7.11 MW BULAM HYDROELECTRIC POWER PLANT
Gold Standard Passport

CONTENTS

SECTION A. Project Title

7.11 MW BULAM HYDROELECTRIC POWER PLANT
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SECTION B. Project description

Bulam Weir and HEPP Project is located in Southeast Anatolia, in the province of Adiyaman, on the Bulam river - a tributary of the Firat River. The project location is approximately 35 km from the city center of Adiyaman and 12 km from Kocali village, near the highway joining Adiyaman Celikhan Malatya.

The project purpose is to generate energy from the Bulam River water flow.

A weir will to be constructed at 1,240 meters riverbed elevation and deviated water flow used for generating energy at 1,073 meters elevation downstream. The Bulam Weir and HEPP project consists of a transmission pipe, energy tunnel, forebay, penstock and powerhouse.

The original project design and license issued was for a 9MW capacity HEPP. Later, upon decision of Adıyaman Municipality to use the water from Bulam river as a source for drinking water to Adıyaman, installed capacity of the Bulam HEPP has been reduced to 7.11 MW and expected annual electricity generation has reduced to about 44.2 GWh until end of 2015 and 32.4 GWh after that time due to supply of drinking water for Adıyaman. Based on 2007 figures, the average annual emission reduction is estimated as 24,257 tons of CO_2-t.

The initial construction of the facilities started in July 2008 with the objective to commission the plant in August 2010. The energy generated at the Hydroelectric Power Plant will be transmitted via power transmission line to Celikhan grid substation, located 12 kilometers away at the northeast of the project site The transmission line will be 12 km long, double circuit, 34.5 kV, 2 x 3/0 AWG conductors.

Figure 1. General View of Bulam Project Location

SECTION C. Proof of project eligibility

C.1. Scale of the Project

Project Type	Large	Small
	☐	☐
	☐	☐

	☐	☐
	☐	X
	☐	☐

	

C.2. Host Country

TURKEY

C.3. Project Type

Project type	Yes	No
Does your project activity classify as a Renewable Energy project?	x	☐
Does your project activity classify as an End-use Energy Efficiency Improvement project?	☐	x

Project activity involves construction of a run-of river hydroelectric power plant for electricity generation. Project category is included in the sectoral scope 1 “Energy Industry – Renewable Sources” according to the UNFCCC definition.

Pre Announcement	Yes	No
Was your project previously announced?	☐	x
Subject GS VER project activity was publicly announced at the commencement of the project activity including the requirement for carbon certification emission reduction benefit.		

C.4. Greenhouse gas

Greenhouse Gas	
Carbon dioxide	**x**
Methane	☐
Nitrous oxide	☐

C.5. Project Registration Type

Project Registration Type	
Regular	☐

Pre-feasibility assessment	Retro-active projects (T.2.5.1)	Preliminary evaluation (T.2.5.2)	Rejected by UNFCCC (T2.5.3)
	x	☐	☐

SECTION D. Unique project identification

D.1. GPS-coordinates of project location

	Coordinates
Latitude	37° 58' 48.5" N
Longitude	38° 17' 46.8" E

Bulam Hydroelectricity Power Plant Project is located in Bulam Town in Adıyaman.

Bulam Weir is located just upstream of Fatopasa village. The location of the weir is indicated in 1/25,000 scale map no. M40 a2 of Şanlıurfa, at UTM UPS coordinates of 4 204 998 N 434 205 E. The location of the power house is indicated in 1/25,000 scale map no. M40 b1 of Şanlıurfa, at UTM UPS coordinates of 4 203 913N 438 201 E.

D.2. Map


PROJECT SITE
Expedia
MapPoint
MALATYA
KAHRAMAN
MARAS
ADIYAMAN
GAZIANTEP
ŞANLIURFA
NEMRUT DAĞI MILLI PARKI
Adıyaman
Ataturk Baraji
Euphrates
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SECTION E. Outcome stakeholder consultation process

E.1. Assessment of stakeholder comments

Two stakeholder meetings have been organized for Bulam HEPP. The preliminary Stakeholder Meeting was held on 13/01/ 2009 in Bulam at Akenerji Facilities Meeting Room.

Ms. Sevilay TOPÇU, Carbon Trade Project Coordinator of GTE, made the opening speech and gave brief information about the aim and objective of the meeting. Subsequently, Mr. Çağdaş ANIL, Project Engineer of Bulam HEPP introduced the project and mentioned the benefits and gave detailed information on all aspects of the project. Later, Ms. Sevilay TOPÇU, made a presentation related to climate change, carbon trade and contribution of the project to environment and sustainable development. Main consultation meeting has been organized in 17/02/2010 in Doganlı Village. The meeting agenda has been scheduled according to GS rules. Mr Evren Kaleli (GTE) has explained the purpose of meeting and agenda. After two presentations about the meeting by project engineer Çağdaş Anıl and Evren Kaleli have been made about the project and carbon certification process. Mr. Anıl has mentioned about project implementation phase, precaution and water usage during construction and operation phase. Evren Kaleli has also included results of the preliminary meeting in his presentation and issues/comments raised during local stakeholder consultation.

The concerns of the stakeholders from the Q&A round are grouped and assessed in the table below:

Stakeholder Comment	Assessment	Response to comment
Will drinking water resources be affected negatively?	Reasonable	Drinking water will be allocated at the upstream of the weir and will have priority against energy generation. In summer period, if the water flow decreases below a certain amount, the plant will not operated .
Job Opportunities	Taken into Account	About 80 people during the construction stage and 8 people during the operation is expected to be chosen from local workforce.

Tunnel work causes decrease of the drinking water in Soğukpınar. Will this problem be solved after construction?	Taken into Account	The reason of this problem is that the isolation of the tunnel has not been completed yet. After completion of the tunnel construction, it will be resolved.
Implementation of Social Responsibility Project in the region	Taken İnto account	The demands from locals for plantation have been considered by the project investor and owners have agreed to plant trees in the area allocated.
Continuation of contribution to region after construction is completed.	Responded Promptly	Akenerji has many investment and implements voluntary contributions to locals as a part of CSR policy. We have implemented some activities during construction and We'll try to implement similar activities after commissioning also but there is no solid planning for the moment. [1],

The second and the main stakeholder consultation meeting has been organized on 17/02/2010 in Doğanlı Village of the Celikhan District. Results of the main meeting has been given in section E.2

E.2. Stakeholder Feedback Round

During the preliminary stakeholder meeting, the participants the participants have been informed about the feedback round. Although one consultation meeting would be sufficient for retroactive projects, two physical meetings have been made for the proposed project.

