

# GOLD STANDARD PASSPORT

## GOLD STANDARD PASSPORT

### CONTENTS



- A. Project title**
- B. Project description**
- C. Proof of project eligibility**
- D. Unique Project Identification**
- E. Outcome stakeholder consultation process**
- F. Outcome sustainability assessment**
- G. Sustainability monitoring plan**



- H. Additionality and conservativeness deviations**



- Annex 1 ODA declarations**
- Annex 2 Special Guidance for Run of River Projects**

# GOLD STANDARD PASSPORT

## SECTION A. Project Title

Document Version: 07

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**“Kavakçalı Small Scale Hydro Power Project, Turkey”**

## SECTION B. Project description

**Pak Enerji Üretim Sanayi ve Ticaret A.Ş. (Pak Enerji)** with the financing help from Banks Group plans to invest into a Greenfield small scale hydro power plant project i.e. **Kavakçalı HPP (“project”)** which will generate electricity and feed it into the public grid. Kavakçalı HPP project shall be registered as a Voluntary Emission Reduction project in order to enable the project implementation by means of financial inflows coming from the credits sale. Because of its significant contribution to climate protection and to sustainable development in the region, this project is expected to fulfill the requirements of the Gold Standard.

The installed Capacity of Kavakçalı HPP is **8.90 MW<sub>e</sub>** and annual energy yield is estimated to be **39,021 MWh**. Proposed project activity will generate electricity using renewable small-scale hydro energy and will transfer it to the national electricity system (grid). Construction works of the project has not started yet. Akfen is now in tender process for selection of a new subcontractor. Estimated date for construction start is 15/01/2011.

The project will help Turkey to stimulate and commercialize the use of grid connected renewable energy technologies and markets. Furthermore, the project will demonstrate the viability of grid connected small scale hydro projects which can support improved energy security, improved air quality, alternative sustainable energy futures, improved local livelihoods and sustainable renewable energy industry development. The specific goals of the project are to:

- reduce greenhouse gas emissions in Turkey compared to the business-as-usual scenario;
- help to stimulate the growth of the small scale hydro power industry in Turkey;
- create local employment during the construction and the operation phase of the small hydro project;
- reduce other pollutants resulting from power generation industry in Turkey, compared to a business-as-usual scenario;
- help to reduce Turkey's increasing energy deficit;
- and differentiate the electricity generation mix and reduce import dependency.






## **GOLD STANDARD PASSPORT**

The emission reductions will be generated by substituting electricity produced from the conventional mix representing electricity generation for the Turkish grid, which to a relevant extent depends on fossil fuels. The emission reductions will be calculated based on the Combined Margin (CM) emission factor.

# GOLD STANDARD PASSPORT

## SECTION C. Proof of project eligibility

### C.1. Scale of the Project

Project Type	Large	Small
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<b>X</b>
	<input type="checkbox"/>	<input type="checkbox"/>

	<input type="checkbox"/>
---	--------------------------

### C.2. Host Country

Turkey ratified the Kyoto Protocol (on 5<sup>th</sup> February of 2009) and put in effect on 13<sup>th</sup> May 2009<sup>1</sup> but has no cap for GHG emissions.

### C.3. Project Type

Project type	Yes	No
Does your project activity classify as a Renewable Energy project?	<b>X</b>	<input type="checkbox"/>
Does your project activity classify as an End-use Energy Efficiency Improvement project?	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> See, Official Gazette:

<http://rega.basbakanlik.gov.tr/main.aspx?home=http://rega.basbakanlik.gov.tr/eskiler/2009/05/20090513.htm&main=http://rega.basbakanlik.gov.tr/eskiler/2009/05/20090513.htm> (link in 'Milletlerararı Sözleşme' part)

# GOLD STANDARD PASSPORT

Please justify the eligibility of your project activity:

“Kavakcali HPP, Turkey” is classified in the Renewable Energy Source category as electricity from non-fossil and non-depletable energy sources, in this case from hydro power, is fed into the Turkish electricity grid.

Pre Announcement	Yes	No
Was your project previously announced?	<input type="checkbox"/>	<b>X</b>
No previous announcement has been done concerning the Kavakçalı Hydro Power Project.		

## C.4. Greenhouse gas

Greenhouse Gas	
Carbon dioxide	<b>X</b>
Methane	<input type="checkbox"/>
Nitrous oxide	<input type="checkbox"/>

## C.5. Project Registration Type

Project Registration Type	
Regular	<b>X</b>

Pre-feasibility assessment	Retroactive projects (T.2.5.1)	Preliminary evaluation (eg: Large Hydro or palm oil-related project) (T.2.5.2)	Rejected by UNFCCC (T2.5.3)
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If Retroactive, please indicate Start Date of Construction  
dd/mm/yyyy: \_\_\_\_\_

# GOLD STANDARD PASSPORT

## SECTION D. Unique project identification

### D.1. GPS-coordinates of project location

Bodies of the Project	Latitude (N)	Longitude (E)
Weir	37° 4' 47.1" N	28° 39' 13.7" E
Power Plant	37° 7' 24.1" N	28° 45' 21.8" E



*Explain given coordinates*

The project site is located in Aegean Region of Turkey, within the borders of Muğla city, in Fethiye district. Location of the project is given below in the Map 1.

# GOLD STANDARD PASSPORT

## D.2. Map



Map 1: Location of the project in Turkey's Map.

# GOLD STANDARD PASSPORT

## SECTION E. Outcome stakeholder consultation process

### E.1. Assessment of stakeholder comments

#### Minutes from LSC meeting

The stakeholder meeting of Kavakçalı HPP was held on 20<sup>th</sup> May 2010, Thursday, in the garden of Village Head's Office, Kavakçalı, Ula, Muğla. Attendants of the meeting mainly included the residents of Kavakçalı village and surrounding villages. Gold Standard local expert, supporter of Gold Standard Organizations i.e. WWF, Greenpeace, Helio International, REEEP, MercyCorps were informed about project but they did not attend to the meeting.

The place of the meeting was chosen considering the proximity to the project area and surrounding settlement areas. In the garden of Village Head's office, the meeting place of the village with tables and proper shade was chosen as the place of meeting. All local people were informed about meeting in advance by local announcements and local newspaper announcements.

Before the presentation, agenda of the meeting and non-technical PDD was distributed to the participants for broader view. Project presentation and description was made by FutureCamp Turkey representative including information about project developers, the technology and operation of the power plant, estimated emission reduction amount of the plant, the importance of revenue from emission reduction, information about Gold Standard and the project characteristics which makes this project different from other power plant projects in Turkey. Before passing to blind sustainable development exercise, question and comments were taken from participants about further clarification of project.

After clarification of the project with answering questions, he presented blind sustainable exercise to the participants and wanted them to comment on each indicator as positive, negative and neutral. All the safeguarding principles were discussed during the blind sustainable exercise. After presentation some questions were raised by participants, which were answered by General Managers Saffet Atıcı and Mesut Coşkun and FutureCamp representatives. One of the most important topics raised during meeting was about potential environmental problems that can be created by the project. It was explained by Mr Atıcı that the project will have negative environmental impacts neither on the environment nor on the village. He added that the company would not support a project that will destroy the environment of the village.

Another concern mentioned by the attendants was the risk for their animals drowning in the water transmission channel. Mr Atıcı explained that they will put fences along the channel where there is risk for animals.

Attendants also wanted to assure that their irrigation channel will not be touched and there will be no water losses. The developer committed that the project will not affect the amount of

## GOLD STANDARD PASSPORT

irrigation water used by the villagers.

Attendants asked if there is cancer risk due to electricity production and transmission. Mr Atıcı explained that there is no proof in the literature showing that there is cancer risk due to electricity.

Last question was asked by Mr. Çağlar Öztürk that they want an agreement about construction won't damage the fish farm. Project Manager replied that an agreement will be signed and fish farm will be in safe.

The questions and answers are given in below section (ii. Assessment of comments). Questions and comments raised by participants were addressed in assessment of comments part.

