



EUROPEAN COMMISSION
DELEGATION TO
GEORGIA AND ARMENIA

Tbilisi, April 2006
TH/mvr

EC REHABILITATION PROGRAMME FOR THE GEORGIAN-ABKHAZ ZONE OF CONFLICT

Phase I – Start end 2005 - ongoing

Executive summary

The European Commission is financing a comprehensive EC rehabilitation programme for the Georgian-Abkhaz conflict zone in two phases of each 1.98 million Euros (e.g. the first to start end of 2005 and the second in 2006) with UNOMIG and UNDP (representing other UN agencies and NGOs) as main implementing agencies.

The key objectives of this EC Tacis Rehabilitation Programme are to enhance stability and security through confidence building measures aiming at the prevention and settlement of internal conflicts and actions in favour of affected populations. The EC rehabilitation programme for Abkhazia will support rehabilitation and reconstruction operations in the conflict zone of Abkhazia and adjoining areas that would create preconditions for economic rehabilitation, especially at local level, and the safe and dignified repatriation of refugees and displaced persons.

It is important that these operations should be designed to help re-establish a working economy and the institutional capacities that are needed to restore social and political stability in the conflict zone and to meet the needs of the people affected as a whole. These rehabilitation operations could progressively complement or take over from humanitarian action and pave the way for the resumption of medium-term and long-term aid focusing on economic and social development.

✓ For the implementation of the programme the Delegation has concluded two grant agreements, e.g. one with UNOMIG in October 2005 and one with UNDP in December 2005 (the latter also representing other UN agencies and NGOs) where UNOMIG and UNDP act as implementing partners for EC rehabilitation funding in the context of the EC-UN Framework Agreement. Local and international NGOs, as well as local authorities will be involved in implementation of activities.

EU visibility should be an important political aspect of the programme in conveying EU values as integrated part of rehabilitation and confidence building measures.

✓ The target areas for rehabilitation would focus on the districts of Gali, Ochamchira, Tkvarcheli and Kodori in the east of Abkhazia as well as the Zugdidi district on the Georgian side of the cease fire line in order to help both ethnic Georgian and Abkhaz communities. Any rehabilitation activities should be undertaken with close cooperation of the UN agencies, the de-facto Abkhaz authorities, Georgian government and local and international NGOs.

The following priorities for EC rehabilitation actions are included - with capacity building and awareness rising of post-conflict resolution as integrated components (in the following districts):

Phase I of the rehabilitation programme of 1.98m Euros of 24-36 months starting by the end of 2005:

- Local electricity network (Gali, Ochamchira, Tkvarcheli, Zugdidi);
- Public health and basic services (Gali, Ochamchira, Tkvarcheli and Zugdidi);
- Local agricultural development (Gali, Ochamchira, Tkvarcheli and Zugdidi)

An overview of the activities as well as budget allocations of the first phase programme in accordance with the EC-UNOMIG and EC-UNDP agreements is set forth below:

Brief description of main activities

The following priorities for EC rehabilitation actions are included in the first phase EC rehabilitation programme for the Georgian-Abkhaz conflict zone:

The target areas for rehabilitation would focus on the districts of Gali, Ochamchira, Tkvarcheli in the east of Abkhazia as well as the Zugdidi district on the Georgian side of the cease fire line in order to help communities affected by the conflict on both sides.

1. Electricity (Gali, Ochamchira, Tkvarcheli, Zugdidi districts)

This component includes reconstruction activities of the local electricity network that covers Gali and be extended to Ochamchira and Tkvarcheli. Reconstruction of the electricity network in Gali would also benefit the electricity supply in Zugdidi district. Training and management should be incorporated into the rehabilitation operations to increase the technical and managerial capacity of staff working in the electricity sector. These EC activities will link to the main ongoing large-scale EC project on rehabilitation of the Enguri hydro power station and arch dam (total budget 9.4 million Euros).

2. Public health and basic services (Gali, Ochamchira, Tkvarcheli and Zugdidi districts)

This component includes the rehabilitation of the four local hospitals in Ochamchira, Tkvarcheli, Gali and Zugdidi. By working on regional level the EC support would complement the village-based UNOMIG activities and thereby creating the basis for a local health services network. Assistance to ambulatories and dispensaries could also be considered.