Main meeting that substitutes SFR has been organized on 17/02/2010 in Doganlı Village The invitees have been contacted and informed letters, newspaper ads, telephone and through village heads.

Since the female participation was limited in the first meeting, second meeting has been organized in one of the villages close to the project to enable female participation. DOE representative have also been invited to the meeting and participated to the meeting.

[1] http://www.akenerji.com.tr/_UserFiles/File/FaaliyetRaporlari/AKE_Akenerji_FRAT_08.pdf

The meeting has been opened with introduction of the purpose of the meeting and presentations about project and climate change carbon certification has been made which also includes a summary of the comments received in preliminary meeting.

In general, meeting has been assessed as satisfactory by the local people. Project has been evaluated as positive by all participants who have filled and returned feedback forms. The main concern about the project has been raised by land owners in the region who drains irrigation water for tobacco growing. The farmers have emphasized that they support project implementation as long as they have access to water resources for irrigation.

After presentations, questions of the locals have been answered by speakers and the SD matrix has been discussed. Issues raised during meeting and responses are as below;

Ercan Turan (Governor of Celikhan): Thanks for the information and meeting. IT sure that this project will serve national economy and reduce foreign dependency. You mentioned about job opportunities provided to locals , can you provide more specific information about number of local recruited? Also, we expect continuation of contribution to locals after project construction is completed as a part of CSR activity. Would you consider plantation around the region? During construction, it has had some impacts on locals like traffic congestion but locals have tolerated these impacts as they have expectations from this project and they rely on this project.

> **Feramuz Ataoglu (Project Manager):** Directorate of Forestry in Celikhan and Adıyaman have visited us and asked if we can consider planting tree in the region. We have discussed this issue with our managers and they have approved this. We have requested from Directorate of Forestry to allocate us a proper place so that we can plant trees.

Ercan Turan (Governor of Celikhan): Can these plants bee hazelnut or walnut trees which will also provide income to locals?

> **Feramuz Ataoglu (Project Manager):**It can be but the Directorate of forestry will decide on the species to be planted. They'll allocate the land we'll made amenajman in the site. We'll continue to contribute to the locals directly and indirectly. We'll recruit at least 8 people during operation and prefer to recruit local as much as possible provided that they have the required skills or capacity. We'll also recruit support and security staff but this is usually carried through outsourcing. We'll also request them to recruit local people and I guess they'll also prefer to recruit locals.

Ercan Turan (Governor of Celikhan): There exists fish species in the river, will they be affected by the project activity?

> **Feramuz Ataoglu (Project Manager**): We have built a fish passage in the weir, it may seen from the pictures shown during presentation. This is required by DSI in all projects

Ercan Turan (Governor of Celikhan): How will you measure or change the water flow from fish passage?

> **Feramuz Ataoglu (Project Manager**): AS per the design, we cannot have any interference on the amount of water. The level of fish passage will be about 30cm below the weir body so that there will be continuously and free flow.

Local Participant: Have considered building a wind power plant here?

Feramuz Ataoglu (Project Manager): We have WPPs in other regions but it depends on wind capacity.

Local Participant: We irrigate our lands during summer, how will it affect our lands?

Feramuz Ataoglu (Project Manager): The project design has been made considering drinking water and irrigation water demand in the region. Initially, the project capacity was higher but it has been reduced considering existing and future demand for water.

Local Journalist: I have two questions. What measures will be taken for your conveyance line if there exist road expansion in the future? Also, in some parts, road ground has collapsed or seems to be collapsing. There are two construction studies in the region, your project and another construction in the Pınarbasi region. Why haven't you taken any measure for preventing collapsing.

Feramuz Ataoglu (Project Manager): I don't agree your statement about collapsing road due to our project activities.

Local Journalist: I was informed in that way?

Feramuz Ataoglu (Project Manager): Let me show you on the map(Project layout and map is shown on projection device a). This is the region we work, our weir construction and plant facilities. This is the collapsed region. We have no activity in the region collapsed therefore it is not due to our activities. In the vicinity of weir construction, we have made assessment and a protocol with the Directorate of Highways and built retaining walls and there is collapsed section in the area we work. We'll go for site visit after questions, we can show the regions we work, the wall we built and the collapsed regions.

Local Participant: Can you also inform us about expropriation?

Feramuz Ataoglu (Project Manager): Expropriation process is continuing. We have four parcels in doganlı village and 9 parcels around the powerhouse. Other regions are public lands. The value of the land is determined by expert group including local representatives. There has been 10 objections to the value. Eight of these objections have been finalized and the remaining two cases have been delayed due to a mistake in the report but expected to be finalized by end of the month.

Local Participant: Do you decide on the value, pay and get the ownership?

Feramuz Ataoglu (Project Manager): No, government decides on the value but we pay the amount. The ownership will be belong to public as this is a public project. We are buying on behalf of government and deliver to the government. All the payments have been made to bank accounts of owners but blocked until official procedures are completed.

Local Participant: How do you provide needs for staff (food etc)

Feramuz Ataoglu (Project Manager): Our subcontractor is doing this, but as far as I know they try to maintain a balance so they make shopping from all settlements in the region.

Local Participant: We have a house around the river bed , at the downstream of the weir which is accessed by a wooden bridge. It is flooded in the water level is high. Can you help us? This is mainly within the responsibility of Governor but may be you can help.

Ercan Turan (Governor of Celikhan): According to the regulation, there should be at least 5 houses to make an investment in that region.

Feramuz Ataoglu (Project Manager): This is not about us but we can have a look if we there is anything we can do.

Evren Kaleli (GTE): If there is no other question than we can start site visit and inform you about the project on site.

The participants have been asked to assess the project against each indicator of the SD matrix.