### Assessment of comments

All comments from stakeholders were considered as serious and reasonable. An adequate answer was provided. Therefore, the single comments are not separately assessed in the table:

Stakeholder comment	Was comment taken into account (Yes/ No)?	Explanation (Why? How?)
We do not want that the project be built in our village. We are warned by some people that HEPPs harm the environment..	No	That is completely wrong information. We are not going to harm your environment or your river; we will use only some part of the river and the water used will be given back to river basin. The project area is also away from the village.
Do these plants cause cancer?	No	There is no proof in the literature that shows HEPPs cause cancer.
Is the water going to be muddy during the construction? Is the construction will be harmful for the fish farm?	Yes	As there is a possibility of increasing turbidity in the water during construction, we will have the construction work in winter to minimize the risk.
Our animals are under the risk of drowning when they want to drink water from the	Yes	We will put fences along the channel where there will be risk for animals drowning.

## GOLD STANDARD PASSPORT

open channel. Will you put fences along the channel to keep them away?		
We have an irrigation channel. Will you decrease our irrigation water coming from this channel?	Yes	We will not decrease the amount of water coming from this channel. We already got your requests and are preparing a protocol.

The other way of encouraging people to comment on the project was explained in the announcements and invitation letter as writing e-mail, calling or sending letters. Although it is explained in the announcements and invitation letter that it is possible to comment on the project by sending e-mail or just calling, there was no solid feedbacks, comments or questions by phone call or e-mail as a result of these announcements on Kavakcali HPP.

### **E.2. Stakeholder Feedback Round**

#### **1. Introduction**

The Gold Standard Organization process for VER includes two round stakeholder process. One is Local Stakeholder Consultation process which was held on 20<sup>th</sup> of May 2010. The report of Local Stakeholder Consultation Meeting of Kavakçalı HPP was submitted to Gold Standard Organization enabling the project to be listed on GS webpage. The second Consultation is Stakeholder Feedback Round which was held between 3<sup>th</sup> of November 2010 and 11<sup>th</sup> January 2011. During this 2 months period, all project information was published on web site of FutureCamp GmbH enabling stakeholder to reach and comment on the documents. The report at hand is prepared to provide respond of project developer to the comments raised by stakeholder during initial stakeholder local meeting and explain how stakeholder feedback round was held.

#### **2. Providing Project Documents for Stakeholder Access**

##### ***a. Publication of Project Documents on Website.***

While second consultation process of Gold Standard does not include a physical meeting with stakeholders, with publication of project documents, it is aimed that all stakeholders and participants of first meeting could reach the documents through internet access. For this reason;

- project PDD (in English),
- project Local Stakeholder Report (in Turkish and English),
- project Summary (in Turkish and English),
- project Gold Standard Passport (in English)

were available on internet page as <http://fc-tk.futurecamp.de/projeler/kavakcali-hes/> for two months to create opportunity for all stakeholders to reach documents. On the internet page there were different ways to direct comment to Gold Standard for project as;

- Via e-mailing to Melike Kuş who is responsible to hold stakeholder consultation meetings

## GOLD STANDARD PASSPORT

- Via Calling to Melike Kuş who is responsible to hold stakeholder consultation meetings
- Via calling Head of Kavakçalı village, which is the closest settlement to the project area (this way of commenting created to give opportunity to stakeholders to comment freely and feel that their comments will be held by an independent party)
  - b. Providing Project Documents as a Hard Copy in the Office of Head of Kavakçalı Neighbourhood.***

Project documents were displayed and provided for stakeholder for two months as a hard copy in elected Head's Office of Kavakçalı village, which was the easiest way for access of anybody.

### 3. Invitations

#### 3.1. Sending Invitation Letter to the Participants of Local Stakeholder Meeting

Invitees of initial stakeholder meeting were invited to the Stakeholder Feedback Round via e-mails and faxes. In the initial stakeholder meeting, attendants are mainly included the residents of Kavakçalı village and NGOs. Gold Standard local expert, supporter of Gold Standard Organizations i.e. WWF, Greenpeace, Helio International, REEEP, MercyCorps were informed about project but they did not attend to the meeting. Representatives of Pak Enerji were also present in order to answer related questions.

During Stakeholder Feedback round of Kavakçalı HPP, three local, three national NGOs and seven International NGOs, which were invited to the initial stakeholder meeting, were again invited for contributing their comments on the project.

As International NGOs, Gold Standard Organization, REEEP, HELIO International and MERCYCORPS were invited by e-mail and requested for their comments on the project; however there was not any response from international NGOs.

Example of invitation letter is below in English and Turkish.

#### Figure 1 Sample Invitation Letter to the Stakeholder Feedback Round for Gold Standard Validation

<b>02.11.2010</b>
<b>Subject: Stakeholder Feedback Round of Kavakçalı HPP.</b>
<b>Dear Sirs / Madams,</b>
The local stakeholder consultation process for the Gold Standard certification of the planned Kavakçalı Hydro Power Project was held on 30.06.2010 in Kavakçalı Village, Ula, UMuğla. The main element of this process was the meeting which we think was very interesting and informative. Thank you for your interest and your comments.
We herewith want to invite you to share your opinion with us during the second part of the stakeholder consultation process. The Gold Standard rules require two rounds of active stakeholder

## GOLD STANDARD PASSPORT

involvement. This second round is based on the outcome from the discussion during the meeting in Kavakçalı. The accordant documentation is available on the website at <http://fc-tk.futurecamp.de/projeler/kavakcali-hes/>

As well as in form of hard copies displayed in office of Major of Kavakçalı Village.

Published documents are; PDD, Gold Standard Passport, Local Stakeholder Consultation Report, Summary of the project

For printed material:

Kavakçalı Köy Muhtarlığı, Ula / Muğla

For detailed information regarding the project you can contact to:

**Mustafa Kemal Güngör**

Pak Enerji Üretimi ve San. Tic. A.Ş

Koza Sok. No:22 GOP / ANKARA

Tel.: 0312 408 10 00

Fax: 0312 441 68 14

e-mail: [akfen@akfen.com.tr](mailto:akfen@akfen.com.tr)

For any questions or comments regarding this process, please contact to **Melike Kuş** via below mentioned contact information. Thank you very much for your interest and participation.

**Farız Taşdan**

FutureCamp Türkiye

Çetin Emeç Bulvarı 19/18 06460, Çankaya / Ankara.

Tel: 0312 481 21 42

Fax: 0312 480 88 10

e-mail: [fariz.tasdan@futurecamp.com.tr](mailto:fariz.tasdan@futurecamp.com.tr)

# GOLD STANDARD PASSPORT

**FutureCamp**  
Türkiye

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01.11.2010

### **Konu: Gold Standard Organizasyonu, Gönüllü Karbon Azaltım Projeleri Çerçevesinde Yerel Halk Danışma Süreci Daveti H.K**

Yapılması planlanan Ula - Kavakçalı Hidroelektrik Santrali yerel halk danışma toplantısına daha önce tarafımızca davet edildiniz. Halk danışma sürecinin asıl bölümü olan yerel halk danışma toplantısı sizin de bildiğiniz gibi 20 Mayıs 2010 tarihinde Kavakçalı Köyünde düzenlendi.

Şu an halk danışma sürecinde ikinci kısma geçmiş bulunuyoruz ve bizimle proje konusunda yorumlarınızı paylaşmanızı istiyoruz. Gold Standard Kuruluşunun gerekleri, iki ayrı süreç dâhilinde halkın aktif katılımını ön görmektedir. Bu yerel halk danışma süreci, yerel halk danışma toplantısının sonuçlarına dayanmakta ve bununla ilgili dokümanlar da aşağıda belirtilen adreslerinde yayınlanmaktadır. <http://fc-tk.futurecamp.de/projeler/kavakcali-hepp-tr-TR/>

Yayınlanmakta olan belgeler: Kavakçalı HES Proje Özeti, PDD (Proje Tanıtım Dosyası), Gold Standard Pasaport, Yerel Halk Toplantı Raporu,

Ayrıca, bu dokümanları Köy muhtarlığında da bulabilirsiniz.  
Dokümanlar için: Kavakçalı Köy Muhtarlığı, Fethiye / Muğla  
Telefon: 0 536 373 86 72

Proje ile ilgili daha detaylı bilgi için aşağıdaki telefonlardan ilgili kişilere ulaşıp sorularınızı iletebilirsiniz.

