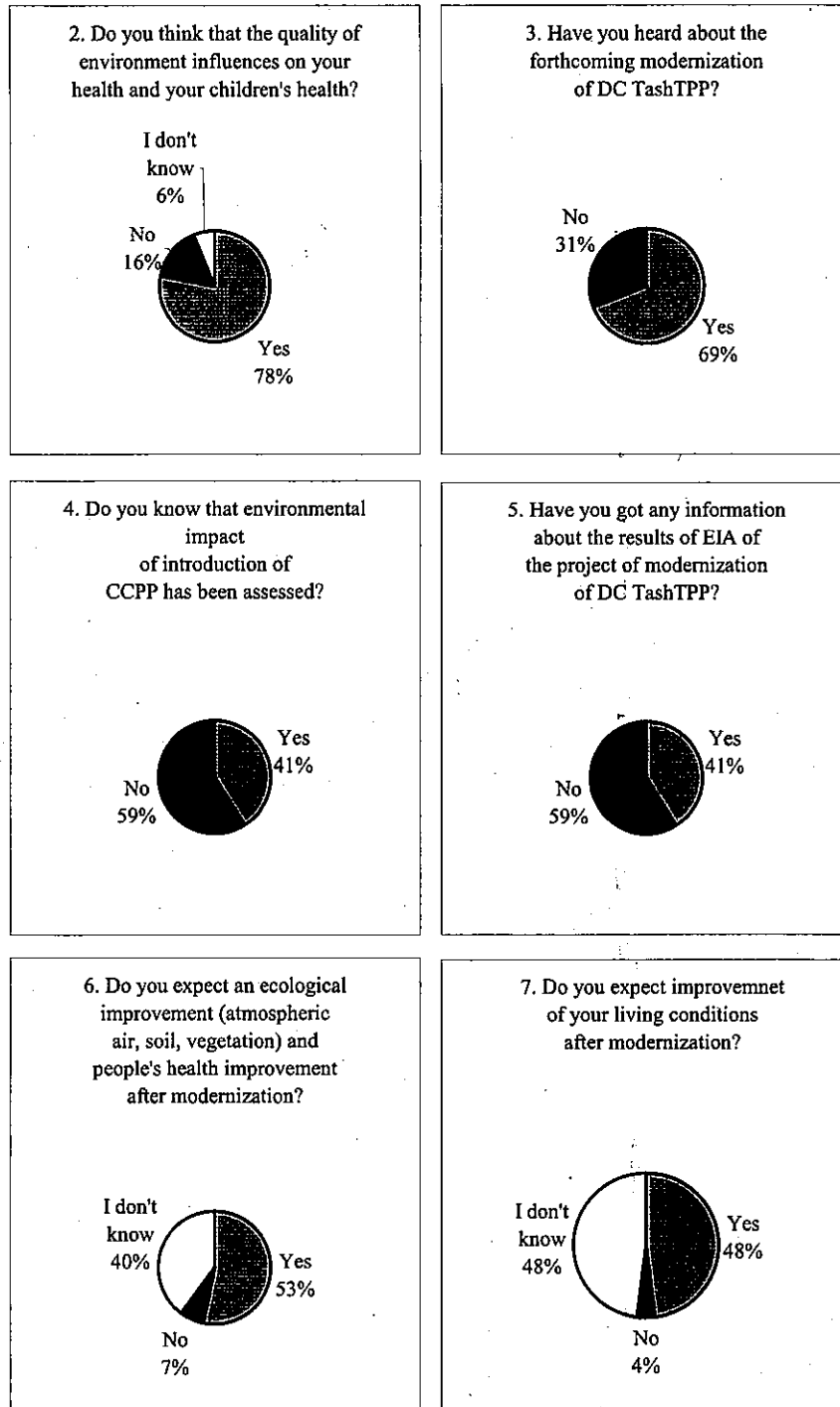


Figure 4.3-1(b) Results of Questionnaire Survey of Residents Regarding the Project

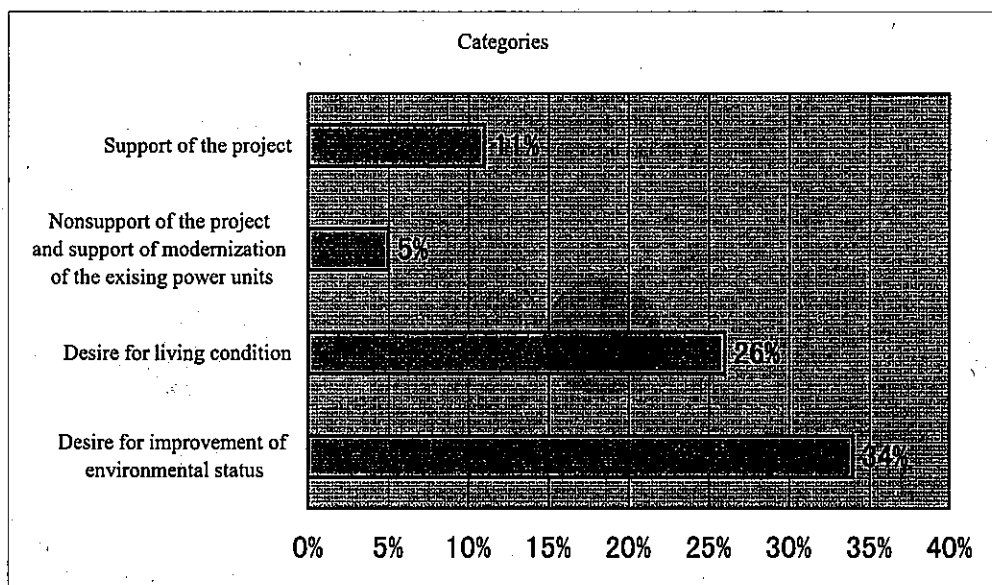
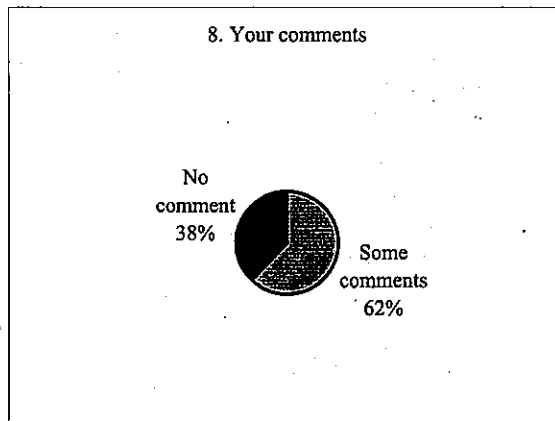