Finally, the meeting has been closed and the participants have been informed that they'll be able to contact project owner or developer for any issues or feedback about the project for a 60 days period and documents will be available on web page of Global Tan Energy (www.gte.uk.com). No comments have been raised until 15/06/2010 by the stakeholders about the project.

SECTION F. Outcome Sustainability assessment

F.1. 'Do no harm' Assessment

Project activities have been analyzed against questions in table 2.6 and in annex H of GS toolkit. Project is not complicit in corruption and fully respects human rights. Also, there exist no identified species under protection in the project area that will be affected negatively by the Project.

Since the Project is a run-off-river type project, it does not involve use or generation of any hazardous waste. All of the project activity is implemented considering related environmental and safety precautions. Based on the analysis, only relevant areas related to project activity are determined as labour standards and environmental protection which are assessed as given in table below.

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
Human Rights			
1 The Project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The Project is not complicity in Human Rights abuses.	Not Relevant. Project activities are not expected to cause any human rights abuse. Turkey has ratified European Convention on Human Right in 10/03/1954[2].	Low	No mitigation measure is required for this indicator
2 The Project does not involve and is not complicit in involuntary resettlement.	Project does not involve any resettlement..There exist a small	N/A	No mitigation measure is required for this indicator

[2] http://www.istanbul.gov.tr/?pid=9218 (Accessed on 31/08/2009)

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
	amount of private land which is expected to be expropriated (Revised Feasibility Report Section 6.2)		
3 The Project does not involve and is not complicity in the alteration, damage or removal of any critical cultural heritage.	Project does not have any impact on cultural heritage or protected area.[3]	Low	No mitigation measure is required for this indicator
Labour Standards			
4 The Project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights	Not Relevant. Turkey has ratified ILO 87 and 98 conventions .All staff recruited are employed according to the national legislations.[4]	Low	No mitigation measure is required for this indicator
5 The Project does not involve and is not complicit in any form of forced or compulsory labour.	Not Relevant. Turkey has ratified ILO convention 29 and 105 on forced and compulsory labour[4].	Low	No mitigation measure is required for this indicator
6 The Project does not employ and is not complicit in any form of child labour.	Not Relevant. Turkey is a party of IPEC* since 1992 and ratified ILO convention 138 and 182.	Low	No mitigation measure is required for this indicator
7 The Project does not involve and is not complicit in any form of discrimination based on gender,	Not Relevant. Turkey has ratified ILO convention 100 and 111 and discrimination based on gender is illegal in Turkey.	Low	No mitigation measure is required for this indicator
8 The Project provides workers with a safe and	Work Safety&Risk of accidents.	Low	All labours will be trained in terms of

[3] Bulam Hepp Feasibility Report (English Translation) Page 75

[4] http://www.ilo.org/public/turkish/region/eurpro/ankara/sozlesme/onaylanan.htm

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments	Project will be implemented in compliance with relevant National Regulations including Regulation on labour health and Labouer Safety[5],[6]		work safety and relevant safety protocols. (Monitoring Item is defined for this principle)
Environmental Protection			
9 The Project takes a precautionary approach in regard to environmental challenges and is not complicity in practices contrary to the precautionary principle. This principle can be defined as:"When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically."	All necessary measures will be taken to prevent any negative impact on environment or human health. The project will be implemented in line with relevant local regulations on management and control of noise and solid wastes [5,7]Measures will be implemented during blasting activites and recorded by relevant government agencies.	Low	Measures have been issued during blasting activities both during transport and use of explosive. Reports and records have been provided to DOE. Since the construction is completed and project is operational, no separate monitoring item has been defined.
10 The Project does not involve and is not complicity in significant conversion or degradation of critical natural habitats, including those that	There exist no protected (or proposed to be protected) or	Low	Company will comply with all national regulations and

[5] Regulation on Laborer Health and Labor Safety www.mevzuat.adalet.gov.tr/html/21663.html

[6] Bulam Hepp Feasibility Report (Before capacity downgrade), Section 6.14.3 and 6.14.12

[7] Regulation on the Control of Solid Wastes www.cygm.gov.tr/CYGM/Files/mevzuat/yonetmelik/kaky.doc

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value or (d) recognized as protected by traditional local communities	critical habitat within the project boundary as stated in feasibility report.[3]		take all precautions stated in the feasibility report and legislations.
Anti-Corruption	Not relevant. Turkey has ratified several conventions on bribery and corruption including OECD and UN conventions[8].	Low	No mitigation measure is required for this indicator

F.2. Sustainable Development matrix

Indicator	Mitigation measure	Relevance to achieving MDG	Chosen parameter and explanation	Preliminary score
*Air quality	Mitigation measure is not required for this indicator	7.A -Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources) 7.B -7.2 CO_2 emissions, total, per capita)	Parameter :SO_2 and NOx emission **Baseline** SO_2 and NOx is emitted in parallel to CO_2 due to fossil fuel combustion.	+

[8] http://www.masak.gov.tr/en/LaunderingProceedsofCrime/Chronology.htm

*Water quality and quantity	Ensuring that minimum flow will be released from the weir to protect aquatic life in the river bed and provide sufficient water for irrigation.	-	Parameter: Amount of water released and availability for locals. **Baseline** Natural flow of river Quality of water will not be affected by the project activity. Quantity of water released will be monitored continuously to ensure that minimum flow goal is achieved and ne negative impact is caused to locals.	0
Soil condition	Appropriate deposition of excavation wastes.	-	Parameter: Excavation wastes, sediment accumulation and soil erosion. **Baseline** -There exist no excavation waste(aggregate) in baseline scenario. -Soil erosion in the absence of project activity -Sediment accumulation without project activity.	0