Public health is directly linked to basic services such as water sanitation and waste management. It is therefore foreseen to link the above health care activities to the rehabilitation of water sanitation and waste management.

These operations should also cover preventive health care activities as well as training and management to increase the technical and managerial capacity of medical staff and local public administrators responsible for public health and basic services.

3. Local agricultural development (Gali, Ochamchira, Tkvarcheli and Zugdidi districts)

The local economy in Abkhazia is in stage of collapse, in particular in Gali district. Agricultural production, which is the main source of income for the local population, has fallen by 90%, while the human capacity and experience in agriculture is progressively disappearing. Most farmers in the region remain at subsistent levels. To help both Abkhaz and Georgian communities this component includes small-scale agricultural development projects at local level in Gali, Tkvarcheli, and Ochamchira districts as well as in Zugdidi district.

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The foreseen rehabilitation activities will be undertaken with involvement of the local authorities and civil society.

EU visibility is an important political aspect of the programme in conveying EU values as integrated part of rehabilitation and confidence building measures in the Georgian-Abkhaz conflict zone.

A steering mechanism has been agreed between the EC, UNOMIG and UNDP to ensure close coordination and monitoring of implementation of the programme. This steering mechanism include the set up of a Steering Committee, Working Group and Coordination Committee.

ANNEX I. THE ACTION

1. DESCRIPTION

1.1 Title

Enguri Hydro Power Plant Rehabilitation – Phase II – Unit 4.

1.2 Location

Georgia, Zugdidi

1.3 Cost of the action and amount requested from the Contracting Authority

Total eligible cost of the action	Amount requested from the Contracting Authority	
EUR 5,210,000.00	EUR 1,567,000.00	

1.4 Summary

Duration of the action	24 months
Objectives of the action	Overall objective(s): increase in Georgian domestic energy supply, reduce reliance on fuel import, support to the development of electricity market in Georgia Specific objective: rehabilitation of Enguri Hydro Power plant, increase of the plant safety and reliability.
Partner(s)	Georgia, Enguhresi Ltd, European Bank for Reconstruction and Development
Target group(s)	Georgian and Abkhazian communities
Final beneficiaries	Georgian power sector
Estimated results	Increase in electricity production from existing hydro power plant without any change in the size of the reservoir and further impact on the environment, reduction of carbon emission.
Main activities	Rehabilitation of Unit 4 at Enguri Power plant.

1.5 Objectives

Enguri HPP is the pivot of the Government strategy for the power sector acting both as a spinning reserve for peak load and network stabilisation, and a cheap source of electricity

whose energy could be blended with more expensive electricity generated from fossil energy or imports making energy affordable for most of the population.

Enguri HPP's ability to operate almost all the year long thanks to its large reservoir makes the plant also extremely valuable for the region for peak and network stabilisation reserve. Trade of expensive peak energy against base load within the region and with Turkey in particular would be lucrative for Georgia.

In the light of the achievements made recently on the existing project, the Government of Georgia recently decided to complete the plant modernisation and safety improvement programme as it was initially envisaged and to implement the "phase II" of the Enguri rehabilitation project. This decision is taking place at a critical time when all contractors are on site together with all the logistics and implementation arrangements making the continuation of the project particularly economical as contractors would not have to demobilise and most prices have been agreed following open tenders.

The completion of the Enguri project would allow Georgia to get full benefit from the previous project and in particular the components financed by the European Commission (supply and installation of the stop log). Furthermore, the additional project will bring additional capacity on the two last units (units 4 and 5) at the plant with around 500GWh additional electricity production per year (equivalent to consumption by around 80,000 Georgian households) together with higher reliability. Completion of the work on the pressure tunnel and dam galleries will further improve the plant efficiency by reducing the water leakage and consolidating the dam foundations. Repair of the water gates (thanks to the stop log) will substantially increase the plant safety.

Provisions have also been made to allow the phase II project to qualify under the Clean Development Mechanism (or "CDM"). The Bank's Early Transition Countries initiative is financing technical support to help Government of Georgia apply to the CDM. Funds raised through the CDM under the Phase II will be used in priority for meeting the Borrower's and Enguhresi's obligations under the Project. In parallel, the Government of Georgia, aware of the country's potential for mini hydro power plant will also be promoting renewable energy with the view of reducing Georgia dependence on fuel imports. To that effect, a law will be passed that will foster the development of such renewable energy.