Figure 4.3-1(c) Results of Questionnaire Survey of Residents Regarding the Project

It can be said that residents' interest in the Project is comparatively high because many staffs of DC "TASHTPP" live around DC "TASHTPP" and summaries of the detailed EIA report were distributed in advance. Ratio of residents considering current environmental status to be bad is comparatively low. As for contribution to improvement of environmental status, "Yes (Expected)" is most frequent answer but answer of "I don't know" occupies a fair percentage. It shows quite a few residents doubt if the Project will lead to remarkable improvement of environment, despite a series of activities regarding EIA public hearing shows that environmental burden will decrease. But looking overall, residents living around DC "TASHTPP" are comparatively familiarized with the Project and many residents expect the Project to improve environmental status, health conditions and living

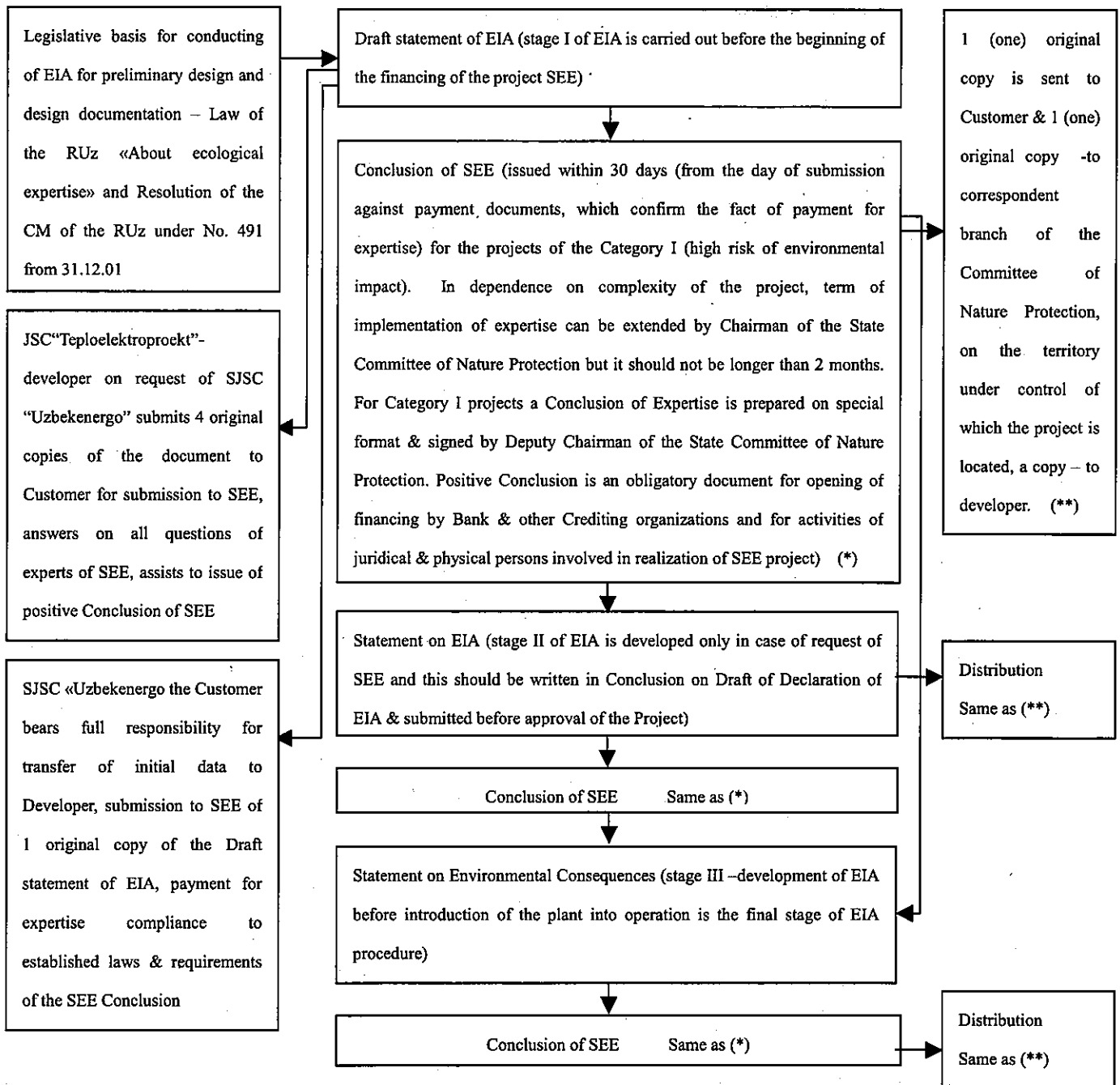
conditions of residents.