Other pollutants	Noise during construction will be much lower than allowed limits. Waste oils will be collected and disposed as per the regulations. Waste oils will be collected and disposed in compliance with regulations.	-	Parameter: Dust, oil and noise Formation **Baseline** Natural pollutant load of the (section 7.1.12 of revised FSR)	0
Biodiversity	A fish passage will be built to enable migration and minimum flow will be released to protect natural habitat.	-	Parameter: Impact on Aquatic Life. **Baseline:** Natural habitat in the river bed.	0
Quality of employment	No mitigation action is required	-	Parameter: Number of certificates issued/trainings provided. **Baseline** No staff is recruited or trained.	0
Livelihood of the poor	No mitigation action is	MDG target 1.A (Halve, between	Parameter: Change in living	0

	required. Local people will have priority in recruitment. Project will have positive impact in terms of local income and voluntary contributions but direct impact on livelihood of the poor will be limited.	1990 and 2015, the proportion of people whose income is less than one dollar a day)and 1.B (Achieve full and productive employment and decent work for all, including women and young people)	standards of locals. **Baseline** Living standards and local income in the absence of project activity.	
Access to affordable and clean energy services	No mitigation action is required for this indicator.	-	Parameter: Fossil fuel replaced Baseline Turkey is heavily dependent on import natural gas and coal. Project will decrease dependency on import fossil fuels (Natural gas, Coal and petroleum) compared to baseline scenario.	+
Human and institutional capacity	No mitigation measure is required for this parameter.		Parameter: change in education and skillls **Baseline** None	0
*Quantitative	Mitigation	MDG target 1.B	Parameter:	0

employment and income generation	measure is not required for this indicator.	(1.4, 1.5, 1.7 Achieve full and productive employment and decent work for all, including women and young people)	Payment made to staff. Project will create new job opportunities compared to baseline scenario.	
Balance of payments and investment	Mitigation measure is not required for this indicator.	MDG target 8.D (Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term)	Parameter: Currency saving due to avoided fuel import. Project will replace fossil fuel import for electricity generation and result in net foreign currency saving.	+
Technology transfer and technological self-reliance	Mitigation measure is not required for this indicator.	MDG target 8.F (In cooperation with the private sector, make available the benefits of new technologies, especially information and communications)	Parameter: Expenditures for equipments	0

Justification choices, data source and provision of references	
Air quality	SO_2 and NOx emissions Project will decrease use of fossil fuels for electricity generation and prevent particulate matter, SO_2 , NOx and odour which form as a result of incomplete combustion. For ease of monitoring, only SO2 and NOx emissions have been selected as monitoring parameter. (Source: National GHG Inventory of Turkey http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/tur_2009_crf_13apr.zip)

Water quality and quantity	Quantity of water Since the project activity is a run-off-river type HEPP, it does not cause any pollution or change in water quality in terms of chemical, biological oxygen demand or any other pollutants. Since the project does not have any storage volume and retention time in the reservoir is very low, it will not cause any significant change in BOD of the river flow. There exist some lands irrigated by the water from the river, minimum flow will be ensured to prevent any impact on irrigation of these lands. The project design has been made considering need for irrigation and drinking water in the region. The optimization of the plant capacity has been made considering irrigation and drinking water demand in the region. Due to the projected drinking water supply for the nearby settlements, the capacity of the project has been reduced as seen from the FSR and generation license. The average natural flow has been measured as 4.121 m3/s whereas it has been calculated as 3.908 and 2.926 m3/s after excluding irrigation and drinking water supplies The minimal flow will be determined by DSI. By default, the value is 10% of the natural flow of the. From FSR (page 4-64), it is seen that average flow at weir location is fluctuating between 1.882 and 8.352 m^3/s for the proposed project whereas average flow is 3.908 m^3/s. 10% of average flow corresponds to 391 L/s which is about 21% of the minimum flow. Considering that maximum plant capacity is 6 m^3/s, average flow from the weir will corresponds to 28% of the flow. The flow for irrigation will be additional to the flow released for river habitat. Also, since as a technical constraints, since there is a lower limit for turbines to be operated(usually around 40% of design flow rate), the plant will not be operated when the flow is below 1.2 m^3/s(40% of 3 m^3/s) hence in practice flow released should be much higher. Adequacy of the flow will be assessed by an independent expert and the expert report will be submitted to DOE as a part of monitoring report. The report will include references, site observations and recommendations (if any) for decreasing the impact on river habitat. For measurement of the flow, a gauging station has been purchased by PO and installed at location determined by DSI. The station will be operated and accessible by DSI only. Data will be collected from DSI during verification period to be submitted to DOE. (Source: Feasibility Report page 1-3,1-4, 8 , 4-63,4-64)
Soil condition	Soil Pollutants Project activity involves electricity generation from renewable resources; therefore project does not have any impact on soil condition. All wastes will be collected and disposed according to local regulation. Excavation aggregates obtained during

	conveying channel construction has been used as filling material in road construction and deposited in proper places allowed by the relevant authorities. Project is implemented in a rocky area as seen from pictures therefore no significant topsoil exist however, if there exist excavation in and area having topsoil, it will be stored in appropriate locations and either donated to locals for creating cultivable land or used by company for landscaping. (Source: Feasibility Report 78)
Other pollutants	Dust and Waste Oil Project will not create any other pollutant. Since there won't be crashing&grinding works for the project, only source will be excavation which impacts an area away from the settlements and will be minimized through irrigation.[9] Waste oil will be collected and disposed as per the regulations. (Source: Feasibility Report Section 6.14.8)
Biodiversity	Impact on Aquatic Life Project site does not include any protected species. Salmon fish has been identified at higher elevations whereas carp fish is seen as a common species both of which are very common and not endemic(FSR section 7.1.6). Since there exist no significant vegetation in the project; impact on biodiversity during construction is not expected to be significant. . Also, since the minimum water flow determined according to commonly applied models is continuously released to river bed and weir design involves a fish passage built considering international standards enabling upward migration, impact on biodiversity is not considered as significant. The fish passage design is made conventional designs and implemented to secure free flow from fish passage continuously and without any interruption. The flow will be monitored using gauging stations. To ensure that the passage is functional and build appropriately, an expert assessment will be conducted when the plant is operational as defined in monitoring parameter for biodiversity. In order to enable fish migration, a fish passage having continuous flow and minimum depth of 30cm will be built in the weir. As the appropriate mitigation measures are taken during construction, the indicator was scored as zero. (Source: Feasibility Report Section 6.14.14)
Quality of	Number of Certificates