#### **Mustafa Kemal Güngör**

Pak Enerji Üretim Sanayi ve Ticaret A.Ş.  
Koza Sok. No:22, GOP / ANKARA  
Tel.: 0312 408 10 00& Faks: 0312 441 68 14 & e-mail: [akfen@akfen.com.tr](mailto:akfen@akfen.com.tr)

Projeler ile ilgili yorum ve sorularınızı, e-mail veya telefon yolu ile Farız Taşdan'a iletebilirsiniz. Katılımınız ve ilginiz için teşekkür ederiz.

#### **Farız Taşdan**

FutureCamp Türkiye  
Çetin Emek Bulvarı 19/18 06460, Çankaya / Ankara.  
Tel: 0312 481 21 42 & Faks: 0312 480 88 10, e-mail:  
[fariz.tasdan@futurecamp.com.tr](mailto:fariz.tasdan@futurecamp.com.tr)

# GOLD STANDARD PASSPORT

## 3.2. Posting Announcement for Local Participants

The other way of inviting stakeholders was to post an announcement in the office of Head of Kavakçalı village, which is the closest settlement area to the project. Hard copies of related project documents were provided in the office so that local people can get access to the documents. With this way, it was aimed to reach all local stakeholders. The announcement inviting stakeholders for comments and providing information how to send comments is shown below. The internet address of published documents and presence of hard copy of these documents in the neighborhood head's office were other information on the announcement.

**Figure 2 The picture below gives views of posting announcement**



## 4. Comments Received

For local stakeholders, an evaluation form was provided with project documents that could be filled in easily to provide comments. There were no comments from the local people.

## 5. Conclusion

At the end of the period, there was no comment directed to e-mail or postal addresses provided in invitation letter. Below you can find a letter from Head of Kavakçalı which states that there were no comments regarding Stakeholder Feedback Round of Kavakçalı HPP.

As result, there was no comment during stakeholder feedback round which would require amendments in PDD.

**Figure 3 Letter of Head of Kavakçalı village and English Translation**



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**Pak Enerji Üretim Sanayi ve Ticaret A.Ş.**

Koza Sok. No:22 GOP / ANKARA  
Tel : 0312 408 10 00  
Fax : 0312 441 68 14  
E-mail : akfen@akfen.com.tr

19/04/2011

Sayın Yetkili,

Kavakçalı Hidroelektrik Santrali, Gold Standard çerçevesinde düzenlenen ikinci halk danışma süreci proje dokümanları olan yerel Halk Danışma Toplantı raporu ve Proje Özeti 02.11.2010 ile 19.04.2011 tarihleri arasında yerel halkın ve ilgililerin erişimine sunulmuştur.

Bu süre zarfında konusu geçen proje ile ilgili olarak tarafıma...0... adet yorum iletilmiştir.

Saygılarımla.

Kavakçalı Köyü Muhtarı

Şaban Gündüz



# GOLD STANDARD PASSPORT

**Pak Enerji Üretim Sanayi ve Ticaret A.Ş.**

Koza Sok. No:22 GOP / ANKARA

Tel : 0312 408 10 00

Fax : 0312 441 68 14

E-mail : [akfen@akfen.com.tr](mailto:akfen@akfen.com.tr)

Dear Sir/Madam,

Project document of Stakeholder Feedback Round of Kavakçalı HPP, namely project Local Stakeholder Consultation Report and project Summary, were provided for local people's interest during the period of 02.11.2010 and 19.04.2011.

During this period, there was "0" comment submitted to me.

With due respect,

Head of Kavakçalı village

Şaban Gündüz

Signature

# GOLD STANDARD PASSPORT

## SECTION F. Outcome Sustainability assessment

### F.1. 'Do no harm' Assessment

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low, medium, high)	Mitigation measure
<b>Human Rights</b>			
1. The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in Human Rights abuses.	The project respects internationally proclaimed human rights including dignity, cultural property.  Turkey is a party to Universal Declaration of Human Rights: <a href="http://ua.mfa.gov.tr/detay.aspx?2634">http://ua.mfa.gov.tr/detay.aspx?2634</a>	Low/none	
2. The project does not involve and is not complicit in involuntary resettlement.	According to the PIF (Project Introduction File) No settlements are too close to the project site, and therefore no resettlements are necessary <sup>2</sup> .	Low/none	
3. The project does not involve and is not complicity in the alteration, damage or removal of any critical cultural heritage.	According to the PIF, the project does not involve and is in no conflict with critical cultural heritage <sup>3</sup> .	Low/none	
<b>Labour Standards</b>			
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	The project respects the employees' freedom of association and their rights. Turkey is a party to ILO Convention 87 Freedom of Association and Protection of the Right to Organise Convention, 1948: <a href="http://ua.mfa.gov.tr/detay.aspx?5305">http://ua.mfa.gov.tr/detay.aspx?5305</a>	Low/none	
5. The project does not involve and is not complicit in any form of forced or compulsory labour.	The project does not involve any form forced labour. Turkey is a party to C29 <a href="http://www.csgeb.gov.tr/csgebPortal/ShowDoc/WLP+Repositoriy/diyih/doc/ilosozlesmetr/29">http://www.csgeb.gov.tr/csgebPortal/ShowDoc/WLP+Repositoriy/diyih/doc/ilosozlesmetr/29</a>	Low/none	
6. The project does not employ and is not complicit in any form of child labour.	The project does not involve any form child labour. Turkey is also a party to Convention	Low/none	

<sup>2</sup> Kavakçalı HEPP, Project Introduction File, page:52

<sup>3</sup> Kavakçalı HEPP, Project Introduction File, page:53

## GOLD STANDARD PASSPORT

	on Worst Forms of Child Labour since 25.01.2001. <a href="http://www.isvesosyalguvenlik.com/mevzuat/mvz240.htm">http://www.isvesosyalguvenlik.com/mevzuat/mvz240.htm</a>		
7. The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.	The project does not involve any form of discrimination in any kind. Turkey is also party to Convention on Discrimination since 1967 to prevent any form of discrimination; <a href="http://webfusion.ilo.org/public/db/standards/normes/app/app-byCtry.cfm?lang=en&amp;CTYCH OICE=0660">http://webfusion.ilo.org/public/db/standards/normes/app/app-byCtry.cfm?lang=en&amp;CTYCH OICE=0660</a>	Low/none	
8. The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments	Workers might have occupational accidents during construction and operation phase. According to the PIF of the project, during construction and operational phase of the project "Health and Occupational Safety Regulation" will be followed <sup>4</sup> . Regulation could be found under this link too: <a href="http://www.mevzuat.adalet.gov.tr/html/5116.html">http://www.mevzuat.adalet.gov.tr/html/5116.html</a>	Medium	Necessary health and safety measures will be taken during construction and operation phase, the staff will be trained to be able to work with high voltages.
<b>Environmental Protection</b>			
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 <sup>5</sup> 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."	Being small scale hydro power plant, the project has minimum impact on environment and takes precautionary approach in regard to environmental challenges. In the project, all Regulation which entered into force with Environmental Law Numbered 2872 will be followed.  On the other hand, project developer will pay a compensation fee to Forestry General Directorate for replantation of trees which would be cut during construction of the power plant.	Medium-Low	a)Precautions will be taken in order to minimize dust emissions during construction phase. b) At least the minimum amount of water will be released to river bed in order to preserve the aquatic life <sup>6</sup> .