In August 2003 (in the period of 4-3 on-site study), debrief session of EIA public hearing was held at Uzbekenergo headquarters with attendance of representative of DC "TASHTPP" and Teploelectroproekt. At the session, SJSC "Uzbekenergo" reported the activities of EIA public hearing to the Study Team. It was reported that all process had been conducted as almost scheduled and mahalla committee agreed to promote the Project. It was also determined that the results of a series of activities regarding EIA public hearing would be released to the local press based on comments from Japanese side (Refer to **Attachment 4.3-4**). EIA works of the Study Team have been completed by receiving report of EIA public hearing.

Attachment 4.3-1

Procedure Concerning Environmental Impact Assessment (EIA) for Construction of Thermal Power Station with Capacity of 300MW or Higher in Uzbekistan

PROCEDURE OF SUBMISSION BY CUSTOMER OF MATERIALS CONCERNING EIA REPORT AND CONFIRMATION OF THEM AT A SPECIALIZED EXPERTS' BODY (FOR THE PROJECTS OF THE CATEGORY I) - MAIN BOARD ON STATE ECOLOGICAL EXPERTIZE OF THE STATE COMMITTEE OF NATURE PROTECTION OF THE REPUBLIC OF UZBEKISTAN (SEE)



Attachment 4.3-2. Summary of the Detailed EIA Report
(Original text is prepared in Russian and Uzbek)

INFORMATION

About results of environmental impact assessment (EIA report) of the Project of modernization of DC "TASHTPP"

Project of Modernization of DC "TASHTPP" has been worked out by Japan International Cooperation Agency (JICA) and foresees replacement of two existing power units No.11 and No.12 by one combined cycle power plant (CCPP) of capacity 370MW with erection of the stack of height – 120m.

Detailed assessment of environmental impact of the modernization of DC "TASHTPP" has been conducted by Joint Stock Company of opened type "Teploelektroproekt" and approved by State Ecological Expertise of the State Committee of Nature Preservation of the Republic of Uzbekistan (Expert Appraisal under No. 18/48 from 28.02.03).

Main purpose of modernization of DC "TASHTPP" is provision of regular and stable supply of electric power to customers, as well as, increase of energy efficiency.

After introduction of CCPP at DC "TASHTPP":

- concentration of nitrogen oxides in flue gases of CCPP will make up 25 ppm, and it's 6 times less than emission of power units No.11 and No.12 being dismantled. Reduction of discharges of harmful substances to atmosphere is attained by provision of combustor of CCPP with dry nozzles, which permit to provide homogeneous combustion of fuel with low temperature flame;
- concentrations of main harmful substances ($\text{NO}_2 + \text{SO}_2$) in the area of impact of DC "TASHTPP" will decrease from 1.6 MAC to 1.4 MAC (Maximal Admissible Concentration), at the same time impact of the CCPP to a level of pollution of atmosphere will make up 0.07 MAC against actual impact of boilers being dismantled – 1.17 MAC;
- emissions of mazut (heavy fuel oil) ashes will decrease 225.3 t/year by stoppage of boilers No.11 and No.12;
- fuel saving will make up 396×10^3 t/year and correspondingly emission of CO_2 , as the main greenhouse gas, will be reduced by 640×10^3 t/year;
- specific fuel consumption of CCPP makes up 225 g/kWh, that is 158 g/kWh less than actual value of DC "TASHTPP";
- water flow for needs of CCPP is 3,903.6 t/h less than that of 2 power units being dismantled;
- drainage of thermal effluent to Boz-su canal will be reduced by 3,473.6 t/h against discharged from power units being dismantled;
- maximal increase of water temperature in Boz-su canal does not exceed 5°C (at present, effluents of DC "TASHTPP" lead to increase of temperature of 6-9 °C on average);

- volume of solid vanadium containing wastes will decrease by reduction of consumption of mazut, at the same time, impact on underground waters close to the surface in the area of location of main structures of DC "TASHTPP" will decrease;
- probability of possible emergency situations will be reduced by thermodynamic characteristics of CCPP and installation of automatic systems of control and operation.

Erection of CCPP will be managed in such a manner to reduce and to minimize inevitable and short-term impact (smoke, noise, vibration, dust and dirt) of building works on local people, in particular, implementation of noisy works will be limited to daytime and delivery schedule of materials to construction site will be prepared in order to avoid traffic jam.

Therefore, environmental impact assessment shows that introduction of CCPP at DC "TASHTPP" will lead to decrease of anthropogenic load on environment.

THOSE WHO WANT TO EXPRESS OPINION ON GIVEN INFORMATION OR TO FAMILIARIZE WITH THE WHOLE VOLUME OF REPORT ON ENVIRONMENTAL IMPACT "EIA FOR MODERNIZATION OF DC "TASHTPP" MAY ADDRESS A WAITING ROOM OF DC "TASHTPP" OR MAHALLA COMMITTEE FROM 8:00 TO 15:00 OF JUNE 20-25.

Note: This summary was prepared based on the latest version of the detailed EIA report at that time. Consequently, this summary has some contents not corresponding to final version of the detailed EIA report.

