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# World Heritage

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## UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

### CONVENTION CONCERNING THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE

#### WORLD HERITAGE COMMITTEE

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Phnom Penh, Cambodia  
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**Item 7 of the Provisional Agenda: State of conservation of properties inscribed on the World Heritage List and/or on the List of World Heritage in Danger.**

#### MISSION REPORT

**Alto Douro Wine Region (C 1046) (Portugal)**

**30 July - 3 August 2012**

This mission report should be read in conjunction with Document:

**WHC-13/37.COM/7B**

REPORT OF THE JOINT WORLD  
HERITAGE CENTRE/ICOMOS/IUCN  
REACTIVE MONITORING MISSION

**Alto Douro Wine Region (Portugal)**

30 July to 3 August 2012

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## **GLOSSARY OF ABBREVIATIONS**

<b>ADWR</b>	– Alto Douro Wine Region
<b>EDM</b>	– Estructura de Missao do Douro
<b>EDP</b>	– Electricidade de Portugal-Produção
<b>EIA</b>	– Environmental Impact Assessment
<b>FTDD</b>	– Foz Tua Dam Development
<b>ICOMOS</b>	– International Council of Monuments and Sites
<b>IUCN</b>	– International Union for the Conservation of Nature
<b>MMP</b>	– Municipal Master Plan
<b>PIOT</b>	– Plan Intermunicipal de Ordenamento.
<b>OUV</b>	– Outstanding Universal Value
<b>WH</b>	– World Heritage
<b>WHC</b>	– World Heritage Centre
<b>ZEP</b>	– Zona de Especial Proteção

## ACKNOWLEDGEMENTS

The mission acknowledges gratefully the warm welcome of the regional authorities of the Alto Douro World Heritage properties, the local and municipal authorities of the Northern Region including the Mayor of Regua and the different institutions related to wine production of the Douro Valley (ADVID etc.), the University of Trás-os-Montes and Alto Douro (UTAD), as well as the Portuguese national authorities in charge of the World Heritage Convention.

The mission appreciated the extensive information provided by these authorities in response to many questions raised. The mission also appreciatively acknowledges the time and availability of many local organizations, including different units of the Alto Douro Museums, and the company Electricidade de Portugal-Produção (EDP). We also appreciate the information and concerns shared by many local and national NGOs, associations and civil society who shared their concerns and information with the mission team.

The mission expresses special thanks to the Minister of the Environment of Portugal, Ms Assunção Cristas, the Ambassador of Portugal to UNESCO, the National Commission for UNESCO and to the team of the Douro Mission for facilitating the work of the mission, especially Ms Celia Ramos who accompanied the mission throughout its visit.

## EXECUTIVE SUMMARY AND RECOMMENDATIONS

Following the advisory mission carried out in April 2011, and information received by the World Heritage Centre and the advisory bodies IUCN and ICOMOS concerning the Foz Tua Dam Development project, the state of conservation of the property of Alto Douro Wine Region (ADWR), Portugal, was presented to the 36th session of the World Heritage Committee (Saint Petersburg, June/July, 2012). The Committee decided (Decision **36 COM 7B.81**, see Annex I) to immediately dispatch a reactive WHC-ICOMOS-IUCN monitoring mission to the property. The State Party of Portugal invited the joint mission to review the construction of the dam and the overall Foz Tua project, taking into account the Environmental Impact Assessment and to review the actual state of conservation of the property, its boundaries, values and conditions of integrity.

The joint reactive monitoring mission took place from 30 July to 3 August 2012. The detailed recommendations of the mission are presented in Section 5 of this report addressing specifically the Foz Tua Dam Development project, the overall state of conservation of the property, its management as well as other issues.

The mission concluded that according to the information provided by the different sources the revised construction itself seems to have little overall adverse impact on the outstanding universal value of the property, and its integrity and authenticity. The key features and attributes of this agricultural and wine producing site, which are the wine terraces, were not impacted. Nevertheless, there will be physical loss of part of the landscape, changing the way the viticultural landscape is experienced as the intervention will affect the pattern, context and setting of the World Heritage property.

With regard to the visual integrity of the property the mission noted that already two technological structures are placed in the entrance of the Tua Valley (bridges) to which a few minor new structures would be added (e.g. power pylon above the power station). The new project to construct the power house underground while ensuring daylight in the building is much welcomed by the mission. It substantially reduces visual impacts of the construction. The mission notes that the dam is at the boundary between the World Heritage property and its buffer zone, and confirms the April 2011 ICOMOS Advisory Mission which assessed that the dam itself has little visual impact.

The mission considers that there are a number of pending issues, which need to be reviewed:

(a) The assessment of the energy lines which still cannot be carried out as there is no specific project proposed by the State Party, while potential options were indicated. Electricidade de Portugal (EPD) will

need to present a proposal which will then be assessed by the State Party authorities and if approved, transmitted to the World Heritage Centre for evaluation and review by the advisory bodies;

b) Even though the amended project is considered much more appropriate for the integration into the landscape, the mission believes that a thorough Landscape Master Plan is missing. An overall Master Plan which is able to provide a comprehensive and holistic project for the overall area of intervention, at a much smaller scale and at in depth analysis is required. This should include details of how the proposed new tree planting will be incorporated into the landscape in an acceptable way.

# 1 BACKGROUND TO THE MISSION

## 1.1 Inscription history, Inscription criteria and World Heritage values

In 2000 a nomination file for the cultural landscape of the Alto Douro was presented by the national authorities and was evaluated by ICOMOS with inputs from IUCN. The property 'Alto Douro Wine Region' was inscribed in 2001 as a cultural landscape under criteria (iii), (iv) and (v) at the 25th session of the World Heritage Committee in Helsinki, Finland (Decision – **25 COM X.A**). The justification based on the evaluation by ICOMOS was adopted by the Committee as follows:

**Criterion iii:** The Alto Douro Region has been producing wine for nearly two thousand years and its landscape has been moulded by human activities.

**Criterion iv:** The components of the Alto Douro landscape are representative of the full range of activities associated with winemaking – terraces, quintas (wine-producing farm complexes), villages, chapels, and roads.

**Criterion v:** The cultural landscape of the Alto Douro is an outstanding example of a traditional European wine-producing region, reflecting the evolution of this human activity over time. Since the 18th century, its main product, port wine, has been world famous for its quality. This long tradition of viticulture has produced a cultural landscape of outstanding beauty that reflects its technological, social and economic evolution.