[9] Bulam Hepp Feasibility Report, Section 6.14.8

employment	Due to Health and Safety regulations and technical skills required for operating equipments, training will be provided to relevant staff. Also, some of the board operators will have training to get certificate for working at high voltage level as requested by local regulations. Trainings and certificates provided will increase their capacity compared to baseline level. Although the impact will be positive, it has been scored as "0" for simplicity and conservativeness and since the impact is limited. (Source: Certificates & evidence for trainings to be provided during verification)
Livelihood of the poor	Number of Locally recruited staff Income of local people employed in the plant will increase as a result of project activities which will also have impact on overall spending in the settlements near project site. According to State Planning Organization statistics, Adiyaman is ranked as 65th among 81 Province in Turkey in terms of development level and average per capita income is only 42% of the country average. However, since the impact is limited to the construction period and will not be significant during operation phase, indicator has been scored as "0". Project is mainly pipe and tunnel, therefore the land use will be minimum however, there will be some minor expropriations for the weir site which does not cause and resettlement. Expropriation process will be conducted by the relevant government institutions and the value determined will be paid by the investor to the land owner. If there is any conflict on value, both parties will have the right to raise objection to the value determined. (http://www.dpt.gov.tr/DocObjects/Download/3116/2003-05.pdf pages 55 an 156)
Access to affordable and clean energy services	Fossil Fuel Replaced The project will reduce dependency on fuel and energy import through use of local and renewable resources and help meet national energy demand and enable diversification in the energy supply. According to projections, electricity demand of Turkish grid will increase significantly in coming year. Therefore, this indicator was scored as positive. (Source: Capacity projection 2008-2017, http://www.teias.gov.tr/projeksiyon/CAPACITY%20PROJECTION%202008-2017.pdf figure 1., page 5)
Human and institutional capacity	Number of People attending meetings Educational activities which are not part of the usual schooling system, such as environmental training, awareness raising and knowledge dissemination will increase through stakeholder meetings. Also, project will increase human and

	institutional capacity of the workers in terms of technical skills however the impact would be limited therefore the indicator has been scored as "0".. (Source: LSC report, trainings provided to workers)
Quantitative employment and income generation	Payments made to Staff More than 100 people will be employed directly during construction and 8 people during operation. This will create a significant contribution to the local economy during construction phase but the impact during operation phase will be limited. (Source: Feasibility Report and (http://www.dpt.gov.tr/DocObjects/Download/3116/2003-05.pdf page 156)
Balance of payments and investment	Currency Saving Turkey is heavily dependent on import fossil fuel, especially natural gas which is imported, for electricity generation. Project will reduce fuel import and result in net foreign currency saving proportional to electricity generation. (Source: TEIAS: http://www.teias.gov.tr/ist2007/43.xls)
Technology transfer and technological self-reliance	Equipment Expenditures In addition to Technological skills of local suppliers and technicians are also expected to increase as a result of trainings provided by the equipment manufacturers however impact will be limited therefore indicator was scored as zero. (Source: Equipment purchase agreements)

SECTION G. Sustainability Monitoring Plan

No	1
Indicator	Air Quality
Mitigation measure	N/A
Chosen parameter 1.1	SO_2 emissions by thermal power plants
Current situation of parameter 1.1	Total SO_2 emission related to electricity generation is about

		936.1 Gg for 2007 according to National Inventory of Turkey[10]. Considering that electricity generation in 2007 is 183,339.7 GWh, SO_2 emission per MWh is calculated as 5.3 kg/MWh.
Future target for parameter 1.1		SO_2 emission reduction corresponding to 115 GWh generation is calculated as 627 ton per year.
Chosen parameter 1.2		NOx emissions by thermal power plants
Current situation of parameter 1.2		Total SO_2 emission related to electricity generation is about 202.9 Gg for 2007 according to National Inventory of Turkey. NOx emission per MWh is calculated as 1.1 kg.
Future target for parameter 1.2		NOx emission reduction corresponding to 115 GWh generation is calculated as 127 ton per year.
Way of monitoring	How	Electricity generated by Bulam HEPP and NO_X and SO_2 emission data from GHG inventory of Turkey will be used as reference in calculation of the emission reduction.
	When	Yearly
	By who	Project Owner

No		2 (FAR 1)
Indicator		Water Quality and quantity
Mitigation measure		Release of minimum flow to protect aquatic life and provide access of local people to water resources.
Chosen parameter		Flow rate of water released from the weir.
Current situation of parameter		Natural flow of river course
Future target for parameter		Minimum 10% of natural flow
Way of monitoring	How	Flow measurements from the weir and expert assessment on adequacy of flow released. A gauging station has been installed at the downstream of the weir to monitor the minimal flow released continuously. Gauging station has been purchased by project owner and installed at a location determined by DSI. Adequacy of the flow released will also be assessed by an independent expert. The expert report will include references and data relevant to local conditions and fieldwork. Any recommendations or need for additional measures will be discussed in the report. Access of locals to water resources will also assessed by the expert
	When	Continuously
	By who	Project Owner

10 http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/tur_2009_crf_13apr.zip ,Worksheet:Table1s1 **)**

No		3
Indicator		Access to affordable and clean energy services.
Mitigation measure		Mitigation measure is not required.
Chosen parameter		Avoided fossil fuel consumption
Current situation of parameter		About 6.5 million m^3 of natural gas corresponding to expected electricity generation.
Future target for parameter		Avoiding 6.5 million m^3 of natural gas per year.
Way of monitoring	How	Will be calculated using national statistics and plant generation data.
	When	Yearly
	By who	Project Owner

No		4
Indicator		Balance of payments
Mitigation measure		Decrease dependency on fossil fuel through increasing use of local resources.
Chosen parameter		Currency saving.
Current situation of parameter		In 2007, about 20.5 bn m3 natural gas been used for about 95,000 GWh electricity generation and about € 5 bn has been spent. Source: http://www.teias.gov.tr/ist2007/43.xls and http://www.teias.gov.tr/ist2007/36(06-07).xls for generation and fuel consumption. http://www.esgaz.com.tr/dogalgazfiyatlari.asp for natural gas price.
Future target for parameter		Decrease natural gas consumed for electricity generation. Approximately consumption of 6.5 million m^3 of natural gas is expected to be avoided corresponding to € 1.7 million annually.
Way of monitoring	How	Through comparing electricity generated by Reşadiye-I HEPP and natural gas that would be used to produce the same amount of electricity according to baseline scenario.
	When	Yearly
	By who	Project Owner