1.6 Justification

1.6.1 Relevance of the Action to the objectives and priorities of the programme

The overall objective of the EC economic rehabilitation programme for the Georgian/Abkhaz conflict zone is to address additional needs in the conflict zone. The key objective of this Second Phase EC Tacis Rehabilitation Programme will be to enhance stability and security through confidence and peace building measures aiming at the prevention and settlement of internal conflicts and actions in favour of the local population that has been affected by the Georgian-Abkhaz conflict.

The rehabilitation of the Enguri Hydro-Power Plant directly benefits the energy needs of the population inside (as well as outside) the zone of conflict.

1.6.2 Identification of perceived needs and constraints in the target country, in particular in the region(s) concerned.

While the project may face constraints of being implemented in the unpredictable climate of a conflict zone, the rehabilitation programme at the Enguri Hydro-Power Plant also serves as a confidence building measure since the arch dam is located on the Georgia side and the power station on the Abkhaz side of the conflict zone. The first phase of the EC-EBRD co-financed project at Enguri has shown that both sides of the conflict are willing to cooperate where there is shared economic interest.

1.6.3 Description of the target group(s) and final beneficiaries and estimated number

The direct target group are Georgian and Abkhazian communities in the zone of conflict. Since the Enguri Hydro-Power plant is Georgia's largest power plant the final beneficiary is the population of Georgia, since the whole of the population would benefit from the increased capacity of Enguri after completion of the rehabilitation works.

1.6.4 Reasons for the selection of the target group(s) and identification of their needs and constraints. How does the Action contribute to the needs of the target group(s) and final beneficiaries?

The Action directly contributes to the needs of the target groups and final beneficiaries.

1.7 Detailed description of activities

In 1998, Elektrowatt from Switzerland carried out an independent review of the Enguri HPP condition and identified the following urgent investments:

Scope of Rehabilitation Work and Prioritisation of Implementation

The principal remedial works required for the dam include: (i) completion of rehabilitation of the dam instrumentation system required to provide the data needed for a re-analysis of the structural behaviour of the arch and its abutments; (ii) improvement of the drainage system (including complete replacement of the drainage water pumping system) and additional grouting in order to reduce the high uplift pressures at present being measured in the downstream abutments; (iii) surveys and investigations of possible internal erosion in part of the abutments, of which there is evidence in a number of galleries; (iv) stabilisation works, by means of anchorage and retaining walls, etc., of rock faces on the dam abutments, although the need for this work will only be shown by the proposed structural re-analysis of the dam; (v) further grouting work in the tunnel to improve the concrete/rock contact area and to prevent leakage. Short sections of steel lining are also to be installed at locations where leakage persists or where rock cover is insufficient to ensure the integrity of the concrete-lining. It was also proposed to place a PVC membrane over the last 2 km of the tunnel, where leakage is heavy; (vi) remedial work on the tunnel intake and pressure tunnel when the power station is taken out of service; (vi) at the downstream end of the tunnel the closure valves at the upper ends of these shafts are also in need of refurbishment.

Power Station detailed inventory of remedial work on electro-mechanical plant showed the need for (i) the rewinding of the stators of the generators and renewal of the generator cooling systems; (ii) replacement of much of the control and command equipment of the power house, which are in very poor condition; (iii) replacement of life-expired circuit breakers and disconnecting switches in the switchyard; (v) replacement of the turbine governors and the provision of a spare set of turbine guide vanes (vi) treatment of cracks in the spiral casings of the turbines, and renewal of corrosion protection to turbine and valves; (vi) replacement of numerous items of auxiliary power house equipment including cooling water systems, lifts

and cranes, workshops, oil treatment installations, fire detection and fighting equipment, and the stand-by diesel generator set; (vii) provision of adequate ventilation and lighting for the underground power house.

Prioritisation of Rehabilitation Program

Because of financing limitations rehabilitation work was divided into two main phases (i) urgent work which was financed under the first EBRD loan with the European Commission support to improve dam safety and increase production; and (ii) work needed to sustain the plant operation to be financed at a later stage.