## 1.2 Integrity/authenticity issues raised in the ICOMOS and IUCN evaluation reports at time of inscription

ICOMOS in its November 2001 evaluation report noted *"...the man-made landscape of so many significances is visibly there, a series of impressive views but also a seriously complex machine, still working. The Alto Douro is of outstanding universal value both as a monumental construct in a demanding environment and as the unique setting for an exceptional product. The general state of preservation of this historic landscape is good. Alterations do exist, but they do not seem of sufficient importance to impair its integrity. Some terraces suffered badly during torrential rain in the later part of January 2001, and a special effort will be needed to restore parts of vineyards to working order."*

In the evaluation it was further mentioned that there are a number of dams on the Douro itself, which was no longer a natural river: *"The Douro itself is dammed, so its valley through the property now contains a long reservoir 100– 200m wide. However, although this change is important from the ecological and visual points of view, the flooded part of the valley was neither occupied nor cultivated. The boundaries correspond to identifiable natural features of the landscape – watercourses, mountain ridges, roads, and paths. The area of nominated property is: Alto Douro Wine Region 24,600ha, Buffer zone 225,400ha, Demarcated Douro Region 250,000ha"*.

In the 2001 evaluation report ICOMOS did not mention any issues related to future dam developments in the region, despite the fact that the Foz Coa dam on the Coa River, a tributary to the Douro, had been halted due to UNESCO's intervention and the Coa Valley Rock Art was inscribed on the World Heritage List since 1998. The Coa Valley World Heritage property was located within the buffer zone of the Douro Valley World Heritage property. Since 2010 this Rock Art site is a transnational property with Spain under the name of Prehistoric Rock Art Sites in the Côa Valley (Portugal) and Siega Verde (Spain).

The Coa Valley was only mentioned in the Alto Douro evaluation related to the management plan which was submitted between the June 2001 Bureau and the ICOMOS evaluation prior to the 2001 Committee session. The evaluation noted *"There is one element, however, that is missing. The plan refers only to the core zone nominated for inscription and makes no provision for protection and management of the buffer zone. Whilst ICOMOS does not wish to make this a reason for recommending deferral of this nomination, it suggests that the Committee request the State Party to provide a situation report for its meeting in 2003, commenting on the implementation of the plan and its effectiveness and also setting out details of the measures applied in the buffer zone."*



No written IUCN inputs to the ICOMOS evaluation were presented to the Committee in 2001, but IUCN intervened in the Report of the Thematic Meeting on Vineyard Cultural Landscapes (Tokaj, Hungary, July 2001), where the Alto Douro nomination was presented by the site manager.

The report of the Tokaj meeting was presented to the 25th session of the World Heritage Committee in December 2001 (WHC-01/CONF.208/INF.7), at the same time as the Alto Douro Wine Region (ADWR) was inscribed: The expert meeting recommended specifically: “The management of vineyard landscapes should include regulatory preservation, and also ways of ensuring:

- the continuation of economic activities that sustain the site (such as the promotion of high quality products);
- the provision of economic benefits for site maintenance;
- the sharing of know-how among stakeholders and their transmission to future generations;
- the acceptance of a common culture and identity by all stakeholders;
- management plans should encompass both the core areas and the buffer zones and should provide for the highest level of conservation, restoration, and development of values in both zones.

The meeting considered that, as continuously evolving landscapes, vineyard cultural landscapes may be subject to change of use and introduction of new techniques. This would be acceptable so long as these changes do not jeopardize any of the World Heritage values for which the sites have been inscribed. The meeting noted that a number of traditional vineyard landscapes are threatened by abandonment, erosion, landslides etc. and that integrated management needs to include provisions for restoration, revitalization and development coherent with the structure of the landscape.”

In past evaluation reports the Foz Tua dam project and related integrity issues were never mentioned.

### **1.3 Examination of the State of Conservation by the World Heritage Committee**

The World Heritage Committee at its 25th session in 2001 inscribed the property of the Alto Douro Wine Region (ADWR), which ICOMOS had originally recommended for Referral requesting further details on the Management Plan concerning the buffer zone. It should be also noted that the 25th extraordinary session of the Bureau prior to the Committee in December 2001 had a tight vote on Douro concerning the inscription, but this was related to the growing number of vineyard cultural landscapes without having a thematic study. The Committee took on the ICOMOS request concerning the buffer zone in its decision: “The Committee requested the State Party to provide a report for its meeting in 2003, commenting on the implementation of the recent management plan and its effectiveness, setting out details of the measures applied in the buffer zone.”

It seems that the report requested by the World Heritage Committee was not provided to the World Heritage Centre on 1 February 2003 and that no state of conservation report and report on the status of the buffer zone was presented to the Committee in June/July 2003. The buffer zone was formally only adopted in Portugal in 2010 (see section on boundaries). A “periodic report” was provided by the authorities in January 2004, although the Alto Douro was not part of the first cycle of Periodic Reporting for Europe as the cut-off date was inscriptions up to 1998. This report indicates that “[...] the Alto Douro enjoys a protective statute according to the terms of the Municipal Master Plans, now being up to the Intermunicipal Territorial Management Plan for the Alto Douro Wine Region to proceed and connect the various plans”. The region enjoys a specific juridical protective status, as Portuguese jurisprudence (Lei de Bases do Património Cultural, 2001) establishes in its No.7 (article 15) that all the cultural sites declared in the World Heritage List are part, to all effects, of the list of sites classified as of National Interest. Therefore, to all effects, the ADWR is considered a National Monument as of December 2001.

Since the time of inscription there were a number of communications to the UNESCO World Heritage Centre (WHC) and the Advisory Bodies, on actions and projects with potential impacts on this property. Since 2007, when the National Programme of Dams of High Hydroelectric Power Potential was launched, WHC has received complaints regarding the project of the Hydro-electric Foz Tua Dam Development (FTDD), located within the boundaries of the World Heritage property. On 19 January 2008, the State Party of Portugal was first requested to comment on the issues raised by a number of NGOs

regarding the FTDD project. On 28 January 2010 and 10 May 2010, the State Party of Portugal was again requested to comment and provide detailed information on the FTDD project.

On 26 May 2010, the State Party of Portugal replied to the request by inviting an ICOMOS advisory mission to be carried out for the Alto Douro Wine Region in order to review the potential impact of the FTDD project on the outstanding universal value of the property, its authenticity and integrity. On 16 July 2010, the authorities provided information on the FTDD project and on 26 October and 8 November 2010 the State Party of Portugal submitted additional documentation on the FTDD project.

From 2 to 4 April 2011 the advisory mission was carried out by Ms Ana Luengo Añón, member of ICOMOS-IFLA International Scientific Committee on Cultural Landscapes. During the same month, April 2011, following the above-mentioned advisory mission, the construction work on the FTDD project started (see Section 3.3.6). On 5 October 2011 the mission report was transmitted to the State Party.