<sup>4</sup> Kavakçalı HEPP, Project Introduction File, page:27

<sup>5</sup> The Wingspread Conference on the Precautionary Principle (1998)

<sup>6</sup> Kavakçalı HEPP, Project Introduction File, page:11-15

## GOLD STANDARD PASSPORT

10. The project does not involve and is not complicity in significant conversion or degradation of critical natural habitats, including those that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value or (d) recognised as protected by traditional local communities	The project does not involve and is not complicity in significant conversion or degradation of critical natural habitats as it is stated in the PIF page number 31-54. As explained in the 9 <sup>th</sup> safeguarding principle, negative impact of the project activity on the environment would be minimum.	Low	
<b>Anti-Corruption</b>			
11. The project does not involve and is not complicit in corruption	The project does not involve any kind of corruption. Turkey is a party to United Nation Convention against Corruption since 2006; <a href="http://ua.mfa.gov.tr/detay.aspx?15042">http://ua.mfa.gov.tr/detay.aspx?15042</a>	Low/none	

# GOLD STANDARD PASSPORT

## F.2. Sustainable Development matrix

Indicator	Mitigation measure	Relevance to achieving MDG	Chosen parameter and explanation	Preliminary score
Gold Standard indicators of sustainable development	If relevant, copy mitigation measure from 'Do No Harm' assessment, and include mitigation measure used to neutralise a score of '-'	Check <a href="http://www.undp.org/mdg">www.undp.org/mdg</a> and <a href="http://www.mdgmonitor.org">www.mdgmonitor.org</a>  Describe how your indicator is related to local MDG goals	Defined by project developer	<u>Negative impact:</u> score '-' in case negative impact is not fully mitigated, score '0' in case impact is planned to be fully mitigated  <u>No change in impact:</u> score '0'  <u>Positive impact:</u> score '+'
<b>Environment</b>				
Air quality	Due activities of trucks and excavators, there might be dust emissions during construction phase. These emissions will be minimized with precautions like watering the ground in dry season and covering the trucks carrying excavation waste	<b>MDG- 7: Ensure Environment Sustainability</b>  7.A Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources  7. B Reduce biodiversity loss, achieving, by 2010, a significant	Parameters: a) Amount of CO, NMVOC <sup>7</sup> b) Dust emission levels measured upon request of Provincial Directorate of Environment and Forestry and statement of the village head regarding dust emissions  Explanation: a) Due to avoidance of fossil fuel combustion, these emissions will be reduced in parallel to reduced CO <sub>2</sub> . Also dust emissions created during construction of the roads and channel will be decreased by precautions like watering the ground. b) Dust emissions created during construction of the roads and channel	+

<sup>7</sup> See :for CO [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=7](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=7) and for NMVOC: [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=8](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=8), respectively). Please also see justification section for the calculations.

## GOLD STANDARD PASSPORT

		reduction in the rate of loss	<p>will be decreased by precautions like watering the ground<sup>8</sup></p> <p>Baseline situation for parameters: <i>Parameter a)</i> CO: +0.143 tons and NMVOC: +0.036 tons per each GWh electricity generated.<sup>9</sup> <i>Parameter b)</i> Existing air quality in the project area</p> <p>Future target for parameters: <i>Parameter a)</i> CO: -5.58 tons/year and NMVOC: -1.42 tons/year avoidance with annual generation of the project. <i>Parameter b)</i> Compliance with local regulations and rules (Protection of Air Quality Regulation and Regulation on Controlling Air Pollution arising from Industrial Plants)</p>	
Water quality and quantity	Minimum amount of water, which is defined State Hydraulic Works (DSI), will be released to river bed for preservation of aquatic life, flora and fauna.	<p><b>MDG 7 target C</b></p> <p>“Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.</p>	<p>Parameter: Amount of water released to river bed</p> <p>Explanation: For the preservation of aquatic life in the river, at least a minimum water flow will be released from weir to the river bed</p> <p>Baseline situation for parameters: Sufficient amount of water (2,026 m<sup>3</sup>/s)<sup>10</sup></p> <p>Future target for parameter: Minimum 405 l/s of water will be released during November-March period (wet term) and 120 lt/sn of water will be released during April-October period (dry term) for the section between the weir and the HEPP.<sup>11</sup></p>	0
Soil condition		<p><b>MDG- 7: Ensure Environment Sustainability</b></p> <p>7.A Integrate the principles of sustainable</p>	<p>Parameter: a) Amount of avoided NOx emissions, b) Soil erosion</p> <p>Explanation: a)Thermal power plants</p>	0

<sup>8</sup> Kavakcali Project Introduction File, page: 19

<sup>9</sup> The unit emissions are calculated as dividing emission amount for each parameter with net electricity amount. (For CO and NMVOC emission amounts see TUIK: [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=7](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=7) and [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=8](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=8), respectively); For net electricity generation in 2008 see TEİAŞ [http://www.teias.gov.tr/istatistik2008/30\(84-08\).xls](http://www.teias.gov.tr/istatistik2008/30(84-08).xls). Calculation is further substantiated in Monitoring Plan of CM Calculation Worksheet, which is available to DOE.

<sup>10</sup> Kavakcali Project Introduction File, page: 15

<sup>11</sup> Kavakcali Project Introduction File, page: 15

## GOLD STANDARD PASSPORT

		development into country policies and programmes and reverse the loss of environmental resources	<p>leads to considerable amount of NOx emission which have negative impact to soil condition. By project activity significant amount of NOx emission will be avoided by partially switching of thermal electricity production.</p> <p>b) There might be soil erosion risk due to project activities, thus necessary precautions will be taken.</p> <p>Baseline situation for parameter: a)+ 1.651 tons with each GWh electricity generated<sup>12</sup>. b) Not applicable</p> <p>Future target for parameter: a)-64.413 tons/year avoidance with annual generation of the project. b) Soil erosion prevented</p>	
Other pollutants	b) Measures will be taken to prevent turbidity in the downstream water during construction	<p><b>MDG- 7: Ensure Environment Sustainability</b></p> <p>7.A Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources</p>	<p>Parameter: a) Noise during operation of power plant b) Turbidity that would affect fish farm in the downstream</p> <p>Explanation: a) There will be some noise because of operation of turbines in power plant. But this will not have impact on the settlement areas. b) The fish farm in the downstream would be affected from the turbidity that would be created during the construction.</p> <p>Baseline situation for parameter: a) Natural noise from trees, wind, close railway and daily activities b) Not applicable</p> <p>Future target for parameter: a) Continuation of baseline situation. b) Continuation of baseline situation.</p>	0
Biodiversity	a) Compensation payment made for plantation of new trees.	<p><b>MDG- 7: Ensure Environment Sustainability</b></p>	<p>Parameters: a) Number of affected plants b) Fences along channels</p> <p>Explanation:</p>	0

<sup>12</sup> The unit emissions are calculated as dividing emission amount for each parameter with net electricity amount. (For NOx emission amount see TUIK: [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=6](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=6)) ; For net electricity generation in 2008 see TEİAŞ: [http://www.teias.gov.tr/istatistik2008/30\(84-08\).xls](http://www.teias.gov.tr/istatistik2008/30(84-08).xls). Calculation is further substantiated in Monitoring Plan of CM Calculation Worksheet, which is available to DOE.