Phase I

Phase 1 Rehabilitation works is comprised of the following contracts:

- Civil works on Enguri Arch Dam and the Pressure Tunnel also called Package 1. It covers foundation treatment works on the Arch Dam and the appurtenant structures, remedial civil works on the pressure tunnel, the associated access maintenance tunnels and rehabilitation of hydro-mechanical equipment and electrical equipment.
- Electro - Mechanical works on Enguri Power House – Package 2 (co-financed with the EC). Main scope of the Contract consists of the rehabilitation of three units (out of five) inclusive of generators, voltage regulator and excitation systems, low voltage equipment and accessories, unit control/protection/monitoring systems, speed governors, spherical valves operating mechanisms, supply of mandatory spare parts for all rehabilitated units and training of local personnel.
- Rehabilitation of Transformers and Autotransformers;
- Rehabilitation of Turbines and Spherical Valves;
- Design, manufacture and installation of new Stop Log and its Hoisting System for Enguri Arc Dam (financed by the EC).

Phase I of the project is almost completed with all contracts being completed with the exception of package 2 (electro-mechanical) that would be finished in mid 2007 though the first of the three units is now back into operation.

Phase II

Phase II remains in line with the project's initial objective to increase the dam safety, improve the plant reliability and increase its production. It will consist of the following activities:

- The rehabilitation of the Bottom Outlets. These devices are needed to ensure that any rise and fall of Enguri lake water levels occur no faster than one meter per day to keep within the structural design limits of the arch dam. During large rainfalls lake levels can change by as much as 4 meters per day. At present only one outlet can be operated. The other four outlets cannot operate due to breakdowns of their actuating mechanisms making the release of 1400 m³/s required in case of an emergency (i.e. flooding situation) impossible. The European Commission agreed as part of phase I to finance the supply and installation of a stop log that is now in operation making the rehabilitation of the water gates now possible.
- The rehabilitation of the last two units at the power house (units 4 and 5) will bring them back to their initial capacity, from 230 MW to 260 MW respectively. In addition, their rehabilitation will substantially increase their reliability and reduce the need and cost for maintenance.

- Completion of works on the dam foundation and grouting works in the key galleries to reinforce the dam structure and reduce water leakages.

The European Commission will co-finance the rehabilitation of unit 4; the rest of the project will be co-financed by the Bank and Georgia.

Contract for the rehabilitation of the units 1, 2 and 3 was awarded to Voight Siemens further to an open tender approved by the Bank and the European Commission. It will be extended under the same conditions (i.e. the same unitary prices), for units 4 and 5.

Repair of the water gates (co-financed by EBRD and Georgia) will be done under a new contract to be tendered in accordance with the EBRD procurement policies and rules for public sector projects.

Civil works in the dam galleries will be carried by Sakhydro selected for phase I further to an open tender approved by the Bank. The "bill of quantities" (i.e. price for each activities) will be kept identical for the contract extension.

All activities will be implemented under the responsibility of a Project Implementation Unit already established by Engurhesi Ltd and that will be maintained until the completion of the project. In addition, an Independent Engineer financed under the EBRD loan will be supervising all the project activities. Detailed implementation arrangements are covenanted and monitored under the loan with EBRD.

1.8 Methodology

1.8.1 Methods of implementation and reasons for the proposed methodology

The implementation arrangements will be similar to the ones agreed among the Commission, the EBRD and Georgia for phase I of the project. After a rather difficult start and delays due mainly to the overall political and economic situation in Georgia, progress in the project's physical implementation has been tangible and the project (as it was defined for phase I) is now largely completed.

As indicated earlier, the implementation arrangements are covenanted in the loan with EBRD.

The project will be carried out by Engurhesi Ltd, 100% State owned special purpose company that owns and operates Enguri Hydro Power Plant.

A Project Implementation Unit already established will be maintained by Engurhesi Ltd. The PIU is staffed with experts recruited further to a competitive process organised under the EBRD supervision. PIU is in charge of the project physical implementation on the behalf of Engurhesi Ltd including reporting obligations vis a vis all donors and lenders.

The Independent Engineer (IE) appointed for Phase I will also be maintained until the completion of the project's physical implementation. The IE is supervising the contractors' performances and providing independent technical inputs to the client (Engurhesi Ltd) and the contractors throughout the implementation of the project.