On 8 February 2012, the State Party sent a comprehensive reply to the issues raised: It argued that the power station should be considered part of a “living and evolving cultural landscape” and foresees continuing the works on the dam proposing minor changes to the location of the transmission power lines to and from the dam. It also transmitted the request that another mission be carried out to the property as soon as possible. On 2 April 2012, the Portuguese Ambassador to UNESCO met with the Director of WHC and reiterated the request that such a mission be carried out to the property as soon as possible. On 11 May 2012, the working document on the state of conservation for the 36th session of the World Heritage Committee was made available at [whc.unesco.org](http://whc.unesco.org). By letters of 4 April 2012 and 16 May 2012, the State Party reiterated its request that another mission be carried out to the property as soon as possible. On 13 June 2012, ICOMOS informed the Centre that the Portuguese Delegation went to see them and provided the line of argumentation of the State Party regarding the Alto Douro. After consultation with ICOMOS, and after receipt of information from the authorities, the matter was brought forward to the 36th session of the World Heritage Committee. On 27 June 2012 the World Heritage Committee discussed the item, including a revised FTDD project. It adopted Decision **36 COM 7B.81** which requested a joint WHC -ICOMOS-IUCN reactive monitoring mission.

## **1.4 Justification of the mission**

Following the World Heritage Committee's Decision the State Party invited the joint reactive monitoring mission. The mission was to assess the overall state of conservation of the property and the factors affecting its Outstanding Universal Value, with particular regard to the impacts of the FTDD project. This was to obtain a balanced evaluation of the FTDD project and the National Plan for Dams of High Hydroelectric Potential, and to assess the overall development strategies, existing planning procedures and management systems and their effectiveness for the property and its buffer zone; to carry out field visits to determine and to describe any current and potential threats of the revised FTDD project to the Outstanding Universal Value, the integrity and authenticity of the “Alto Douro Wine Region”; and to prepare practical recommendations to be presented to the Government of Portugal.

The mission took place from 30 July to 3 August 2012 and the Terms of Reference are included in ANNEX I. The programme and itinerary is enclosed as ANNEX II and the composition of the mission team as ANNEX III and the list of persons met as ANNEX IV.

## 2 NATIONAL POLICY FOR THE PRESERVATION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY

### 2.1 Protected area national and regional legislation

The site is protected by a number of laws and legal provisions (see also map in ANNEX V). The existing legal provisions to ensure the protection of the nominated property and its buffer zone are:

The basic law for the property is Law no. 107/2001 of 8 September 2001 (Setembro de 2001 – Lei de Bases do Património Cultural; nº 7 do artigo 15º: *Os bens culturais imóveis incluídos na lista do património mundial integram, para todos os efeitos e na respectiva categoria, a lista dos bens classificados como de interesse nacional.*)

The presidency of the Council of Ministers published in the Diário da República 1, No. 182 dated 20 September 2006 the resolution of the Council of Ministers 116/2006. This was five years after the designation of the site as a World Heritage property. This resolution was the basis to establish the Douro Mission Structure under the Ministry for the Environment Territorial Planning and Regional Development (Resolution 11/206, page 6924).

In June 2010, the buffer zone (Zona de especial protecção, ZEP) was formally protected by the Aviso n.º 15170/2010, Diário da República 2.ª série, n.º 147 de 30 de Julho de 2010 (Publicação da ZEP do Alto Douro Vinhateiro).

According to this law the procedures for the “classification of property of cultural interest as well as the legal protection zones and detailed plan of safeguard” was established including a “special area buffer zone of protection.” Furthermore, Article 72 is specific on “World Heritage procedures: 1. The inclusion of a property in the tentative list of World Heritage determines automatically the opening of the classification procedure, the degree of national interest, and determines the respective special protection area pursuant to this ordinance; 2. A buffer zone of a property included in the World Heritage List shall, for all intents and purposes, be designated a special protection area. 3. The planned location and deployment of a property inscribed on the World Heritage List at the date of entry into force of this ordinance, including its protection zone is published in the form of notice in the Gazette within one year.

Other protection measures, such as urban directives and general urban management plans, may also apply to the World Heritage area.

It should be also noted that a number of natural protected areas provide for ecosystem services and broader interconnectivity, with the Parque Natural de Alvao (west) and the Parque Natural do Douro International (east, on the border with Spain).

The new draft statement of Outstanding Universal Value (OUV) submitted by the national authorities for review noted:

*“Protecting and managing the Alto Douro Wine Region (ADWR) is a rather complex task considering the property’s size, the diversity of entities involved and the high number of owners and stakeholders.*

*Protection and management rules applying to the ADWR derive from the Intermunicipal Spatial Plan for the ADWR (IMSP-ADWR). Municipalities, stakeholders and different Government officials have been cooperating in the management and protection of the ADWR. The main concerns with the protection and management of the ADWR have to do with physical indicators such as: conserving and rehabilitating schistous stone walls and socacos; adequating methods for installing vineyards and other cultures; creating arboreal networks for dividing vine fields and creating passageways; minimizing visual intrusions; recording, and protecting vernacular heritage; licensing of new buildings; enhancing settlements; implementing new road networks.”*

## **2.2 Institutional framework and management structure**

The responsible bodies for the implementation of the World Heritage Convention in Portugal are the National Commission for UNESCO, the Ministry of Foreign Affairs, the Ministry of Culture, the Portugal Institute of Architectural Heritage, the Ministry of Environment and Planning and the Institute of Nature Conservation according to the Periodic Report (Section 1) of 2005. The Ministry for Agriculture, Sea, Environment and Spatial Planning is specifically responsible for the Alto Douro, as the Alto Douro Mission is placed under its authority.

The Management Plan in place at the time of inscription and which was a precondition for the inscription, has not been used as a guiding document. The Management Plan needs to be revised as a priority in order for it to become a key management tool. The Management Plan also needs to be linked to municipal development plans and planning tools. There is also a need for protection to be put in place for the setting of the property and for the plan to be extended to address the setting and particularly the control of developments in the buffer zone. The management of the World Heritage property is under the Douro Mission established with Resolution 116/2006.

## **2.3 Recognition under other international treaties and programmes**

It seems that no area of the property is included in areas designated under other international instruments such as the Ramsar Convention (1971), or European designations such as the European Heritage Label. There are a number of protected areas around the World Heritage property and its buffer zone, including the Natural Parks of Parque Natural de Alvao and the Parque Natural do Douro International (see also Figure 3.19: The World Heritage area and other protected areas in its vicinity);

The Tua Valley has not been especially protected and was not designated as Natura 2000; its biodiversity was only recently studied in relation to the Environmental Impact Assessment of the dam project;

The mission noted that, in addition, the 2003 Convention on the Safeguarding of Intangible Cultural Heritage may be considered for the rich cultural traditions and traditional knowledge systems in the Douro region.