Attachment 4.3-3 Minutes of Public Hearing Meeting with Population in Relation to EIA Report on Modernization of DC "TASHTPP"

Tashkent

July 8, 2003

Participants on behalf of:

DC "TASHTPP":

Igor Iadgarov – Deputy Chief Engineer;

Oleg Ertzenkin – Chief of United Technical & Productive Department;

Robert Ahmedov – Deputy Chief of Technical & Productive Department;

SJSC "Uzbekenergo":

Nonna Badaeva – Chief of Environment Protection Dept.

JSC "Teploelektroproekt"

Tatyana Homoya – Chief of Ecology Dept.

Dilfusa Djalalova – Engineer of Ecology Dept.

Local Authorities:

Ravshan Ashirmatov – Chairman of Mahalla Committee

L. Semihatova – Chairman of Housing & Communal Service "Energhetik"

Population living close to DC "TASHTPP" (private residencies & multistoried buildings): 46 men.

Japan International Cooperation Agency:

Mr. Enji Asami – Deputy Head of Representation office in Uzbekistan;

Mr. Sarvar Gulamov – Programs' Coordinator

TEPSCO:

Mr. Kenji Mikata – Detailed Design Study Team Leader

Mr. Nomura – Engineer on Power Supply;

Mr. Chujo – Engineer on Power Supply;

Mr. Kittaka – Chief Administrator

Mrs. Gulnara Tasimova – Office Manager

Mr. Iadgarov, Chairman of the meeting and Deputy Chief Engineer of DC "TASHTPP", opened the public hearing. Mr. Iadgarov noted that the participants met on request of Japan International Cooperation Agency (JICA) and Japanese Bank for International Cooperation (JBIC). The objective of the public hearing is to inform people about the essence of social and ecological

benefits of introduction of CCPP at DC "TASHTPP".

Mr. Ertzenkin gave brief information about the modernisation project, CCPP's structure and operation, its technological characteristics and benefits against traditional power units. He explained that the aim of modernisation of DC "TASHTPP" is provision of regular power supply to customers in line with increase of established capacity and power efficiency. The given project is considered to be expedient because DC "TASHTPP" impacts significantly on environment, as everyone knows. Moreover, DC "TASHTPP" trends to decrease productivity in the course of time and as a result, its capability to generate power and efficiency of conversion of fuel into electric power decrease as well. Wear and tear of equipment lead to:

- decrease of station's productivity;
- increase of environmental load;
- increase of service costs
- decrease of level of equipment availability.

After modernisation DC "TASHTPP" will have a high rate of power conversion, satisfy an increasing demand for electric power, compensate reduction of DC "TASHTPP"'s productivity and decrease significantly load on environment.

CCPP expected to be introduced at DC "TASHTPP" includes one gas turbine, HRSG, steam turbine and generators (CCPP' s scheme is being demonstrated). Besides the main components, a new plant includes its own electric equipment, gas compressor, distributed control system, additional equipment (pumps, etc), fuel and water supply systems, water supply and water discharge systems.

CCPP's capacity makes up 370 MW.

For CCPP's cooling, a system of cooling water from Bóz-su canal will be applied, based on water intake and water discharge according to the actual scheme of the station.

Gas will be burnt in a gas turbine.

Main advantages of CCPP:

- principal simplicity;
- practically full automation, which simplifies operation;
- it's more compact than traditional power units;
- it has a high manoeuvrability (loading takes 5-20min against several hours of existing power units).

Environmental status of the area, where you live, will improve significantly, as efficiency of fuel usage will increase and specific discharges of polluting substances per unit of generated capacity

will decrease.

Mr. M. Tanisov asks a question: I have heard that such kind of plants operate as a jet engine. So it means that our families cannot sleep well because of CCPP operation?

Mr. R. Ahmedov: As I'm a specialist of DC "TASHTPP" and I've visited Japan to familiarise with CCPP operation, let me assure you that all of you who live close to Plant's border, will not feel any noise impact during CCPP operation as, noise being created will be suppressed by foreseen means of soundproofing, in particular by acoustic cover of the casing, mufflers installed on HRSG exit.

Mr. R. Baimetov : What about emergency cases? They'll occur less at Plant than now, won't they?

Mr. O. Ertzenkin: Creation of emergency conditions at CCPP is practically reduced to zero thanks to perfect thermal and dynamic characteristics of the plant, its structure and provision of automated control system (ACS), which provides a high operational reliability. ACS provides regular control and operation of the plant, technological protection and blocking trips, automatic regulation and alarms, permits to optimise CCPP operation according to given criteria.

Mrs. M. Samigova: You've mentioned that ecological situation would be improved, could you give us details.

Mrs. T. Homova: Ecology Department of JSC "Teploelektroproekt" prepared ecological analysis of introduction of CCPP at DC "TASHTPP". We invited all interested people to familiarize with the results of detailed EIA report at DC "TASHTPP"'s office and mahalla committee. The report has been exposed there on June 15. Everyone who lives close to DC "TASHTPP" has been informed about this possibility through mahalla committee and Housing and Communal Service "Energhetik" (the fact of notification is confirmed by those present at the meeting, in particular Mr. Ashirmatov - Chairman of mahalla committee and Mrs. Semihatova - Chairman of Housing & Communal Service).

Moreover, 200 copies of the summary of EIA report have been distributed in Russian and Uzbek languages before public hearing meeting. They include information about DC "TASHTPP"'s modernisation, ecological benefits of the given project. It's mentioned that the project obtained a positive assessment of the Ecological Expertise of the State Committee of Nature Protection of the Republic of Uzbekistan.

Some persons confirmed: Yes, we got summaries and read them

Others: And we got nothing and haven't read.

