

## TECHNICAL ASSISTANCE COMPLETION REPORT

Division: CWEN

TA No., Country and Name TA 4726 - AZE: Preparing the Renewable Energy Development Project		Amount Approved: ADB Technical Assistance Special Fund: \$500,000 Government of Finland: \$200,000 Revised Amount: \$700,000	
Executing Agency Ministry of Industry and Energy	Source of Funding Technical Assistance Special Fund and Government of Finland <sup>1</sup>	Amount Undisbursed: \$260,678.82	Amount Utilized: \$439,321.18
TA Approval Date: 12 December 2005	TA Signing Date: 26 May 2006	Fielding of First Consultants: 20 November 2006	TA Completion Date Original: 31 December 2006 Actual: Revised: 31 December 2007 31 July 2008 Account Closing Date Original: 31 December 2006 Actual: Revised: 31 December 2007 31 July 2008

### **Description**

Azerbaijan has a significant potential for the development of alternative and renewable sources of energy. Initial surveys suggest that the Absheron peninsula has a good potential for wind energy, while the mountainous areas in the North and South-West, including the Nackichivan exclave, are endowed with attractive small-scale hydropower resources. However, this potential has not been satisfactorily quantified to date, nor systematically analyzed for its real potential for electricity generation.

Development of renewable and clean energy sources to provide direct benefits to the rural poor is a priority of the energy policy of ADB. Accelerating rural development by strengthening regional infrastructure and services is a strategic focus of its country program. Accordingly, ADB supports the Government's initiative to develop a priority renewable energy project with the overall goal to reduce the regional imbalance in economic growth with reliable and environmentally clean energy supply

### **Expected Impact, Outcome and Outputs**

The envisaged project impact will be a reduction of the regional imbalance in economic growth with reliable and environmentally clean energy supply. The desired technical assistance (TA) outcome will be an arrangement on project design, feasibility study, and implementation arrangements. The TA outputs include technical assessments and project design reports.

### **Delivery of Inputs and Conduct of Activities**

The TA was divided into two distinct phases: Phase 1 dealt with the identification and selection of priority investment projects. In Phase 2, the selected investment projects were to be further developed and optimized to prepare project implementation.

The consultancy service contract for the implementation of the TA was awarded to a consortium of firms (the Consultant). The contract was effective on 6 October 2006. The Consultant commenced their field work in mid November 2006. The consulting service was actually completed by March 2008. The consultants' performance was satisfactory.

The performance of the Executing Agency, Ministry of Industry and Energy (MIE), was less than satisfactory. MIE received limited inputs due to lack of leadership, professionalism, skilled people, and adequate counterpart support as envisaged.

ADB fielded an inception mission, a review mission, and a consultation mission during January to December 2007. Two consultation workshops were held in Baku, Azerbaijan, in October and December 2007, respectively, to present to the Government the consultant's findings and recommendations. The Government highly recognized ADB's efforts in pursuing renewable energy development, and considered ADB's performance as satisfactory.

### **Evaluation of Outputs and Achievement of Outcome**

A total of 43 potential small hydropower sites all over Azerbaijan were identified, analyzed, and crosschecked, and 21 sites were considered as technically feasible. Among them, 4 projects were extraordinarily attractive and

<sup>1</sup> Through the Channel Financing Agreement (Technical Assistance Program) between the Government of Finland and the Asian Development Bank.

recommended to be included in the proposed investment project. The proposed investment project includes the construction and operation of 4 small hydropower plants with a total installed capacity of 10 megawatts (MW) and estimated costs on the infrastructure part at around \$25 million. In view of private sector participation, the consultant team also prepared and drafted two documents on (i) Standardized Power Purchase Agreement (PPA); and (ii) Connection Agreement (Grid Code).

Development of renewable sources including hydropower, wind, solar, and biomass is expensive compared with conventional energy sources. It is therefore necessary for the Government to create favorable promotion policies in this sector such as tariff subsidies and tax exemption. The consultant's feasibility study identified that investment in small hydropower projects will be financially viable, with Government's supporting tariff policy and other incentive instruments.

The Government wished to see renewable energy development by the private sector, without public budget support. However, with a financial rate of return in the magnitude of 14% and the lending terms prevailing among commercial banks of 12-20%, made it difficult to attract the private sector to invest into small hydropower. Furthermore, the institutional, regulatory, and tariff environment did not provide enough incentive for private sector investment in the short-term. In the absence of a clear preferential and published tariff policy for renewable energy projects of around 6 cents/kWh, with a standardized PPA that establishes the obligations of the buyer and seller, it can be envisaged that the private capital will not be forthcoming for investment in renewable energy development. The MIE expressed that further consultations among the Government will be required prior to making final decisions on investment.

Although the TA did not result in an investment project immediately due to the Government's concerns on investment modality, it completed the envisaged deliverables, prepared a suitable investment project, and set sound foundation for future small hydropower development in the country.

### **Overall Assessment and Rating**

The TA has been partly successful in achieving the objectives set out. While the consultants were able to submit various deliverables on paper, the proposed investment project has not yet been realized.

Although development of renewable energy is one of the Government's strategic priorities in the energy sector, it is premature for the private sector's full participation and operation in the renewable energy sector, due to less attractive institutional, regulatory, and tariff environment. It is envisaged that further debate will happen within the Government and it might be a slow progress on the way forward.

### **Major Lessons**

To promote renewable energy project development, a sound institutional, regulatory, and tariff environment is a prerequisite. The Government's intention and readiness of proposed investment projects shall be carefully assessed, prior to implementation of such PPTA.

Successful demonstration of renewable energy by a government entity serves as a catalyst to spark private sector interest. It is theoretically possible for some mechanism to be found to channel ADB funds to the private sector, but in the absence of necessary institutional framework, this option will result in long delays, difficult negotiations, uncertainty about the allocation of credit risks, and, in the absence of a sovereign guarantee, the much higher interest rate would provide little rationale for ADB lending.

Weak institutional capacity in the Government affected implementation and output. Although imparting on-the-job training and developing capacity of counterparts was one of the key outputs of consultants, fewer institutions capitalized on this opportunity. The Government counterpart staff had less motivation and proactive approach. MIE, as a key regulator of the renewable energy sector, needs more efforts to build its capacity.

### **Recommendations and Follow-Up Actions**

The Government needs to develop a clearly defined sector road map and investment plan. To implement renewable energy investment projects, the Ministry of Finance shall provide the necessary sovereign guarantee, and pass the credit risk on to AzerEnergy, the only public sector entity that has the technical capacity to implement an ADB-financed project.

With the support from ADB and other donors, the Government has developed ambitious renewable energy development policies. ADB continues its dialogue with the Government and AzerEnergy in pursuing renewable energy development and energy efficiency program. It is recommended that ADB provides continued assistance to further strengthen AzerEnergy's capacity and push forward investment projects of small hydropower development.

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