### **3 IDENTIFICATION AND ASSESSMENT OF ISSUES / THREATS**

#### **3.1 Developments in the conservation of the property**

The mission considered a number of issues related to the conservation of the property, which were discussed by the World Heritage Committee at its 36th session (June/July 2012), indicated by the State Party in various documents (see Annex) or brought up during the mission by stakeholders. These included:

- Management effectiveness of the World Heritage (WH) property
- Infrastructure development including the FTDD project and integrity issues
- Conservation issues related to the attributes of the wine growing cultural landscape
- Other potential threats including climate change and tourism;

#### **3.2 Management effectiveness of the WH property**

The mission stressed the importance of recognizing that the property was inscribed as a cultural landscape with strong links between the natural and cultural environment and that these links do not seem to be fully taken into account in the daily conservation and management of the property, including resources allocation for management activities, communication, presentation, interpretation, information exchange and tourism management.

As indicated earlier, when the site was inscribed in the World Heritage List in 2001 “the Committee requested the State Party to provide a report for its meeting in 2003, commenting on the implementation of the recent management plan and its effectiveness, setting out details of the measures applied to the buffer zone” (Decision **25 COM X.A**).

While this report was not submitted by 1 February 2003, a “Periodic Report”, which was not requested, was submitted in 2004. Today, eleven years after the inscription, the effectiveness of the Management Plan is questionable, namely for three reasons. As stated in section 2.1 Protected area: national and regional legislation:

- The Management Plan or PIOT (Plan Intermunicipal de Ordenamento) was only adopted in the Diário de República on the 31 July 2003, through the Board of Minister’s Resolution n.º 150/2003.
- The Buffer zone was only protected in July 2010, following the Lei do Património Cultural (Lei n.º 107/2001, de 8 de setembro), published as n.º 15170/2010, of 30 July.
- For the guidelines of the Management Plan to have legal validity in Portugal, they have to be transferred into the Municipal Master Plans (MMP), the key local land management instruments, created under the terms of Decree-Law n.º 69 of 1990. As MMPs have a life span of 10 years after which they need to be re-approved, and the dates of the MMP for the municipalities are mostly around 1994-1996, most of them have not yet been revised.

Based on data the State Party has submitted to the mission during its visit, the mission notes that while there were originally six municipalities (of the 21) that passed the Management Plan (PIOT) onto the Municipal Master Plans (MMP), none of these included the buffer zone, as the buffer zone protection dates from 2010 only. Consequently, the Management Plan provided has no effect at legislative level in the declared World Heritage area and its buffer zone, as only a part of the municipalities have taken it into account.

The mission notes that the efforts of some of the government agencies to enhance the conservation of the landscape, has managed to maintain the World Heritage property, even if the Management Office was only established by the Portuguese government on 20 September 2006, 5 years after the site was declared. This office, the Estrutura de Missão do Douro (EMD), whose team and director have been changed since

the advisory mission of April 2011, can currently only provide oral statements about future projects, the vision for the site and developments in management planning.

The mission was informed on the following issues:

- Re-assessment of the property after 10 years of World Heritage inscription: the same professionals that prepared the nomination dossier of the ADWR in 2000/2001 have been hired for the update of the information. This will be completed by November 2012. This document will also be used for the official Periodic Report of the Alto Douro Wine Region which is due on 1 February 2013 and therefore to comply with the requirements of the second cycle of Periodic Reporting for Europe (Section II, site specific reports);
- Guidelines for the Management Plan: linked to and as a result of this re-assessment, the same team will provide Guidelines for the Management Plan. This will be completed by December 2012;
- Management Plan: the revised management plan will then be prepared by the team of the Management Structure of the World Heritage property, the EMD. The foreseen completion date is 2013.

Although these last two issues indicate some progress with management and the first will provide a useful basis for the forthcoming Periodic Reporting process, the current management of the property is mainly due to the guidance of other government bodies, private owner's consciousness of their heritage and continuing traditional conservation measures. As long as there is no operational Management Plan and an agency enabled to implement it and to put this into action, the conservation of the site is not effectively guaranteed. The mission therefore strongly recommends that the revision of the Management Plan and its updating for use as a management tool should be of utmost priority. The mission considers that a way to make it legally viable without waiting for another 10 years has to be found and that it should be applied for the whole World Heritage area. The mission recommends that the State Party presents this document prior to the next session of the World Heritage Committee in June 2013.

The mission furthermore considers that this new Management Plan should make special provisions for:

- the *National Plan for the River Douro River Basin*, essentially directed at defining integrated strategies to support a programme for providing water and sanitation to the population<sup>1</sup>,
- the Plano de Ordenamento das Albufeiras da Régua e Carapatelo, which strives for the valorization of the river basin and its margins, strengthening the Douro as a regional structural element,
- the *National Programme of Dams of High Hydroelectric Power Potential*, so that the cumulative effect of dam construction, related infrastructures and alteration of river habitats can be properly addressed;
- the *protection of the buffer zone*, as was already stated in the ICOMOS evaluation regarding the Management Plan as it "refers only to the core zone nominated for inscription and makes no provision for protection and management of the buffer zone". The mission also recalls ICOMOS' recommendation in its evaluation that the management plan "address the issues of controlling development in the buffer zone".

The mission also strongly recommends that the Management Structure, the EMD, must take up its competence in directing the Management Plan. If this had been so in the past, the critical situation arising from the debates around the FTDD project would most probably have never come up in the same way. Article 1 -"Normative Guidelines"<sup>2</sup>- of the Management Plan provided with the nomination states that "the alteration of the rivers margins' morphology and the partial or total destruction of riparian vegetation are considered prohibited actions, and in article 2, "the crossing of energy or communication lines and the creation of energetic power stations, as well as any interventions with direct repercussions in the landscape must be notified and assessed before taking place".

The mission therefore urges the State Party to present by **1 February 2013** documentation clearly stating the competencies of the EMD, its relation to other governmental bodies and relevant NGO's, and its legal status for managing the World Heritage property. In view of drawing up this document, the relationship between the EMD and its Consultative Council (Conselho Consultivo) also needs to be clarified. The EMD's role is especially relevant in the follow up of the compensatory measures that have to be put in

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<sup>1</sup> Nomination of Alto Douro Wine Region for the WH List. June 2000, English resume, page 53;

<sup>2</sup> Management Plan handed in for nomination in 2000, P.I.O.T., chapter on "orientaciones normativas" artículo 1º, page 12.

place as a result of the FTDD, and in the final definition of location of the power lines that have to be put in place.