Mrs. Homova: For those who haven't got our summary on EIA report I give a brief information about EIA and ecological benefits of CCPP erection:

After introduction of CCPP at "TASHTPP":

- concentration of nitric oxides in flue gases of CCPP makes up 25 ppm, that is 6 times less than emission of power units 11 and 12 being dismantled. Decrease of discharges of polluting

substances to atmosphere is obtained on expense of provision of CCPP combustion chamber with dry nozzles, which permit a homogeneous combustion of fuel with a low temperature flame;

- concentration of harmful substances ($\text{NO}_2 + \text{SO}_2$) in the area of impact of "TASHTPP" will decrease from 1.6 MAC to 1.4 MAC, at the same time contribution of CCPP to level of atmospheric pollution makes up 0.07 MAC against contribution of actual boilers being dismantled – 1.17 MAC;
- on account of stoppage of boilers No. 11 and 12 discharges of mazut ashes will decrease by 225.3 t/year;
- fuel saving makes up 396 thous.t/year and, in correspondence emission of CO_2 , as a main greenhouse gas, will decrease by 640 thousand t/year;
- specific fuel flow at CCPP makes up 225 g/kWh, that is by 158 g/kWh less than actually at DC "TASHTPP" ;
- water consumption for CCPP needs by 3903.6 t/h less than at 2 power units being dismantled;
- discharge of thermal waters to Boz-su canal will decrease by 3473.6 t/h against discharges from power units being dismantled;
- maximal increase of water temperature in Boz-su canal will not exceed 5°C (at present effluents of DC "TASHTPP" lead to temperature increase in average by $6-9^\circ\text{C}$);
- volume of vanadium containing solid wastes will decrease on expense of decrease of mazut consumption, at the same time impact on underground waters located close to the surface will reduce, in the area of location of main structures of "TASHTPP".

Erection of CCPP will be managed so that to reduce to minimum unavoidable and short-term impacts (smoke, noise, vibration, dust, dirt) of building works on local inhabitants, in particular, noisy works will be made in day time in certain hours and a schedule of supply and transporting of materials to construction site will be established in order to avoid violation of traffic.

Mrs. D. Mahkamova: If everything is so nice why we've gathered here? CCPP will be built anyway independently from our opinions: we agree or disagree.

Mrs. Homova: The reason of our meeting is to inform people about CCPP and to prevent anxiety: What's being built here? Will it worsen our lives, our health? Will it change our traditional life conditions, the environment and landscape, traffic, green areas, forms of employment, usage of lands, etc? However, I have to note that none of you came to mahalla committee or Housing & Communal Service and asked no questions either in verbal or written form. I understand that you have personal life problems and don't have that much time to get a full information, that's why we make this meeting – to answer all your questions. And I'd like to note your interest and the fact that you are not indifferent to the forthcoming erection of CCPP. I see certain anxiety about noise,

emergency situation and ecological problems linked to introduction of CCPP and I hope you have got full answers on your questions.

Some opinions of the people present: "We shall see soon if everything is so nice as you guarantee"; "We should be happy that exactly at "TASHTPP" will be installed modern equipment as there are stations with more obsolete equipment".

Mr. Iadgarov made a conclusion of the meeting with population within framework of public hearing. He asked the participants to inform their family members and neighbours about this meeting and issues discussed.

The meeting with public is over.

Chairman of the meeting
Deputy Chief Engineer of DC "TASHTPP"

I. Iadgarov

Secretary, Engineer of Ecology Dept. of Tep

D. Djalalova

Tashkentskaya Pravda

Regional public-political newspaper

No.84 15th of October, 2003

Social partnership

Everything is clear now

The results of environmental impact of DC "TASHTPP" were discussed
at public hearing

Only two power units of DC "TASHTPP" from twelve were discharging to atmosphere 225 tones of ash annually. No more discharges now. And this is just the beginning...

The large thermal power plants make up the basis of electric power industry of our country. They ensure 87 % of demand in electric power in Uzbekistan. One of the biggest entities of the power-engineering sector is located in Kibray region, it's Daughter Company Tashkent Thermal Power Plant (TPP). Total capacity of all twelve-power units of this power giant - 1860 MW. Annually only two of twelve units of the power plant discharged to atmosphere 225.3 tons of heavy oil ashes, and also 640 thousand ton/year of carbon dioxide. To Boz-su canal these two power units discharged 3473.6 tons of thermal waters per one hour, and this brought to increase of temperature in the canal by 9 degrees and led to loss of useful micro-organisms and fishes.

Now situation in the area close to DC "TASHTPP" changes radically. Japanese Agency of International Cooperation JICA has elaborated a project of modernization of the power plant. The project foresees substitution of two existing power units at the first stage by one combine cycle power plant (CCPP) 370 MW. The JSC "Teploelectroproekt" has elaborated a detailed assessment of the status of environment before modernization of the plant (indices of impact of two old boilers on environment are above mentioned) and after completion of works. Today while making an interview with the correspondent of "TP" Chief of Department of Ecology of JSC "Teploelectroproekt" Mrs. Tatyana Khomova retells about this interesting project.

After installation of CCPP at DC "TASHTPP", as our ecological estimation shows up, status of the environment of the Republican capital and its suburbs is considerably improved: concentration of nitrogen oxides in flue gases of CCPP will decrease by more than 6 times. Decrease of emissions of harmful substances to the atmosphere is reached at the expense of provision of combustion chambers of CCPP with so-called "dry" nozzles, which permit to provide homogeneous combustion of fuel with low temperature flame. Thus concentration of the basic harmful substances – nitrogen dioxide and sulphur dioxide - in the affected area of DC "TASHTPP" will decrease from 1.6 MAC (maximum allowable concentration) to 1.4 MAC. Share of new CCPP in pollution of the environment makes up 0.07 MAC against "contribution" of two dismantled units – 1.2 MAC. CCPP is also very economical, and it is clear, if consumption of fuel decreases also discharge will decrease. Fuel saving will be about 396 thousand tons per year.