## GOLD STANDARD PASSPORT

	<p>b) Minimum water level will be monitored by State Hydraulic Works</p> <p>c) Putting fences along the channels in necessary areas.</p>	<p>7. B Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss</p>	<p>a) There will be tree cuts during construction of the project activity. Compensation payment will be done to governmental institution for re-plantation of trees.</p> <p>b) In order to keep animals safe, fences will be put along the channels in necessary areas.</p> <p>Current situation of the parameter: a) Not applicable b) None c) None</p> <p>Future target for parameter: a) Continuation of existing situation b) Continuation of existing situation</p>	
<b>Social Development</b>				
Quality of employment	<p>Necessary health and safety measures will be taken during construction and operation phase, the staff will be trained to be able to work with high voltages.</p>	<p><b>MDG-1: Eradicate extreme poverty &amp; hunger</b></p> <p>1.B. Achieve full and productive employment and decent work for all, including women and young people</p>	<p>Parameter: Number of employee having Health&amp;Safety Trainings</p> <p>Explanation: Project developer ensures high standard health and safety conditions for the employees.</p> <p>Baseline situation for parameter: Not applicable</p> <p>Future target for parameter: Every employee will have basic Health&amp;Safety trainings</p>	0
Livelihood of the poor		<p><b>MDG-1: Eradicate extreme poverty &amp; hunger</b></p> <p>1.A. Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day</p>	<p>Parameter: Changes in living standards, number of people living under the poverty line</p> <p>Explanation: Income generation by local recruitment with project activity will have indirect impacts to changing living standards of the local people and number of people living under poverty line.</p> <p>Baseline situation for parameter: 0</p> <p>Future target for parameters: &lt;= Baseline situation</p>	0
Access to affordable and clean energy services			<p>Parameter: Change in energy use of local people</p> <p>Explanation: The project will help to reduce high share of imported fossil fuel dependency of Turkey.</p>	0

## GOLD STANDARD PASSPORT

			<p>Baseline situation for parameter: Dependency on oil and gas imports</p> <p>Future target for parameters: Shifting some fossil fuel based electricity generation but to be conservative it is considered to be same with baseline situation</p>	
Human and institutional capacity		<p><b>MDG-1: Eradicate extreme poverty &amp; hunger</b></p> <p>1.A.Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day</p>	<p>Parameter: Change in income distributions by socio-economic groups</p> <p>Explanation: Local employment opportunities created by the project will have an impact of income distribution on different socio-economic groups of the village. Although the project will contribute to income of local people, it is not possible to monitor it, thus a neutral score will be given according to conservativeness principle.</p> <p>Baseline situation for parameter: Current income situation in the region Impact of other pp s on socio economic income distributions</p> <p>Future target for parameters: Continuation of baseline situation.</p>	0
<b>Economic and technological development</b>				
Quantitative employment and income generation		<p><b>MDG-1: Eradicate extreme poverty &amp; hunger</b></p> <p>1.A.Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day</p>	<p>Parameter: Number of employment opportunities created by the project activity</p> <p>Explanation: The project will create new employments on the project area.</p> <p>Baseline for parameter: 0.</p> <p>Future target for parameter: Local recruitments from the area</p>	+
Balance of payments and investment		<p><b>MDG-8.D Develop a global partnership for development</b></p> <p>Deal comprehensively with the debt problems of</p>	<p>Parameter: Amount of avoided natural gas to be imported</p> <p>Explanation: Turkey imports nearly all of natural gas consumed. The project will have positive impacts on balance of payments with shifting some of electricity generation from natural gas.</p> <p>Baseline situation for parameter:</p>	+

## GOLD STANDARD PASSPORT

		developing countries through national and international measures in order to make debt sustainable in the long term.	Around 105.068 m <sup>3</sup> natural gas for each GWh of electricity generated. <sup>13</sup>  Future target for parameter: -1.116 million Euro with annual generation of the project <sup>13</sup> .	
Technology transfer and technological self-reliance		<b>MDG-8.F</b>  In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.	Parameter: Total number of employee having operation and maintenance certificates  Explanation: With this project, employees will be trained on hydro power plant related issues.  Baseline situation for parameter: Not applicable  Future target for parameters: >0	0
<p><b>Justification choices, data source and provision of references</b> A justification paragraph and reference source is required for each indicator, regardless of score</p>				
Air quality	<p>Electricity generated from the hydro power plants partially substitute electricity generation from fossil fuel fired power plants that represent a large share of the Turkish grid generation mix. Thus, besides greenhouse gases, all other air pollutants (e.g. SO<sub>x</sub>, NO<sub>x</sub>), particle and VOC emissions are avoided by the project activity. For CO and MNVOC emission amount see TUIK: <a href="http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&amp;tb_id=8">http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&amp;tb_id=8</a>; For net electricity generation in 2008 see TEİAŞ: <a href="http://www.teias.gov.tr/istatistik2008/30(84-08).xls">http://www.teias.gov.tr/istatistik2008/30(84-08).xls</a>.</p> <p>According to latest official data by TUIK, CO and NMVOC emissions due to electricity generation in 2008 are: 0.143 tons/GWh and 0.036 tons/GWh respectively. As the electricity generation amount of the project is 39.021 GWh/y, the project activity is expected to avoid emissions of: 5.58 tons CO and 1.41 tons NMVOC</p> <p>Dust emergence connected to the project activity appears only for a short time during the construction phase and will be caused by digging foundations, land arrangement works and construction. Project developer takes all precautionary actions to prevent dust according the PIF and regulations<sup>14</sup>. Hence, we can conclude that there will be minimum impact of the dust emissions on the project area. Provincial Directorate of Environment and Forestry is the responsible authority for monitoring the environmental impacts of construction activities. When there is a complaint about dust emissions the Directorate enforce the project developer to monitor the emissions for a certain time. Dust emissions will be monitored as explained in the monitoring plan.</p> <p>Therefore, in the SDM the positive effect of the project on the air quality is scored with (+). The positive impact of hydro energy on air quality is described in Sustainability Monitoring Plan (section</p>			

<sup>13</sup> See TEİAŞ statistics for 2008: <http://www.teias.gov.tr/istatistik2008/index.htm>. Detailed calculation of current situation and future target is substantiated in the Justification section

<sup>14</sup> Kavakçalı HEPP, Project Introduction File, page:19-24

## GOLD STANDARD PASSPORT

	<p>G) of GS Passport. Net project generation shall serve as evidence of positive impact of the project activity on this indicator and will be monitored annually as indicated in Section G.</p>
Water quality and quantity	<p>In the baseline, thermal power plants discharge significant amount of waste water to the environment after usage for cooling etc. Hence, with the project activity considerable amount of water discharge will be avoided with substituting partially thermal power plants. For Wastewater discharged by thermal PPs in 2008 see: <a href="http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=6171&amp;tb_id=2">http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=6171&amp;tb_id=2</a>.</p> <p>Since the project activity is a small scale HEPP, it does not cause any pollution or change in water quality in terms of chemical, biological oxygen demand or any other pollutants. The minimum amount of water from weir for aquatic life or irrigation should be released from the weir is determined by DSI (State Hydraulic Works Authority) will be monitored (see Section G) through flow measurement station of the plant as defined by the regulation. <a href="http://www.dsi.gov.tr/ska/yonetmelik_tamami.htm">http://www.dsi.gov.tr/ska/yonetmelik_tamami.htm</a>.</p> <p>Although significant amount of wastewater will be avoided by the project activity, neutral score is given to this indicator. Amount of avoided wastewater to be discharged to the environment will be monitored during operation of the project activity as described in the Sustainability Monitoring Plan.</p>
Soil condition	<p>In the baseline, thermal power plants emits significant amount of NO<sub>x</sub> and SO<sub>x</sub> which have negative impact to the quality of soil. These emissions are the primary cause of acid rains. Soil biology and chemistry can be seriously damaged by acid rain. With proposed project activity significant amount of NO<sub>x</sub> and SO<sub>x</sub> emissions will be avoided due to substituting partially thermal power plant electricity generation. For NO<sub>x</sub> emission amount see TUIK: <a href="http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&amp;tb_id=8">http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&amp;tb_id=8</a>; For net electricity generation in 2007 see TEİAŞ: <a href="http://www.teias.gov.tr/istatistik2008/30(84-08).xls">http://www.teias.gov.tr/istatistik2008/30(84-08).xls</a>. Furthermore, particulates emitted from the funnels of the thermal power plants deposit on the soil and decrease soil quality. Amount of avoided NO<sub>x</sub> emissions by the project activity will be monitored as described in Section G</p> <p>Project activities like excavation might lead to soil erosion risk in the area, especially during road construction. Walls will be built in the slope areas when required in order to prevent soil erosion and landslides. This will be monitored as explained in the GS Monitoring Plan.</p> <p>Impact of the project on the soil condition is scored with (0) and related parameters will be monitored as explained in the monitoring plan.</p>
Other pollutants	<p>There will be noise due to operation of turbines in the power plant. However, since the power plant will be away from residences and comparing other technologies (such as wind turbines) noise level is much more less impact of noise is negligible<sup>15</sup>.</p> <p>There is a fish farm in the downstream after power plant and turbidity would affect the fish in the farm if no precautions are taken during construction. Impact of the construction on the fish farm will be monitored as explained in the monitoring plan.</p>
Biodiversity	<p>The project area is not in natural protection zone. It is on land of Forestry. In the project area, there are some trees that will be affected due to construction of the Project. The Project owner will compensate by paying the fees Directorate of Forestry to be used for re-plantation in the same site and renovation of existing forest areas. The payment done to Directorate will be monitored in Section G.</p> <p>In order to keep animals safe , fences will be put along the channels in necessary areas.</p> <p>In the SDM the negligible effect of the project on biodiversity is scored with (0). Compensation payment for re-plantation of trees will be monitored according as described in Sustainability</p>