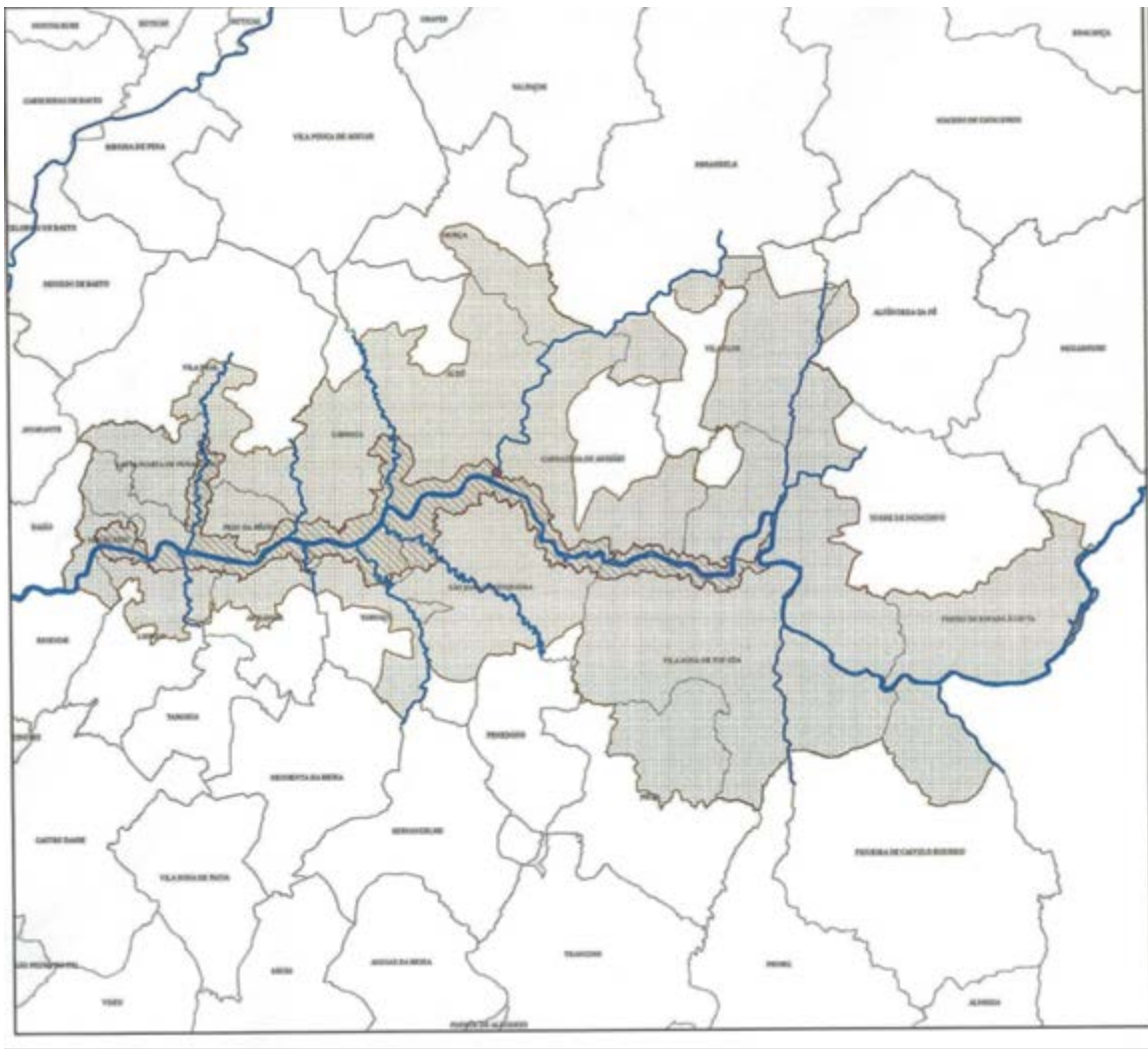


Figure 3.1: The Alto Douro Wine Region. Core area close to the river Douro and its tributaries (blue lines), buffer zone in grey;

### **3.3 Construction of the FTDD project**

#### **3.3.1 Background to the FTDD project**

It was indicated in the April 2011 ICOMOS advisory mission report that, in the 1989 National Energy Plan elaborated by the Department of Industry and Energy, the FTDD was considered as a priority study. In 1999, the Douro River Hydrographical Basin Plan was approved, and in it the FTDD is referred to as a priority candidate for a hydropower dam. However, no mention of these issues is to be found in the nomination dossier handed in 2000, as previously explained.

In 2007, Portugal launched the National Programme of Hydropower Dams, where the FTDD appeared again as a priority project. That same year the FTDD was subject to a Strategic Environmental Assessment. In 2008 the Portuguese Water Institute promoted a public tender for the FTDD which was attributed to EDP Produção, who then developed a Feasibility Study for three alternative storage levels

(elevations at 195m, 180m and 170m), and the corresponding Environmental Impact Assessment. This document gave rise to an Environmental Impact Declaration in 2009, conditionally approving the project for storage level at 170m.

The construction works started in April 2011 directly after the ICOMOS Advisory Mission.

### 3.3.2 FTDD project description

**Location:** The FTDD is to be set in the River Tua, which is placed in the middle catchment of the Douro River, and which in this section flows in a NE-SW direction fairly perpendicular to the Douro River itself. The FTDD will place a dam at 1 km. from the mouth of the Tua River, inside the World Heritage site, and consequently create a reservoir located in the Buffer Zone, which will cover an estimated surface of 421 ha, tangential to the limit of the World Heritage Cultural Landscape. The area covers five municipalities (Alijó, Carrazeda de Ansiães, Miranda, Murça and Vila Flor) located in the Região de Trás-os-Montes and Alto Douro. The main structures of the FTDD are all nevertheless concentrated in the municipality of Alijó located on the right hand side of the Tua River.



Figure 3.2: Location of the FTDD;

Figure 3.3 below shows the area covered by the FTDD, which spans over the Core and Buffer Zones (red hatching).



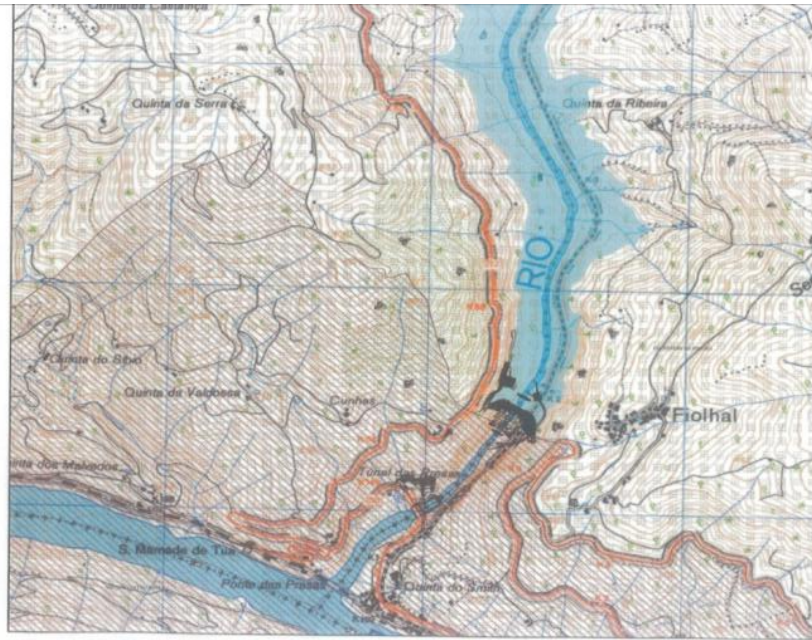


Figure 3.3: Location of the FTDD with the World Heritage property and the buffer zone

Regarding the precise location of the FTDD project and its constituents (drawn in black on Figure 3.3), we can see that all of them (central power station, substation and control post) lie within the ADWR WH property (depicted with a line hatching in the plan below, handed in by the State Party); the concrete arch dam lies in the boundary line between the ADWR World Heritage property and the buffer zone; and that only the reservoir lies solely in the World Heritage buffer zone. The high voltage transmission power line, though not depicted in the drawing below, will need to start from within the World Heritage site.