- I remember, the ecologists were alarmed by great amount of discharges containing vanadium?

Volume of discharges containing a vanadium, at the expense of loss of flow of heavy oil will reduce approximately by 1.5 times, thus a harmful effect on underground waters close to a surface will decrease.

- CCPP means also not so extreme temperature and pressure, as it is at old power units?

Certainly, a probability of emergency situations will decrease at the expense of more favorable thermodynamic characteristics of CCPP and provision of automated control systems and monitoring.

- Will the project call any claims on behalf of inhabitants?

Construction of CCPP will be managed so that to make to the minimum inevitable and short-term impact (smoke, noise, chattering, mud) of construction works during modernization. In particular, there will be limitation in time of realization of noisy operations by daytime and there are will be worked out a schedule of deliveries of materials in order to prevent violation of traffic. It is done in compliance to insistent requests of ecologists. And our estimation has shown that introduction into operation of CCPP at DC "TASHTPP" will reduce an anthropogenous load on an environment.

- **Results of environmental impact of modernization of DC "TASHTPP" were discussed on public hearing held on at a certain stage - on June - August of current year. It, perhaps, the first initiative in the country - in Soviet times people were not informed beforehand about such initiatives**

Purpose of conducting of public hearing: definition of impact of works linked to modernization of DC "TASHTPP" on public, possible changes in environment and social economic and social cultural spheres. Such activity as work with population in Uzbekistan only starts.

At the first stage JSC "Teploelectroproekt", SJSC "UZBEKENERGO", representatives of DC "TASHTPP", local authorities, mahalla committee, JICA and population itself have agreed upon terms of conducting of public hearing.

At the second stage summary of EIA report about the modernization of DC "TASHTPP", has been prepared, which contains general information for everybody, and scope of more detailed familiarization with materials of the ecological and environmental impact. Materials were available at DC "TASHTPP" premises and at mahalla committee. Also request to the inhabitants to express any opinion on given information has been made. The summary was printed in 200 copies in Uzbek and Russian languages and was distributed to the inhabitants of the area close to DC "TASHTPP"

- **Yes, but I don not remember that the project was accompanied with such ceremonies....**

And this is not all! Then, the workers of our organization and DC "TASHTPP" conducted the questioning and opinion gathering, on the results of EIA report. Next, at the conference hall of DC "TASHTPP" we arranged a general meeting of Public Hearing participants. The place of meeting was prepared beforehand and ready to place all people who want to take a part in the discussion.

- **And how this uncommon action was held?**

The participants showed their direct interests to this matter: they asked a questions regarding noise impact of CCPP, emergency conditions, environmental problems producing by CCPP operation. The project designers gave full and comprehensive answers for their questions. Also, it is important, that the participants were informed on the figures of environmental conditions at present, before and after modernization. Thereby, after Public Hearing, it became not only the resolution of local matters about the project, but also the motive for the broad discussions of ecological questions.

- **By the way, you said that, the possibility of emergence conditions were also discussed on the meeting. Do you think it is necessary?**

Of course. This is the requirement of civil society, the person have a right to be informed. The emergence risk on the new CCPP is minimized. But it is important to analyze the possible emergence conditions, the degrees of the risk of their initiation, proposed measures as to preventing the consequences. The discussion of emergencies - is a positive factor: it is necessary to know, that withholding or hiding of hazards will imply unreasonable emotions and insinuations with negative consequences of people living in this area.

- **So?**

The analyze of Public Hearing results showed, that we are not expecting the conflicts with people regarding the modernization of DC "TASHTPP" with construction of CCPP and also showed the positive attitude of public to the realization of this project. The Public Hearings gave them an opportunity to understand that the realization of this project will improve the ecological situation and social conditions of their life.

- **Is this the all action you made?**

Not at all. The ecologists also arranged the written polling of the population (all people living nearby DC "TASHTPP"). It is for 35 of individual housing estates and a lot of flats in the multistorey buildings. We wanted to estimate the main environmental components in the living area, ecological problems of DC "TASHTPP" area, also to assign the level of information distribution about coming modernization of DC "TASHTPP".

- Before asking you about the using of polling data, I would like to clarify what are they indicating at all? The arrangement of such polling action in the industrial area is for the first time, isn't it?

Yes. And that's why it is particularly interesting. According to the results the 47% of population estimates the ambient air of DC "TASHTPP" area as -satisfactory, 33% - bad, 20% - good. Water quality: 52% - good, 35% - satisfactory, 13% - bad. Soil - as there are a lot of farmlands in this area - the main part-55% - estimates as satisfactory, 19% - good, 26% - bad. Vegetation - 49% - satisfactory, 37% - bad, 14% - good. So, according to the above, the people have environmental problems in the ambient air, soil and vegetation. Considerable part of population - more than one-third - complaining of water quality and scarcity of water.

- And what are you going to do with this statistics?

We will try to concentrate our efforts on the matters, worrying the people.

- Do you think that they believe in such possibility?

Yes! The 53% of population are waiting for the developments and amendments of the environment and their health after the modernization. Only a smaller part is challenging that there will be some changes and 7% - do not believe at all. So the statistic is in our favour. The 11% are wishing us to be successful in the modernization of DC "TASHTPP" that is very helpful.