No		5
Indicator		Monitoring water available in Sogukpinar village
Mitigation measure		Isolation of tunnel to prevent leakages and disappearing springs.
Chosen parameter		Change in amount of water available to Sogukpinar village
Current situation of parameter		Natural flow of spring and river
Future target for parameter		Same as before project implementation
Way of monitoring	How	Interviews with locals.
	When	Continuously
	By who	Project Owner

No		6 (DNH-8)
Indicator		Quality of Employment
Mitigation measure		Recruited people will be trained for increasing technical skills and awareness about health, safety and environmental issues. Trainings will be renewed for new staff and updated as required by regulations .
Chosen parameter		Number of people trained (certificates)
Current situation of parameter		None
Future target for parameter		All technical staff working with high voltage equipments should be trained.
Way of monitoring	How	Documents for trainings and certificates issued.
	When	Annually
	By who	Project owner

No		7
Indicator		Soil Condition
Mitigation measure		Proper storage and use of aggregates from excavation works.
Chosen parameter		Soil erosion within the project site
Current situation of parameter		Erosion without project activity
Future target for parameter		Aggregates should be stored appropriately and no erosion should occur due to project activities.
Way of monitoring	How	Site investigation and interviews with locals.
	When	Annually
	By who	Project owner

No		8
Indicator		Soil condition
Mitigation measure		Sediment Passage
Chosen parameter		Sediment transport along the river
Current situation of parameter		Natural regime
Future target for parameter		No accumulation at the upstream and downstream of the weir.
Way of monitoring	How	Visual observations and pictures taken on site.
	When	Yearly
	By who	Project owner

No	9
Indicator	Soil condition
Mitigation measure	Excavation wastes during construction will be deposited in the vicinity of Kuru brook flowing down from Asagigoze village located at the downstream of weir[11].
Chosen parameter	Storage of excavation wastes in appropriate locations.

[11] Bulam Hepp Feasibility Report, Section 6.14.4

Current situation of parameter		None as there exist no excavation waste.
Future target for parameter		No accumulation at the upstream and downstream of the weir.
Way of monitoring	How	Through site visits and continuous monitoring during construction
	When	Once after completion of the construction
	By who	Project owner

No		10
Indicator		Other Pollutants –Waste Oil
Mitigation measure		Collecting waste oil and disposing appropriately
Chosen parameter		Records for waste oil generation and disposal
Current situation of parameter		None
Future target for parameter		All wastes will be collected and disposed as required by relevant regulations and company standards.
Way of monitoring	How	Review of waste oil generation and disposal records.
	When	Annually
	By who	Project owner

No		11
Indicator		Biodiversity
Mitigation measure		Release of minimum flow to protect terrestrial and aquatic life and building fish passage which achieves minimum water depth for migration.
Chosen parameter		Flow rate of water released
Current situation of parameter		Natural flow of river course
Future target for parameter		Release of sufficient flow from the weir.
Way of monitoring	How	Observing free flow from the fish passage and calculating released flow from flow data records and passage design. The functionality of the passage will also be assessed by an expert. The assessment/opinion of independent expert on effectiveness of the fish passage will be included in monitoring report. The report will include expert opinion on ; - Minimum water depth for fish migration during critical periods - Rate of change of water level and impact on fish and benthic population - Reduction in water level should not lead to drying of the water course - No isolation of fish and benthic organisms when water level decreases. Expert assessment will be supported by references and local data. Alternatives, additional measures and recommendations will also be discussed in the expert report.
	When	Once after project is completed.
	By who	Project owner

No	12

Indicator		Livelihood of the poor
Mitigation measure		Voluntary contributions to the region. Planting new trees and creating agricultural lands for locals using excavation aggregates.
Chosen parameter		Trees Planted/Agricultural area created for locals
Current situation of parameter		None
Future target for parameter		Target is planting trees for about 200ha land and using fertile soil from excavation for creating new agricultural land for locals.
Way of monitoring	How	Interview with locals
	When	Once after construction is completed.
	By who	Project owner

No		13
Indicator		Livelihood of the poor
Mitigation measure		Valuation of the expropriation land and making payments to locals
Chosen parameter		Compensation payments made for expropriation
Current situation of parameter		None as there exist no expropriation
Future target for parameter		All payments should be made to land owners
Way of monitoring	How	Through interview by locals and review of payment records.
	When	Once after commissioning of the plant.
	By who	Project Owner

No		14
Indicator		Other Pollutants –Dust
Mitigation measure		Irrigation of the excavation land and covering trucks to minimize dust formation.
Chosen parameter		Dust formation due to project activities
Current situation of parameter		Dust formation without project activity
Future target for parameter		Dust formation should be minimized to prevent disturbance around project site.
Way of monitoring	How	Conducting site visit to assess and Interview with locals to identify if any disturbance created due to dust formation related to project activity.
	When	Once after construction works are completed.
	By who	Project owner

Additional remarks monitoring

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SECTION H. Additionality and conservativeness