**Main Elements of the FTDD project:** The main elements of the FTDD project, shown on Figure 3.4, are described below:

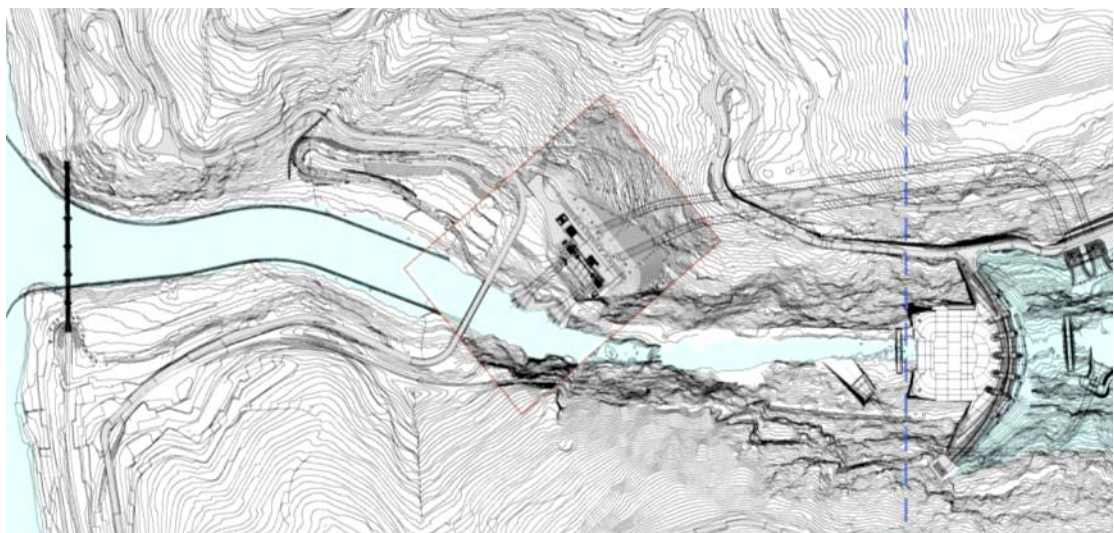


Figure 3.4: Plan of Foz Tua Dam;

- A 108m high concrete arch dam (see Figure 3.5), with a spillway supplied with four radial gates. The overall discharge capacity of the spillway is  $5,500\text{m}^3/\text{s}$ . The dam crest is at elevation 172m and is 275m long. It can be reached by a maintenance road via its northwest abutment.

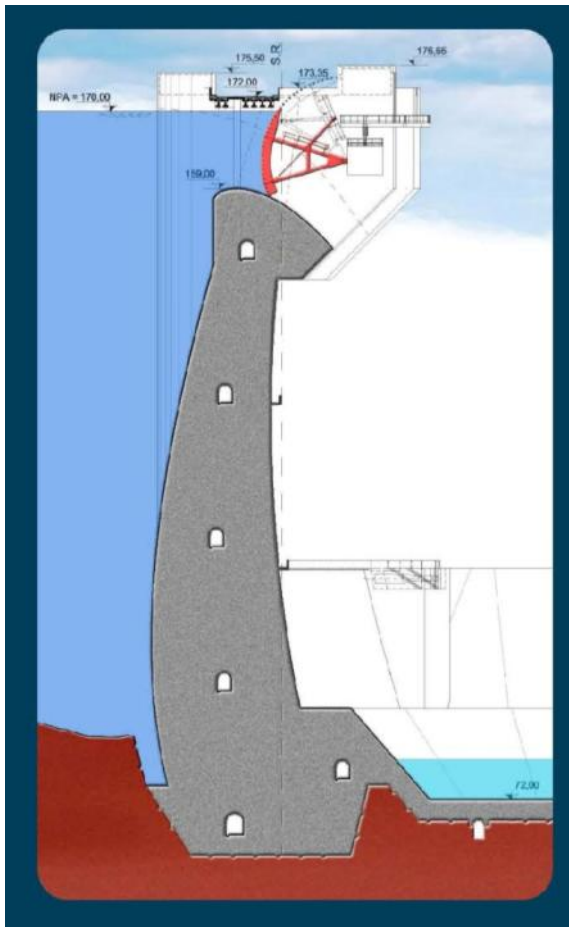


Figure 3.5: Typical cross section of Foz Tua concrete arch Dam

- Reservoir: the reservoir is 27km long and has a total volume of 106 M m<sup>3</sup>
- Hydropower tunnels: As shown on Figure 3.4, there are two hydropower tunnels that lead to the power house. Their approximate length is 600 m with a diameter of 7.5 m. A longitudinal section through the tunnel is shown in Figure 3.6.

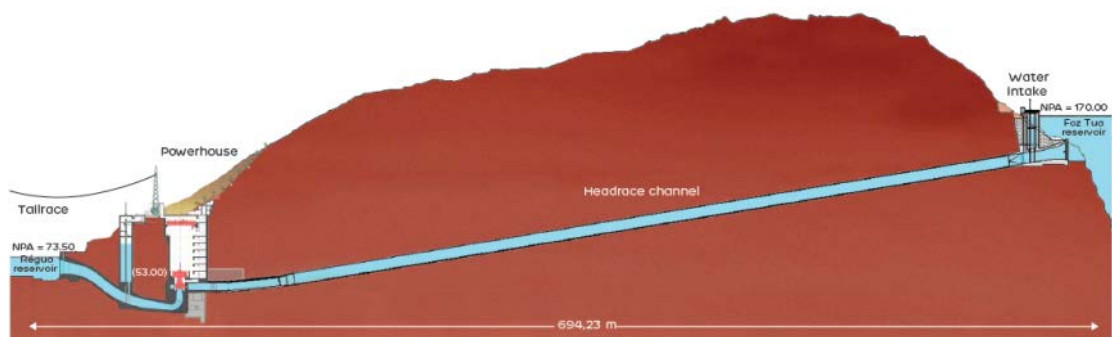


Figure 3.6: Longitudinal section through the tunnel

- A powerhouse and a switch yard are located 400m downstream from the dam on the right bank of the Tua River. The power house is equipped with two power generating units. Annual net power

generation is estimated to be 275GWh. The power house and the switch yard can be accessed by a road close to the Edgar Cardoso Bridge. The switch yard is located above ground at elevation 102m, on a platform 60m x 140m, which, in average, rests 30m lower than the surrounding grounds.