Thereby, the Public Hearings became a source of important information of public positive moods regarding the modernization project of DC "TASHTPP". Now we are sure, that people not only recognized the ecological problems, but also raised the responsibility of each person to his mahalla committee and living area. It is important, that every people feel that they are taking part in economic activity, also raised the confidence to the governmental bodies. This is already the thing our President is calling on. The basis of representative democracy and social partnership is formed. Now, the ecologists and publicity will work hand in hand in the realization of other technical projects.

U. Petrov

4.4. Summary of Transport Route Survey

4.4.1 Purpose of this survey

The purpose of this survey is to investigate the most suitable transport route and transport cost ex place of shipment including Japan up to Tashkent thermal power plant for the materials and equipment to be utilized for construction of new combined cycle power plant.

The followings are main purposes of this survey.

- To find the most suitable transport route for heaviest 372 MT gas turbine and 200 MT generator.
- To find separately the most suitable routing for general cargo.

4.4.2 Possible route:

(1) Existing Route

Presently, following routes exist.

- a. Rail transportation ex Russian Eastern Coast, Siberian route
- b. Rail transportation ex China East Northern region, China route
- c. Inland transportation ex Iran
- d. At first ocean transportation ex Black Sea for Caspian Sea, thereafter inland transportation ex Turkmenbashi to Tashkent
- e. At first rail transportation for Baku, Azerbaijan via Black Sea, thereafter transportation by ferry ex Baku for Turkmenbashi, finally inland transportation ex Turkmenbashi for Tashkent

(2) Air Route

Besides, route by Air is as follows.

- a. Ex Japan for Tashkent via Korea:
Usual passenger flight to be used. Thus, flight possibility to be depending on cargo size, weight, and space availability at the time of shipment.
- b. Ex Luxembourg for Tashkent by cargo flight
One (1) flight /One (1) week by use of usual cargo flight. In this case, it is possible to ship cargo over 3 m length and 1.65 m height / piece that cannot be shipped by usual passenger flight.

(3) Rail transportation, China / Russian East Coast:

As far as referring cargo details, only cargo within the size of 20' & 40' Dry container can be feasible.

Regarding inland trucking, there may be possibility ex China, but no possibility ex Russian Eastern Coast. The reason is that there is no main road route exist.

Regarding inland trucking ex China, main routes exist partly, but they are not suitable for project transportation. Rather than that, there is long distance and considering the fuel of trucks, technically, it is very difficult.

However rail transportation ex Russian Eastern Coast is suitable for container cargo.

We can trace cargo positioning (location of cargo, and expected arrival date) every day by use of personal computer at our Moscow office.

There is no problem about vessel shipment ex Japan for Russian Eastern Coast and China because weekly liner service is available. Transit time is to be 35 – 40 days up to Tashkent.

In case of the shipment from South Asia, this route can be utilized.

(4) Iranian route / Inland transportation:

The next is about Iranian route. In this case, transportation ex Asia and Japan including container cargo is possible. In this case, transit time is to be approximate 40 days.

Except container cargo, if cargo weight is within 70 Mt, transportation is possible under road permission. Because the transport route is established, no big problem will occur. However the distance is long and this route should be considered for the usage of container cargo.

In this time, route survey ex Tehran for border of Turkmenistan was conducted, and it is confirmed that the condition is the same with the result of 2 years ago.

(5) Black Sea route:

Remaining is the route via Turkmenbashi. In this case, as mentioned on above, there are 2 separate routes. However the big difference from other routings is that the vessel must be chartered for Black Sea because no liner vessel is available.

With this reason, some minimum cargo volume / shipment is required to charter vessel. Minimum cargo volume for chartering must be more than 1500 FRT / shipment for the purpose. Otherwise, owner carrier require Minimum US\$150,000.00 / Shipment.

As one of 2 routes, cargo must be transshipped to river vessel (3500 DWT) at Maiupol. This vessel does not have any derrick in her, and she is considered as usual cargo vessel.

In this case, also owner carrier will not operate vessel without above mentioned Minimum

cargo volume and Minimum income for them.

However as far as such type of vessel is concerned, presently 35 vessels exist, and can meet market requirement enough.

And the vessel sails from Mariupol. Then the vessel sails for Astrakhan from Rostov via Don-Volga canal. For this navigation, 12 days are required. At there, the vessel reaches Caspian Sea. From Caspian Sea, 2 and half days are spent to reach Turkmenbashi.

Except this route, it is not feasible to transport this heavy cargo (especially for 372 MT of gas turbine).

The 372 MT of gas turbine can be transported limited up to Turkmenbashi port, but can not be transported to Tashkent by road transportation. The transportation on river is not possible in winter season because the river will be icebound.

Such icebound may be seen at an early stage or may be delayed in a season from October until April. On the ground, possible transport period should be set from May until September.

Another one is rails and inland route ex Poti port.

On rail transportation, possible cargo size is limited same as the one for Russian Eastern Coast route and China route. The limited size means the dimension that can be vanned into Dry container.

Also concerning inland transportation, too, maximum cargo weight is assessed as under 30 MT. This is the reason why available cars/equipments are limited in this area.

As to both of rail and inland portion, cargo is to be transported to Turkmenbashi from Poti port via Baku, Azerbaijan by use of ferry.

In this time, we surveyed both of rail and inland routes. The condition was the same with the result of 2 years ago.

(6) From Turkmenbashi for Tashkent:

Saying from above explanation, best way transport route is from Turkmenbashi for Tashkent. Regarding the transportation from this point, please refer Survey report that was already submitted to you.