<sup>15</sup> Kavakçalı HEPP, Project Introduction File, page:25

## GOLD STANDARD PASSPORT

	Monitoring Plan (section G) of GS Passport. (The source for the payment to governmental institution: Compensation payment made to Directorate of Forestry).
Quality of employment	<p>In the context of hydro power plants, due to Health and Safety regulations and technical skills required for operating equipments, trainings will be provided to relevant plant staff. Some of the technical personnel 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 to be able to work in such an environment. All the trainings will be in accordance with regulations of Ministry Labour and Social Security:  <a href="http://www.isguvenligi.net/mevzuat/4857_isig_yonetmelikleri/is_sagligi_ve_quvenligi_yonetmeligi.pdf">http://www.isguvenligi.net/mevzuat/4857_isig_yonetmelikleri/is_sagligi_ve_quvenligi_yonetmeligi.pdf</a></p> <p>Although this indicator is scored with neutral (0), chosen parameter which is Number of employee having Health&amp;Safety Trainings (as a mitigation measure) will be monitored as described in the SD Monitoring Plan in Section G.</p>
Livelihood of the poor	<p>With the Project activity, income of local people employed in the plant will increase which will also have impact on overall spending in the region. It is planned that, during construction 50 and during operation 10 staff will be employed in the plant. The stakeholders also confirmed that the project will have positive impacts on the livelihood of the poor by scoring (+) to this indicator. Also project developer is recruiting personnel for security or construction of the project from close villages, some of subcontractors are also from the same region.</p> <p>However, since monitoring of direct positive impacts of this parameter on livelihood of the poor is difficult, this parameter is scored (0) in the SDM to be conservative. Since this indicator is scored zero and no mitigation measure is required, chosen parameter will not be monitored.</p>
Access to affordable and clean energy services	<p>As a local energy source, hydro power helps to mitigate Turkey's high import dependency and thus improves the access to energy services, especially in the scenarios of import stops or energy price hikes. The International Energy Agency criticises dependency on oil and gas imports and demands for expansion of renewable energy in Turkey (cf. IEA: Energy Policies, Turkey 2005 review, 2005, pages 85, 100 and 129). However, as the improved access to energy services does not affect the local public (as the electricity is delivered to the grid) and cannot be assigned to specific consumers and therefore not be monitored, a conservative score of zero is applied to this indicator.</p> <p>Since this indicator is scored with zero and there is no mitigation measure for this indicator, chosen parameter, i.e. change in energy use of local people, will not be monitored.</p>
Human and institutional capacity	<p>With the Project activity, income of local people employed in the plant will increase which will also have impact on income and asset distributions by socio-economic groups. Income level groups in Turkey can be found: <a href="http://www.tuik.gov.tr/PreHaberBultenleri.do?id=8369">http://www.tuik.gov.tr/PreHaberBultenleri.do?id=8369</a> . It is planned during construction 50 and during operation 10 staff will be employed in the plant. Also project developer is recruiting personnel for security or construction of the project from close villages, some of subcontractors are also from the same region.</p> <p>Although the project will have an impact on income distribution in the region, this impact will be negligible thus, this parameter is scored (0) in the SDM to be conservative. Since this indicator is scored zero and no mitigation measure is required chosen parameter will not be monitored.</p>
Quantitative employment and income generation	<p>Within the construction of the project, there will be created employment opportunities for workers. It is planned that, during construction 50 and during operation 10 staff will be employed. However, since it couldn't be clearly substantiated that hydro power plants lead to higher employment comparing with conventional power plants such, this indicator is scored with zero (0) in the SDM.</p> <p>Since, the impact of the parameter to this indicator is scored neutral, Number of employment (during construction and operation phase) will not be monitored.</p>
Balance of payments and investment	The project and its role in strengthening the sustainable sector of electricity generation in Turkey tend to contribute to mitigation of import dependency. The project generation will shift correspondent amount of natural gas fired electricity generation. With this, payments for natural

## GOLD STANDARD PASSPORT

	<p>gas imported will decrease. Hence the project will have positive impact on this indicator and it is scored with (+) in the SDM. For reference see TEİAŞ statistics for 2008: <a href="http://www.teias.gov.tr/istatistik2008/3.xls">http://www.teias.gov.tr/istatistik2008/3.xls</a>.. Hence the project will have positive impact on this indicator and it is scored with (+) in the SDM.</p> <p>According to TEİAŞ; 21,637,605 m<sup>3</sup> natural gas is consumed for electricity generation in 2008. In 2008 Electricity generation amount from natural gas is 98,685.3 GWh and share of natural gas in the electricity mix is 49.74%. Since Turkey imports 97% of consumed natural gas, it is calculated that for 1 GWh electricity generation 105,068 m<sup>3</sup> natural gas is imported in 2008 (which makes around 27,093 Euro/GWh).</p> <p>Please see:          (Amount of Natural Gas Combusted for Electricity Generation in 2008 (m3): <a href="http://www.teias.gov.tr/istatistik2008/44.xls">http://www.teias.gov.tr/istatistik2008/44.xls</a>          Amount of Electricity Generated with Natural Gas in 2008 (GWh): <a href="http://www.teias.gov.tr/istatistik2008/32(75-08).xls">http://www.teias.gov.tr/istatistik2008/32(75-08).xls</a>          Share of Import for Natural Gas Consumption in Turkey :<a href="http://www.informaworld.com/smpp/content~content=a791654927&amp;db=all">http://www.informaworld.com/smpp/content~content=a791654927&amp;db=all</a>          Share of Natural Gas in Turkish Electricity Mix in 2008 : <a href="http://www.teias.gov.tr/istatistik2008/33.xls">http://www.teias.gov.tr/istatistik2008/33.xls</a>          Natural Gas Unit Price (TL/m3) : <a href="http://www.igdas.com.tr/Dynamic/Institutional_Natural_Gas_Price_List.aspx?MI=3&amp;CMI=330&amp;MCI=122">http://www.igdas.com.tr/Dynamic/Institutional_Natural_Gas_Price_List.aspx?MI=3&amp;CMI=330&amp;MCI=122</a>)<sup>16</sup></p> <p>The positive effect of the project to this indicator is described in Sustainability Monitoring Plan (section G) of the GS Passport. Share of natural gas fired electricity in Turkish electricity mix will be reported to show continuous positive impact of the project as described in section G.</p>
<p>Technology transfer and technological self-reliance</p>	<p>As the project developer is a Turkish company using the returns from the GS VER project to enable the realization of the hydro power plant, the Turkish capabilities, competencies and self-reliance regarding the introduction of innovative technologies are strengthened. The project developer considers the investment into and the operation of a new technology in Turkey as a contribution to technological self reliance due to the gathered experience with the proposed project. And some of the employees will be trained for hydro power plant related issues. However, since it is difficult to substantiate and monitor that these trainings will lead an important know-how and technology transfer, this indicator is scored with (0) in the SDM, to be conservative.</p> <p>Since this indicator is scored zero and no mitigation measure is required chosen parameter, i.e. total number of employee having operation and maintenance certificates will not be monitored</p>

<sup>16</sup> Related Calculations are given in the CM Calculation Sheet provided to the DOE.