The original design of the power house (Figure 3.7) showed the building to be above ground, reaching up to 25m. The plan area of the building was 75m x 35m.

Based on the April 2011 ICOMOS Advisory Mission, a revised design of the power house has been prepared to minimise the impact on the World Heritage site. It is proposed that the new power house is constructed underground and the adjacent area is landscaped. This design is shown in Figure 3.7 below. However, it is noted that a detailed design for the current power house layout is yet to be finalised and approved.

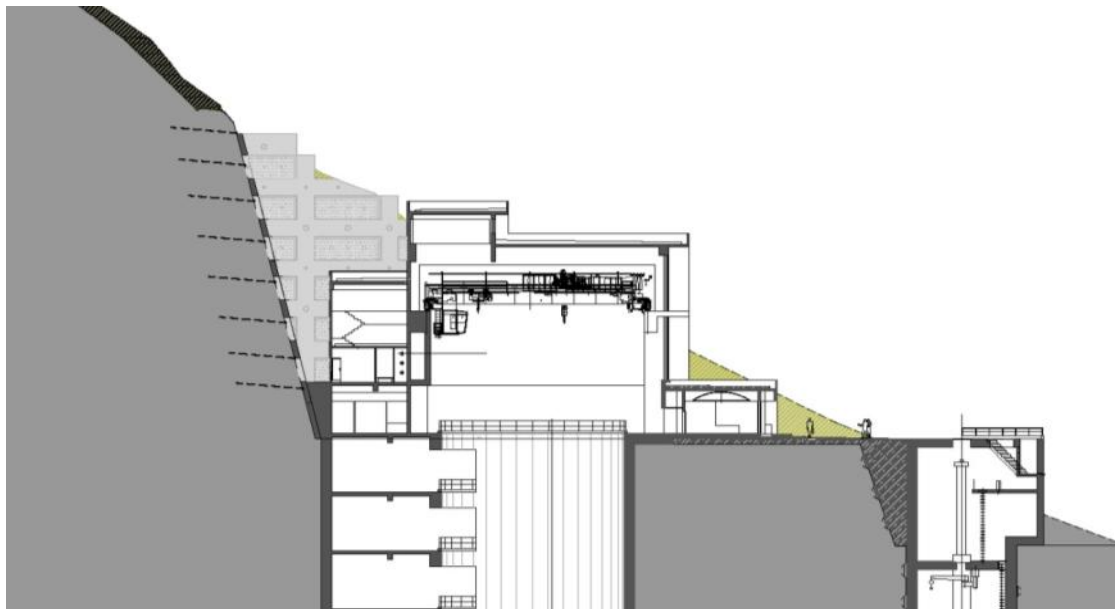


Figure 3.7: Original EDP design of the power house (2011)

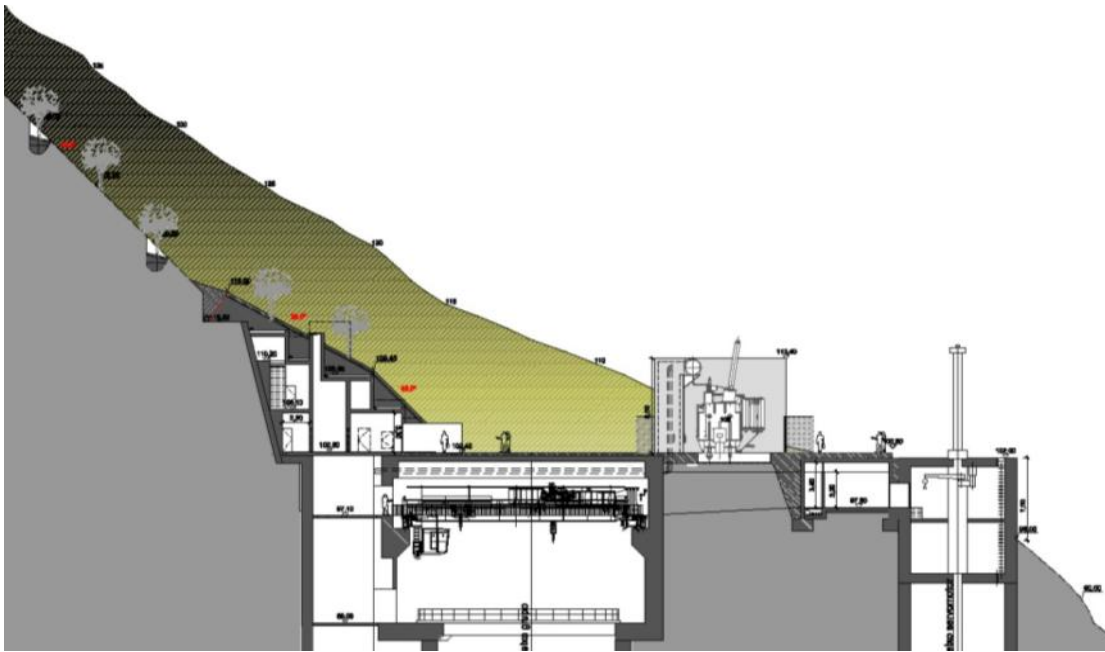


Figure 3.8: Current EDP design of the power house (2012)

- Diversion Tunnel: this tunnel is 307m long and is located on the left hand of the Tua River as shown on Figure 3.9 below

#### River diversion tunnel 307m

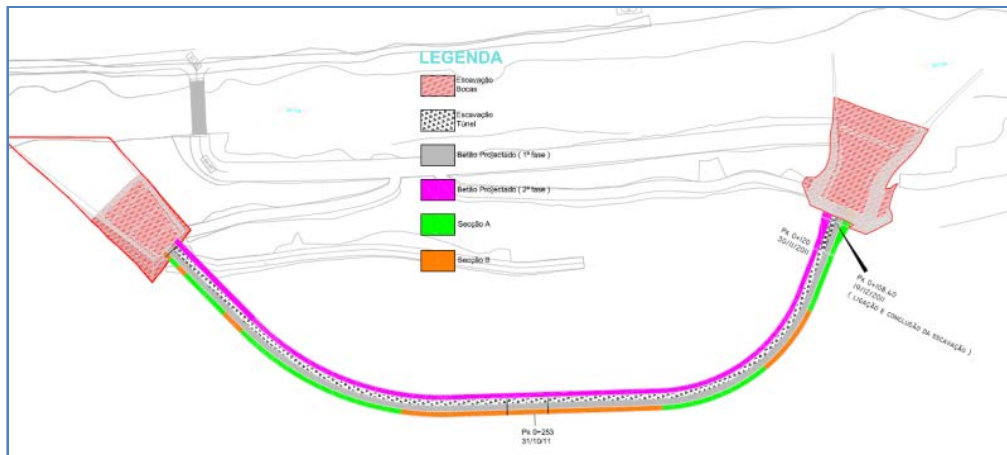


Figure 3.9: River diversion tunnel

- High Voltage Transmission Power line: a link from the FTDD site to the national electrical grid (Rede Eléctrica Nacional de Transporte e Interligação) will be via a 400 kV power line. The project for the power line is still not finalised. Four options shown on Figure 3.10 are currently being developed by EDP and their EIA considered. A line with a minimal impact onto the WH site should be adopted.