The distance between Turkmenbashi and Tashkent is over 2000Km. In the route, there are more than 700 bridges. Some of the bridges need to be repaired.

Some asphalt roads must be repaired. However, somehow, most of them can be bearable for road transportation. Generally saying, and considering our past experiences, we can assess that Maximum 125 MT of unit is bearable to be transported on this route.

This means that gas turbine are required to be dismantled separately for transportation.

On the point, in deciding construction period, you would better leave yourselves a little

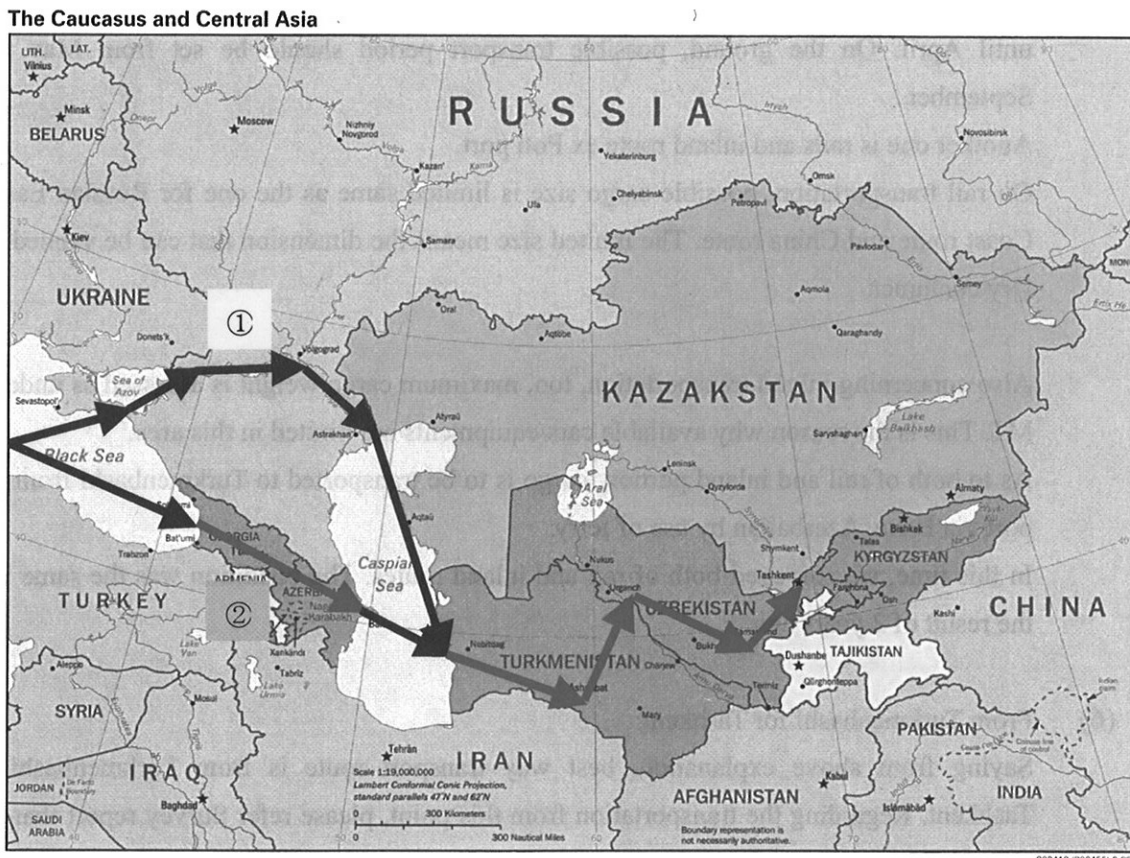
leeway. Including this cargo, getting transport permission from police and the local authority is obligated. Such permission is required for the cargo, which is over 20m length, 2.5m width, and 4m height / unit, and over 20 MT / unit.

(7) The best transport route:

Regarding transformers and generators and so on, as Maximum 125 MT / unit, most of the cargoes ex Japan are suggested to be shipped for Turkmenbashi port by use of river vessel via transshipment basis at Mariupol at Black Sea. And then, in Turkmenbashi, cargoes are to be loaded on trailers by use of shore-crane.

Except above mentioned cargoes, others are to be delivered to Tashkent from Russian Eastern Coast after stuffing operation into containers.

Figure 4.4-1 shows the best transportation route from Turkmenbashi port to Tashkent City.



- Remarks :
- Water Transportation
 - Surface Transportation
 - ① Don-Volga Route
 - ② Poti – Baku Route

Figure 4.4-1 The best transportation route from Turkmenbashi port to Tashkent City

(8) Transport Cost:

Saying from above mentioned route, and judging from conditions, total transport cost is indicated as US\$7,500,000.00. In such, ocean freight for Turkmenbashi, inland transport cost up to Tashkent, and part rail transport cost via Russian Eastern Coast, shore-crane cost at Turkmenbashi, and reinforcement cost for bridges and roads (those are already explained.) would be;

Ocean freight ex Japan for Turkmenbashi:	US\$2,300,000.00
Inland freight ex Turkmenbashi for Tashkent:	US\$2,300,000.00
Shore-crane cost in Turkmenbashi: (3 months are expected.)	US\$ 700,000.00
Reinforcement for bridges and roads and recovering	US\$ 2,100,000.00
Rail transportation from Russian Eastern Coast (Approx 20' x 30 containers as 500 M3)	US\$ 100,000.00

In the above, it includes charges for whole rental period of truck/trailer that we can foresee at this moment. However cost for obtaining road permission are excluded.