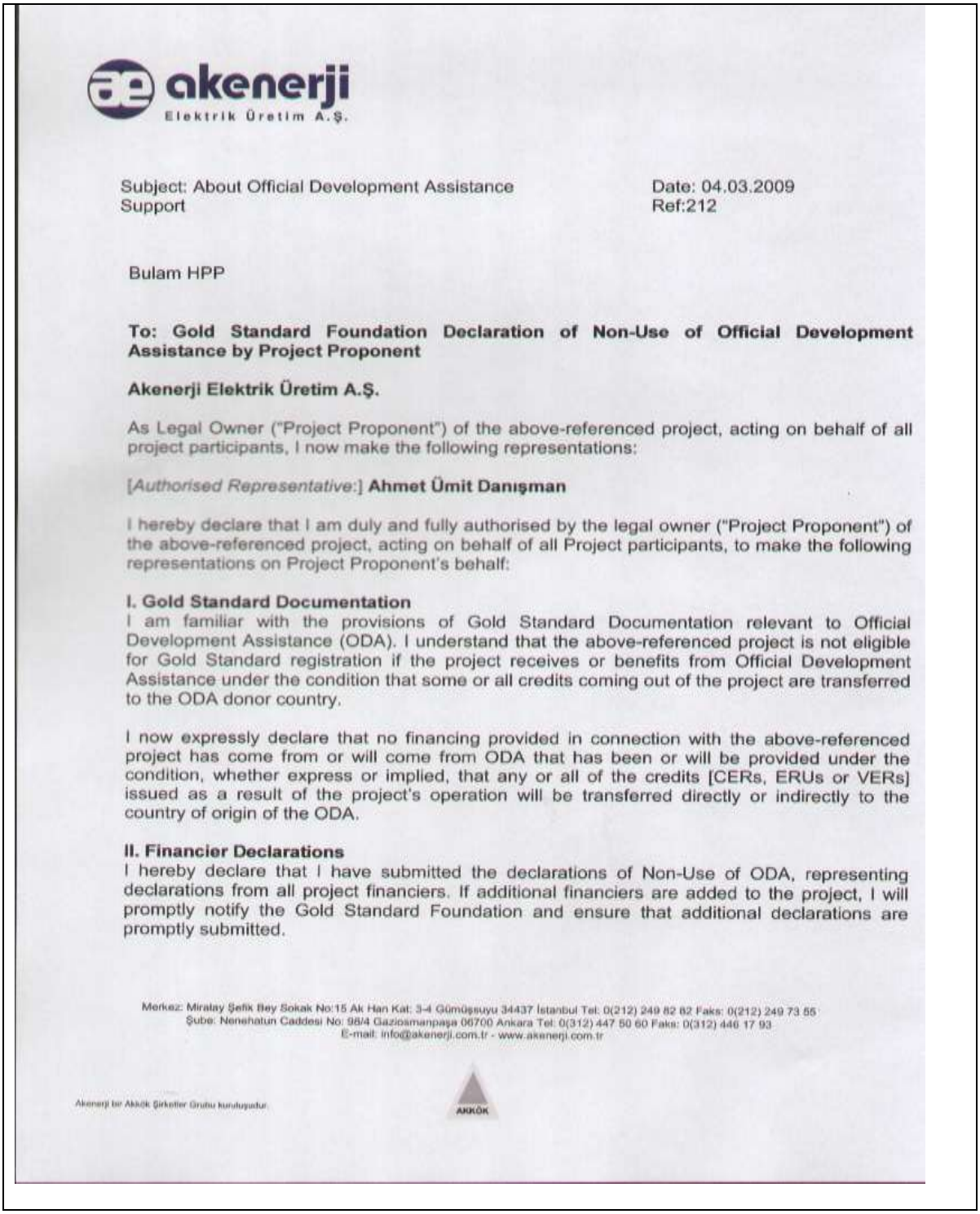
H.1. Additionality

N/A

H.2. Conservativeness

N/A

ANNEX 1 ODA declarations



akenerji
Elektrik Üretim A.Ş.

Subject: About Official Development Assistance Support

Date: 04.03.2009
Ref:212

Bulam HPP

To: Gold Standard Foundation Declaration of Non-Use of Official Development Assistance by Project Proponent

Akenerji Elektrik Üretim A.Ş.

As Legal Owner ("Project Proponent") of the above-referenced project, acting on behalf of all project participants, I now make the following representations:

[*Authorised Representative*:] **Ahmet Ümit Danışman**

I hereby declare that I am duly and fully authorised by the legal owner ("Project Proponent") of the above-referenced project, acting on behalf of all Project participants, to make the following representations on Project Proponent's behalf:

I. Gold Standard Documentation
I am familiar with the provisions of Gold Standard Documentation relevant to Official Development Assistance (ODA). I understand that the above-referenced project is not eligible for Gold Standard registration if the project receives or benefits from Official Development Assistance under the condition that some or all credits coming out of the project are transferred to the ODA donor country.

I now expressly declare that no financing provided in connection with the above-referenced project has come from or will come from ODA that has been or will be provided under the condition, whether express or implied, that any or all of the credits [CERs, ERUs or VERs] issued as a result of the project's operation will be transferred directly or indirectly to the country of origin of the ODA.

II. Financier Declarations
I hereby declare that I have submitted the declarations of Non-Use of ODA, representing declarations from all project financiers. If additional financiers are added to the project, I will promptly notify the Gold Standard Foundation and ensure that additional declarations are promptly submitted.

Merkez: Miralay Şefik Bey Sokak No:15 Ak Han Kat: 3-4 Gümüşsuyu 34437 İstanbul Tel: 0(212) 249 82 82 Faks: 0(212) 249 73 55
Şube: Nenehatun Caddesi No: 98/4 Gaziosmanpaşa 06700 Ankara Tel: 0(312) 447 50 60 Faks: 0(312) 446 17 93
E-mail: info@akenerji.com.tr - www.akenerji.com.tr

Akenerji bir Akkök Şirketler Grubu kuruluşudur.

AKKÖK

III. Financing Plan
I agree to complete and submit a sufficiently clear and transparent financing plan for the project so that during validation the Validator can assess compliance with the Non-Use of ODA requirement.

IV. Duty to Notify Upon Discovery.
If I learn or if I am given any reason to believe at any stage of project design or implementation that ODA has been used to support the development or implementation of the project, or that an entity providing ODA to the host country may at some point in the future benefit directly or indirectly from the credits generated from the project as a condition of investment, I will make this known to the Gold Standard immediately.

V. Sanctions.
I am fully aware that under Section 10 of the Gold Standard Terms and Conditions sanctions and damages may be incurred for the provision of false information related to Projects and/or Gold Standard credits.

Ahmet Ümit Danışman
General Manager
Akenerji Elektrik Üretim A.Ş.

Merkez: Miralay Şefik Bey Sokak No:15 Ak Han Kat: 3-4 Gümüşsuyu 34437 İstanbul Tel: 0(212) 249 82 82 Faks: 0(212) 249 73 55
Şube: Nenehatun Caddesi No: 98/4 Gaziosmanpaşa 06700 Ankara Tel: 0(312) 447 50 60 Faks: 0(312) 446 17 93
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Akenerji bir Akkök Şirketler Grubu kuruluşudur.