# GOLD STANDARD PASSPORT

## SECTION G. Sustainability Monitoring Plan

No	1	
Indicator	Air Quality	
Mitigation measure	a) No precautions required b) Watering the ground in the dry season and covering the trucks carrying excavation waste <sup>17</sup> .	
Chosen parameter	a) Amount of CO and NMVOC b) Dust emission levels measured upon request of Provincial Directorate of Environment and Forestry and statement of the village head regarding this issue.	
Current situation of parameter	a) No quantitative information is available for projection of described emission rates. b) Zero	
Estimation of baseline situation of parameter	a) According to latest official data CO and NMVOC emissions due to electricity generation in 2008 are: 0.143 tons/GWh and 0.036 tons/GWh respectively <sup>18</sup> . b) Not applicable	
Future target for parameter	a) Electricity generation amount of the project is 39.021 GWh/y. The project activity is expected to avoid emissions of: 5.58 tons CO and 1.41 tons NMVOC b) Compliance with local regulations and rules (Protection of Air Quality Regulation and Regulation on Controlling Air Pollution arising from industrial Plants)	
Way of monitoring for parameter	How	a) Amount of electricity generated will be monitored to calculate estimated CO and NMVOC emission reductions by project activity. b) Records from Provincial Directorate of Environment and Forestry and letter from Kavakçalı village head will be provided
	When	a) Annually b) Annually (during the course of construction)
	By who	Assigned technician by Plant Manager or assigned carbon consultant.

No	2	
Indicator	Water Quality and Quantity	
Mitigation measure	Minimum amount of water, which is approved by DSI, will be released to river bed for preservation of aquatic life..	
Chosen parameter	Amount of water released to river bed	
Current situation of parameter	Substantial amount of water (2.026 m <sup>3</sup> /s) <sup>19</sup>	
Estimation of baseline situation of parameter	Not applicable	
Future target for parameter	Minimum 405 l/s of water will be released during November-March period (wet term) and 120 lt/sn of water will be released during April-	

<sup>17</sup> Kavakcali Project Introduction File, page: 19

<sup>18</sup> The unit emissions are calculated as dividing emission amount for each parameter with net electricity amount. (For CO and NMVOC emission amounts see TUIK: [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=7](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=7) and [http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb\\_id=8](http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=8), respectively); For net electricity generation in 2008 see TEİAŞ [http://www.teias.gov.tr/istatistik2008/30\(84-08\).xls](http://www.teias.gov.tr/istatistik2008/30(84-08).xls). Calculation is further substantiated in Monitoring Plan of CM Calculation Worksheet, which is available to DOE.

<sup>19</sup> Kavakcali Project Introduction File, page: 15

## GOLD STANDARD PASSPORT

		October period (dry term) for the section between the weir and the HEPP <sup>20</sup> .
Way of monitoring	How	Flow will be monitored continuously by DSI approved gauging stations at weir and outlet points via online connection.  Recorded values will be compared with the figures given in the expert report.
	When	Annually
	By who	Assigned technician by Plant Manager or assigned carbon consultant

No	3	
Indicator	Soil condition	
Mitigation measure	Walls will be constructed in the slopes areas when required	
Chosen parameter	Soil erosion	
Current situation of parameter	Not applicable	
Estimation of baseline situation of parameter	Not applicable	
Future target for parameter	Continuation of current situation.	
Way of monitoring	How	Project drawings and constructed walls will be shown to the DOE
	When	During first verification.
	By who	Assigned technician by Plant Manager or assigned carbon consultant

No	4	
Indicator	Other pollutants	
Mitigation measure	Measures will be taken to prevent turbidity in the downstream water during construction	
Chosen parameter	Turbidity that would affect fish farm in the downstream	
Current situation of parameter	Not applicable	
Estimation of baseline situation of parameter	Not applicable	
Future target for parameter	Continuation of baseline situation	
Way of monitoring	How	A letter will be provided from the owner of the fish farm indicating that no harm was given to the fish farm
	When	Once during the first verification
	By who	Assigned technician by Plant Manager or assigned carbon consultant

No	5	
Indicator	Biodiversity	
Mitigation measure	a) Compensation payment made for plantation of new trees. b) Putting fences along the channels in necessary areas.	
Chosen parameter	Parameters: a) Number of affected plants b) Fences along channels	
Current situation of parameter	a) Zero b) Zero	
Estimation of baseline situation of parameter	a) Not applicable b) Not applicable	
Future target for parameter	a) Continuation of the current situation b) Construction of fences necessary areas.	

<sup>20</sup> Kavakcali Project Introduction File, page: 15

## GOLD STANDARD PASSPORT

Way of monitoring	How	a) Checking receipts of compensation payment is done the Directorate of Forestry b) fences will be shown to DOE
	When	a) Once during the first verification b) Once during the first verification
	By who	a) Assigned technician by Plant Manager or assigned carbon consultant b) Assigned technician by Plant Manager or assigned carbon consultant

No	6	
Indicator	Quality of employment	
Mitigation measure	Necessary health and safety measures will be taken during construction and operation phase, the staff will be trained to be able to work with high voltages.	
Chosen parameter	Number of employee having Health&Safety Trainings	
Current situation of parameter	Not applicable	
Estimation of baseline situation of parameter	Continuation of current situation	
Future target for parameter	All employees will have at least basic Health&Safety trainings	
Way of monitoring	How	Training certificates or records for attendance to the trainings. In the following years, only new trainings will be reported.
	When	Annually (Once at the end of the each monitoring period)
	By who	Assigned technician by Plant Manager or assigned carbon consultant.

No	7	
Indicator	Balance of payment and investments	
Mitigation measure	No mitigation measures are required.	
Chosen parameter	Amount of avoided natural gas to be imported	
Current situation of parameter	According to TEİAŞ; 21,637,605 m <sup>3</sup> natural gas is consumed for electricity generation in 2008. In 2008 Electricity generation amount from natural gas is 98,685.3 GWh and share of natural gas in the electricity mix is 49.74%. Since Turkey imports 97% of consumed natural gas, it is calculated that for 1 GWh electricity generation 105,068 m <sup>3</sup> natural gas is imported in 2008 (which makes around 27,093 Euro/GWh).	
Estimation of baseline situation of parameter	According to the projections of TEİAŞ (See Table-5 in B.4 part of the PDD), dependency to natural gas for electricity generation will remain high till the end of 2018 with 42.7% share of the electricity mix in this year.	
Future target for parameter	Avoidance of around 4.1 million m <sup>3</sup> natural gas import each year by generation of project activity, which is worth about 1.116 million Euro per year <sup>21</sup> .	
Way of monitoring	How	TEİAŞ statistics for natural gas share in the electricity mix shall help to demonstrate the high import dependency. Amount of electricity generated will be monitored to calculate correspondent amount of currency saved by project activity with help of above calculated factor.
	When	Annually
	By who	Assigned technician by Plant Manager or assigned carbon consultant.

<sup>21</sup> See TEİAŞ statistics for 2008: <http://www.teias.gov.tr/istatistik2008/index.htm>. Detail calculation of current situation and future target is substantiated in Monitoring Plan of CM Calculation Worksheet, which is available to DOE.

# GOLD STANDARD PASSPORT

## **Additional remarks monitoring**

The name of the measuring technicians cannot be given as no employer is assigned yet by Plant Manager. Name of staffs and their responsibilities will be submitted to DOE during each verification period.

# GOLD STANDARD PASSPORT

## SECTION H. Additionality and conservativeness



This section is only applicable if the section on additionality and/or your choice of baseline does not follow Gold Standard guidance

### H.1. Additionality

**Not Applicable.**

### H.2. Conservativeness

**Not Applicable.**



The Gold Standard  
Premium quality carbon credits

# GOLD STANDARD PASSPORT

## ANNEX 1 ODA declaration



**PAK ENERJİ ÜRETİMİ SANAYİ ve TİCARET A.Ş.**

Koza Sokak No:22 Gaziosmanpaşa 06700 Ankara

Tel: (312) 408 10 00 Faks: (312) 441 68 14

E-mail: akfen@akfen.com.tr [www.akfen.com.tr](http://www.akfen.com.tr)

**Date : 17.08.2010**

**Ref : Kavakcalı 10.88 MW HEPP, Turkey (GS875)**

**To : Gold Standard Foundation**

### **Declaration of Non-Use of Official Development Assistance by Project Owner**

#### **Pak Enerji Üretimi Sanayi ve Ticaret A.Ş.**

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

#### **Saffet Atıcı**

I hereby declare that I am duly and fully authorised by the project owner 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 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. 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.