The Panel of Experts appointed by EBRD to provide when necessary independent opinion on detailed technical matters to donors and lenders (e.g. inspection of the dam foundations, possibility and conditions for emptying the water reservoir without compromising the integrity of dam structure) will also remain on "stand-by" until the project completion.

Finally, as part of the loan obligations, the EBRD will monitor the overall project implementation.

These implementation arrangements which have been in place for three years in their present form have proven to be extremely effective and should provide Phase II with the same level of comfort and confidence.

1.8.2 Where the action is the prolongation of a previous action, explain how the action is intended to build on the results of this previous action

Phase II project is a direct prolongation of the Phase I project for the rehabilitation of the Enguri Hydro Power plant. Technical and environmental appraisal and feasibility studies were initially performed for the whole project.

The project approved by EC and EBRD in 1998 contemplated the implementation of the most critical and urgent measures for the plant rehabilitation such as the reduction of leakages in the main galleries and water tunnel, the repair after 13 years outage of unit 3. Some measures, identified by the consultant (Elektrowatt from Switzerland) in charge of the project feasibility study, were however meant to be implemented at a later stage such as the repair of the water gates that requires the supply & installation of a new stop log (the initial stop log was lost when falling into the water reservoir in early 1990). The latter equipment was financed by the EC and commissioned in early 2006 allowing the access (and hence the repair) of the water gates.

Other measures, such as the rehabilitation of the two last units, were not included into Phase I due to the shortage of funding at the time of the phase I project appraisal.

The Phase II project will directly benefit from the lessons learned in Phase I in particular in term of project management. Furthermore, it will capitalise on the existing contractual agreements already in place (whose procurement happened to be extremely time consuming) by extending the existing agreements under the same terms and conditions to include the additional Phase II measures with the exception of the water gates that will be subject of a new tender process to be carried out in accordance with the EBRD procurement rules.

1.8.3 Where the action is part of a larger programme, explain how it fits or is coordinated with this programme. Please specify the potential synergies with other initiatives, in particular from the EC

The project for both phase I and phase II was coordinated between the EBRD and the Georgian Government with a close involvement of the European Commission.

The EBRD has been quite involved in the power sector over the past years and supported the Governments in their reform programmes.

The European Commission has previously financed 9.4 million Euros through a grant co-financing agreement with the EBRD under the phase I project for urgent repairs at the Enguri Hydro Power Plant (HPP) under the rehabilitation programme for Georgia for 1999. The programme included for two projects, firstly replacing the stoplog at the arch dam on the Georgian side and, secondly, refurbishing unit 3 of the power station at the Abkhaz side. These rehabilitation projects were also confidence building measures.

The first EC-financed project supported the rehabilitation of the Arch Dam of the Enguri Hydro Power Plant (HPP) through the replacement of the stoplog and its hoisting system at the arch dam of the Enguri HPP located in Upper-Samegrelo region. The original stoplog sank during an accident in 1994. A new stoplog was needed for the refurbishment of the valve gates of the four operational low-level outlets of the Enguri arch dam, which are in seriously deteriorating condition and leaking water from the reservoir. The project was supervised by

the PIU of Engurhesi and implemented by DSD Dillinger Stahlbau. The works were completed in December 2005 and the final testing were finalised in July 2006.

The second EC-financed project supported the rehabilitation of the Enguri Hydro Power Plant (HPP) through the replacement of unit 3 at Enguri. The works included procurement of a new generator and implementation of electro-mechanical works. The project was managed by the EBRD and implemented by Voith Siemens. The works on the new turbine Unit 3 were completed in April 2006 when the turbine was switched on and became operational again.

1.8.4 Procedures for follow up and internal/external evaluation

Standard monitoring procedures for Sovereign transaction has been and will continue to be implemented by the EBRD. A quarterly reporting on the progress of the project implementation will be prepared for the Bank and the donors. Frequent site visits will also be carried out by the Bank's engineer in charge of the project to confirm its timely implementation and address any problem that could arise.

1.8.5 Description of the role and participation in the action of the various actors (local partner, target groups, local authorities, etc.), and the reasons for which these roles have been assigned to them.