AKKÖK

ANNEX 2. GUIDANCE FOR RUN-OFF-RIVER TYPE HEPPS

Management domain	
Minimum flow which guarantees habitat quality and prevents critical oxygen and chemical properties.	Minimum 10% of natural flow will be released for the section between the weir and the HEPP. This minimum flow shall guarantee habitat quality and prevent critical oxygen and chemical properties and can be increased by DSI if necessary[12]. Expert assessment will be carried out to assess the adequacy of the project. The dynamic flow regime resulting from project implementation should lead to a minimum flow sufficient at any time to prevent dried river, isolation of fish and benthic organisms, and critical oxygen concentration, as well as to ensure fish migration and guarantee habitat quality.
No disconnection of lateral rivers.	There willl be no disconnection of lateral rivers. Project is a small run of river type Hepp. Flows of Bulam brook will be discharged back to the same brook after being used in energy production in Bulam HEPP. Continous mimimal flow will be released from the weir to protect aquatic life which will also sustain vertical connectivity.
Minimum water depth for fish migration during critical periods.	Minimum 10% of average of natural flow shall always be released from the weir, even in dry seasons when there is not enough water for energy production, which will aid aquatic life, compared to the conditions before the construction of the project. A fish passage of 1.0 m width just by the scouring sluice will be

[12] Bulam Hepp Water Right Utilization Agreement

	added at the final project phase[13]
Lateral and vertical connectivity shall not be substantially disturbed	There shall be no disconnection of lateral rivers. Since the project is a small run of river project, it does not have a large storage volume to significantly disturb the underground waters.[14]
Provides sufficient transport capacity for sediments	Through the scouring sluice planned to be 4.50 m wide just by the weir spillway, any sediments accumulating before the weir will be released to downstream.[15]
Landscape compartments shall not be destroyed. Flood plain ecosystems shall not be endangered.	Weir is implemented on a narrow valley having a rocky structure. Therefore impact on flood plain ecosystem and landscape compartment will be insignificant as the conveyance line involves tunnel so the landscape impact will be limited to powerhouse and weir location. Since the project does not have a dam but a small weir to regulate the waters of the brook, landscape compartments and flood plain ecosystems shall not be endangered by the project activity. Project has been designed considering flood flow rates in the region.[16]
Conservation of locally adapted species and ecosystems	Locally adapted species and ecosystems will not be affected by the Project. Project is located in a rocky area where there is no significant vegetation cover(FSR section7.2.9). Project activity does not have a capacity which will cause a significant change in flora/fauna or climate conditions. Measures such as fish passage, minimal flow and proper discharge of wastes will be implemented during operation period(FSR section 7.2.14)
Hydropeaking	
Rate of change of water level should not impair fish and benthic population.	A consistent flow of 10% of natural flow shall be flowing, so that there shall not be any significant change in water level. Regarding the consistency of rate of flow after the weir, the weir shall regulate and help the consistency of the flow of water.
Reduction in water level should not lead to drying of the water course.	Minimum amount of water shall be released even in dry seasons.

[13] Bulam Hepp Feasibility Report, Section 6.3.2

[14] Bulam Hepp Feasibility Report, Section 6.14.7

[15] Bulam Hepp Feasibility Report, Section 6.5.1

[16] Bulam Hepp Feasibility Report, Section 4.7

No isolation of fish and benthic organisms when water level decreases	The weir shall prevent the isolation of fish and organisms by providing a steady minimal flow, even when water level decreases.
No impairment of spawning habitat for fish	The weir will not affect the spawning habitat for fish. During construction, aggregates will be collected and disposed carefully to minimize blurring. During operation , a fish passage and continuous flow from the fish passage will be ensured to minimize impact on spawning habitat.
Reservoir Management	Since the project is a run of river power plant, it does not feature any large storage volume, but a weir to regulate the water. Unlike the dam reservoirs, a reservoir operation policy would not be applied to this project.
Sediment Management	
Sediments have to pass through the power plant.	A settling tank shall be built for sediments that can come from the Weir. At the end of the settling tank, a discharging pipe will be built to discharge the sediments into the river bed. [17]
Power Plant Design	
Free fish migration upwards and downwards.	Since there shall be always water flowing in the original river bed, free fish migration upwards and downwards shall be available. There shall be a fish passage of 1.0 m width by the scouring sluice.[18] The design of the fish passage has been made in compliance with FAO guidelines which are also translated to Turkish by DSI [19] and considering the river characteristics. In order to ensure effectiveness of the fish passage, an expert assessment will be conducted and additional measures will be implemented if necessary.
Protection of animals against injury and death stemming from power plant operations.	Necessary precautions shall be taken in the power plant to prevent injury to animals during operation. The precautions will include fences and grid screens to prevent animals from entering the reservoir area and fishes entering into conveyance line and turbines.
Social Impacts	
Cultural Landscapes	Cultural Landscapes shall not be changed.
Human heritage (including protection of special ethnic groups) and preservation of life styles.	There shall not be any social impact on human heritage and way of life since the power plant shall not be on any settlement territory. [20]

[17] Bulam Hepp Feasibility Report, Section 6.3.2

[18] Bulam Hepp Feasibility Report, Section 6.3.2

[19] www.**fao**.org/docrep/012/y4454tr/y4454tr.pdf

[20] Bulam Hepp Feasibility Report, Section 16.14.2.1

Empowerment of local stakeholders in the decision making process about mitigation and compensation of social impacts	Local stakeholders shall be able to express their views about social impacts at stakeholders meetings whereby the project owners would take the proper mitigation measures. Two stakeholder meetings have been organized during certification projects and all identified stakeholders have been involved in this process.
Resettlement of local population	Settlement of local population is not affected.
Build additional social infrastructure due to migration induced by the project.	The project would not induce any migration.
Water quality and fishing losses affecting downstream riverside population.	The downstream water quality shall not be affected, since the same water flows shall be kept downstream. Project will not have a change in water quality. Besides, the weir shall provide fishing opportunities for the local stakeholders as well as downstream population and have a positive impact in terms of fishing. There exist irrigation facilities at the upstream of the weir which are considered in project design (FSR section 4.4) but project activity will not have any impact on them since they are using flow before it reaches project activity. No significant activity exist in project site due to topography of the region(see picture below).The water demand in the downstream will be monitored

Figure : Weir location of Bulam Hepp

Figure :Powerhouse location.

Figure : Bulam Project site

Main sponsors