**III. 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.

**Signed**

**Name**

**Title**

**On behalf of:** Pak Enerji Üretimi Sanayi ve Ticaret A.Ş.

: Saffet Atıcı

: General Manager

# GOLD STANDARD PASSPORT

## ANNEX 2 Special Guidance for Run of River Projects

For all hydro projects, Gold Standard further requires the assessment of relevance and implications of the full list of items provided in Table below as part of the sustainable assessment process<sup>22</sup>. Discussion of these additional aspects is provided below:

<b>Management Domain</b>	
Minimum Flow Goal is a dynamic flow regime, which qualitatively simulates the natural hydrological regime	The project uses a limited water reservoir volume and is technically not able to significantly manipulate the flow regime of the river. Community access to water is guaranteed by the water use contract between DSI and Pak Enerji Üretim Sanayi ve Ticaret A.Ş. The contract ensures the minimum amount of water to be left for maintenance of wildlife.
Minimum flow which guarantees habitat quality and prevents critical oxygen and chemical properties.	Minimum 405 l/s of water will be released during November-March period (wet term) and 120 lt/sn of water will be released during April-October period (dry term) for the section between the weir and the HEPP. This minimum flow shall guarantee habitat quality and prevent critical oxygen and chemical properties <sup>23</sup> .
No disconnection of lateral rivers	None of the project components' construction and operation will lead to disconnection of lateral rivers. Water that is used in the Project for electricity production will be released to river bed.
Minimum water depth for fish migration during critical periods.	Minimum 405 l/s of water will be released during November-March period (wet term) and 120 lt/sn of water will be released during April-October period (dry term), which will aid aquatic life, compared to the conditions before the construction of the project. Riverbed in the project area passes through a narrow valley <sup>24</sup> .
Lateral and vertical connectivity shall not be substantially disturbed	Since the project is a small project, it does not have a large storage volume to substantially disturb the underground waters. There will be no disconnection of lateral rivers due to the project.
Provides sufficient transport capacity for sediments	There will be no sediments accumulating before the weir, as there is sediment passage structure.
Landscape compartments shall not be destroyed.	While the project does not have a dam but a small weir to regulate the water, landscape compartments shall not be endangered.
Flood plain ecosystems shall not be endangered	The project area does not have a floodplain system as the river passes through a narrow valley. Thus there will be no such impact.
Conservation of locally adapted species and ecosystems	According to the Project Introduction File of the project, there is one endangered endemic species of flora in the project area. All the required precautions will be taken in order to protect species in the project area during construction and operation of the project <sup>25</sup> .
<b>Hydropeaking</b>	
Rate of change of water level should not impair fish and benthic population.	Minimum 405 l/s of water will be released during November-March period (wet term) and 120 lt/sn of water will be released during April-October period (dry term) to river bed so that there shall not be any significant change in water level which may affect fish life negatively.
Reduction in water level should not lead to drying of the water course.	Water is not collected in the project, thus there will be no reduction in water levels. Even in the dry season there will be 120 lt/sn water release to river bed between the the weir and the HEPP.

<sup>22</sup> Gold Standard v2, Annex C, Table C.2

<sup>23</sup> Kavakcali, Project Introduction File, page: 15

<sup>24</sup> Kavakcali, Project Introduction File, page: 11-15

<sup>25</sup> Kavakcali, Project Introduction File, page: 38

## GOLD STANDARD PASSPORT

Protective measures if flood plain ecosystems are impaired.	The river basin / course has deep and steep valley which is a natural barrier to floods, thus there is no flood plain ecosystem in the project area.
No isolation of fish and benthic organisms when water level decreases	There will be a guaranteed flow of river from weir in order to allow fish and benthic organisms to move easily.
No impairment of spawning habitat for fish	There will be no negative effect of project on spawning habitat for fish. Migrating fish will be able to pass through the plant to reach their spawning areas.
<b>Reservoir Management</b>	
Are there feasible alternatives for reservoir flushing?	Since the project is a 8.90 MW small scale hydro power plant, it does not have any large storage volume, but a small weir to regulate the water. Unlike the dam reservoirs, a reservoir operation policy would not be applied to this project.
Changes in reservoir levels should not impair lateral ecosystems (flood plains, river shores, ...)	Since the project is a 8.90 MW small scale hydro power plant, it does not have any large storage volume, but a small weir to regulate the water. Thus, no impairment of lateral ecosystems is expected. Furthermore, there are no lateral ecosystems from weir to the power plant.
Connectivity with lateral rivers should not be impaired	Since the project is a 8.90 MW small scale hydro power plant, it does not have any large storage volume, but a small weir to regulate the water. No impairment of lateral rivers is expected. Furthermore, there are no lateral rivers from weir to the power plant.
Sediment accumulation areas should be used as valuable habitats, where feasible.	The project is a small scale HPP. No significant accumulation is expected. There will be no sediment accumulation as there will be a gravel pass in the design of the Project.
Special protection of flood plain ecosystems if they are impaired	The project doesn't have a significant reservoir that would impair flood plain ecosystems. Furthermore, there are no floodplain systems from weir to the power plant as the river runs through and deep valley.
<b>Sediment Management</b>	
Sediments have to pass through the power plant.	There is a gravel pass in the design of the weir which shall be built to discharge sediments to the river bed.
Sediment transport should sustain morphological structures, which are typical for the river.	Small weir to regulate water will not have any negative effect on sediment transport; there shall not be huge accumulation of sediment which may change the river bed.
No accumulation of sediments below dams	Since there is a small weir to regulate water, there shall not be huge accumulation of sediment after weir which may change the river bed.
Riverine habitats have to be established	The project does not have any impact of riverine habitats.
<b>Power Plant Design</b>	
Free fish migration upwards and downwards.	Free fish migration upwards and downwards shall not be affected by project activity, since there shall be always water flowing in the original river bed. There will also be a fish passage in the project.
Protection of animals against injury and death stemming from power plant operations.	During construction and operation of power plant, necessary precautions shall be taken to prevent injury to animals <sup>26</sup> . Some of the precautions to be taken are: <ul style="list-style-type: none"> <li>- Releasing at least minimum flow water</li> <li>- Waste and noise management in order not to damage animals</li> <li>- Not to destroy nests and eggs</li> <li>- Conveyance of animals like hedgehogs, lizards or fledglings to safe places during construction activities.</li> </ul>

<sup>26</sup> Kavakçalı, Project Introduction File, page:43-49

## GOLD STANDARD PASSPORT

<b>Social Impact</b>	
Cultural Landscapes	As the place of the project is not in a protection area or historical site, there is no affect of project on Cultural Landscapes.
Human heritage (including protection of special ethnic groups) and preservation of life styles.	The project shall not have negative impact on human heritage and way of life since the power plant will not be in any settlement area or heritage site <sup>27</sup> .
Empowerment of local stakeholders in the decision making process about mitigation and compensation of social impacts	Local stakeholders of the project are able to express their views on environmental and social impacts at stakeholders meetings. Their questions and concerns are recorded and regular visits will be done by the project developer in order to answer the questions. Furthermore, project developer makes a commitment to compensate any damage given during construction and operation of the plant and to ensure public participation in project phases.
Resettlement of local population	There is no settlement area within the borders of the plant. Furthermore, the project will not have an impact that will cause a resettlement. Thus, resettlement of the local population is not component of this project.
Build additional social infrastructure due to migration induced by the project.	The project will not cause any migration, on the contrary has a potential to slow down migration by creating job opportunities.
Water quality and fishing losses affecting downstream riverside population.	Minimum flow which is necessary for preservation of habitat will be released. Since the project will release water flow downstream and there will be no change in the amount of water in the river, there shall be no impact on water quality and aquatic life.

<sup>27</sup> Kavakçalı, Project Introduction File, page:53