Georgia will participate into the action from different perspectives.

As a financier, it will directly contribute to the project during its implementation and until the final repayment of the EBRD loan. Through Engurhesi Ltd, 100% State owned special purpose company, it will also be responsible for the project implementation including all relationship (e.g. reporting etc) to the participants to the project.

Local authorities in Zugdidi region and local community in the plant location will also be directly involved in the project that requires their full support and cooperation.

The United Nation office in Tbilisi has always been and will remain, an active partner for the handling of relationship and discussions with local communities in Abkhazia. They were as a matter of fact involved in the drafting and implementation of the security plan prepared for the project.

1.8.6 Team proposed for implementation of the Action (by function: there is no need to include the names of individuals here)

The project implementation will be coordinated by the Project Implementation Unit established and maintained by Engurhesi Ltd under the EBRD supervision.

1.9 Estimated duration and action plan

The duration of the Action will be 24 months in total.

Year 1													
Activity	Month 1	Semester 1					Semester 2						Implementing body
		2	3	4	5	6	7	8	9	10	11	12	
Rehabilitation of unit 4													Engurhesi Ltd with Voight Siemens

Project Implementation Unit																		Enguhresi Ltd with individual consultants
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Year 2														
Activity	Semester 1							Semester 2						
	Month 1	2	3	4	5	6	7	8	9	10	11	12	Implementing body	
Project Implementation Unit													Enguhresi Ltd with individual consultants	

2. EXPECTED RESULTS

2.1 Expected impact on target groups/beneficiaries

1.1.1 the situation of target groups/beneficiaries

The project will benefit Georgia and also the community that lives close to the power plant, at the border between Georgia and Abkhazia.

Georgia will benefit from additional cheap and reliable electricity from Enguri HPP. The project (i.e. phase II) including this Action is expected to increase the generating capacity by around 500 GWh (around 4 % of the Georgian electricity consumption). In addition, the project of which the Action is part is one of the few concrete joint action undertaken by the Georgian and Abkhazian communities toward the improvement of the local economic situation.

1.1.2 the technical and management capacities of target groups and/or any partners where applicable.

Since 2003, Georgia, Enguhresi Ltd, the PIU and the local partners have proven their capabilities to successfully manage this type of projects.

2.2 Concrete outputs

The main tangible result from the project including the Action will be the increase by 500GWh of the electricity production at Enguri HPP. The project will also contribute to the increase in the plant safety and reliability. The rehabilitation of the water gates in particular will substantially increase the safety on site and mitigate the consequences of water floods.

2.3 Multiplier effects

The proposed project by its scale and size will not have a direct replication effect in Georgia. It will however serve as a good example of a regional rehabilitation programme aiming at

increasing the electricity production from existing plants, improving the safety and reliability of the plant without creating any additional damages to the environment.

2.4 Sustainability

1.4.1 The financial aspect

The rehabilitation of Enguri HPP will be substantially done when Phase II is completed. An extensive training programme for the staff, covenanted in the EBRD loan, will be implemented to ensure the sustainability of the investment programme over the time.

1.4.2 Institutional level

The Government has been committed since the Rose Revolution to implementing the project and all necessary actions have been taken to ensure the sustainability of the investment.

Addendum 1 – Expected duration of the overall project (phase II)

It is expected that also the duration of phase II will be 24 months in total.

Year 1													
Activity	Month 1	Semester 1					Semester 2						Implementing body
		2	3	4	5	6	7	8	9	10	11	12	
Rehabilitation of unit 4													Engurhesi Ltd with Voight Siemens
Works on the galleries													Engurhesi Ltd with Sakhydro
Repair of water gates													Engurhesi Ltd, partner to be selected further to an open tender.
Independent Engineer													Engurhesi Ltd with JV Elektrowatt, EdF and Stucki.
Project Implementation Unit													Engurhesi Ltd with individual consultants

Year 2													
Activity	Month 1	Semester 1					Semester 2						Implementing body
		2	3	4	5	6	7	8	9	10	11	12	
Rehabilitation of unit 5													Engurhesi Ltd with Voight Siemens
Independent Engineer													Engurhesi Ltd with JV Elektrowatt, EdF and Stucki.
Project Implementation Unit													Engurhesi Ltd with individual consultants