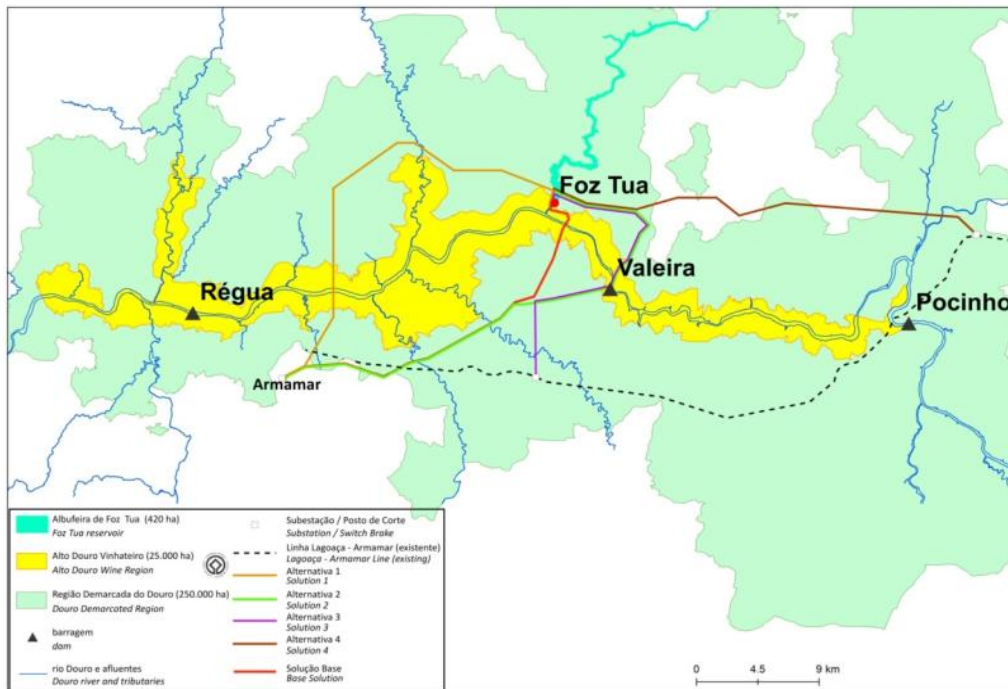


Figure 3.10: Options for the high voltage transmission power line

- River channel downstream of the power plant: the river channel downstream of the power plant will be widened and deepened as shown in Figure 3.11 below to allow for a safe passage of the water used for power production. The water quality in the Douro River will need to be monitored and reviewed in the EIA. This needs to be in accordance with the EU Water Framework Directive; also impacts of the channel's modification onto the Douro River navigation should be studied.

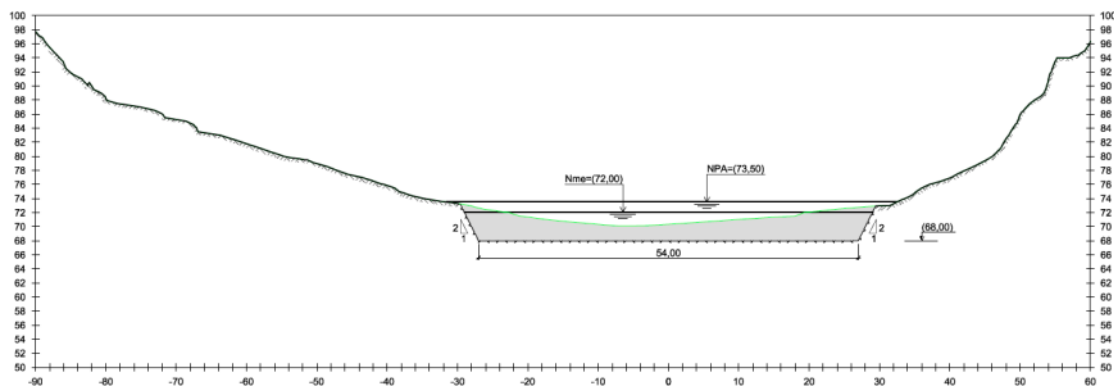


Figure 3.11: Modifications to the river channel downstream of the power plant

- Facility for a fish pass: EDP explained to the mission that no special structure was envisaged for a fish pass but a provision was made for the fish to be collected downstream of the dam and transported to the reservoirs. This transportation would be done by means of a truck. As this method will be applied in Portugal for the first time, its effectiveness should be closely monitored for the first couple of years of the reservoir's operation to ensure there is no negative effect on the fish.

### 3.3.3 Visual analysis

In the ICOMOS advisory Mission report of 2011, the impact on the OUV of the property regarding the visual analysis of the landscape was established using the data furnished by the State Party<sup>3</sup> in the EIA. In the EIA, all the area intervened (Douro Vinhateiro, Baixo Tua and Terra Quente Transmontana) constitutes a landscape of high visual quality. Furthermore, the Baixo Tua is the landscape unit in the area that presents the highest visual quality.

The assessment of any negative visual impacts the FTDD would produce was done following the criteria established in the Management Plan provided by the State Party and accepted as part of the inscription. Regarding this methodology the FTDD would mean “a loss in the landscapes’ metabolism and order, an exogenous and abusive perturbation to the existing situation”. This Management Plan, even if it does not take into account the construction of new dams, considers the surroundings of the existing ones as permanent, local or regional impacts which are difficult to mitigate or not possible to mitigate at all<sup>4</sup>.

The conclusions drawn were that, even if the Dam structure itself –the concrete arch- was not going to be very much perceived from inside the World Heritage property, i.e., the River Douro itself, the structures associated to it (power station, substation and control post) would mean drastic interventions in the property that would change the high visual value of the landscape, as their massive, rectilinear volumes created a disruption in the harmonious composition of its elements.

Since the 2011 report, the company in charge of building the dam, Electricidade de Portugal, has hired an external consultant; architect Souto Moura, to prepare a project to minimize the impact of these structures. Thus, the power station, in the previous project only partially excavated in the hillside, is now –except for its transformation towers- completely underground. Impact is therefore minimized on the landscape’s attributes and is considered as adequate.

The following images provide an impression of the original and current project designs (see also figures 3.7. and 3.8), the latter being regarded to be adequate by the mission team for the main facilities, though the final decision of the high voltage transmission lines is still pending.

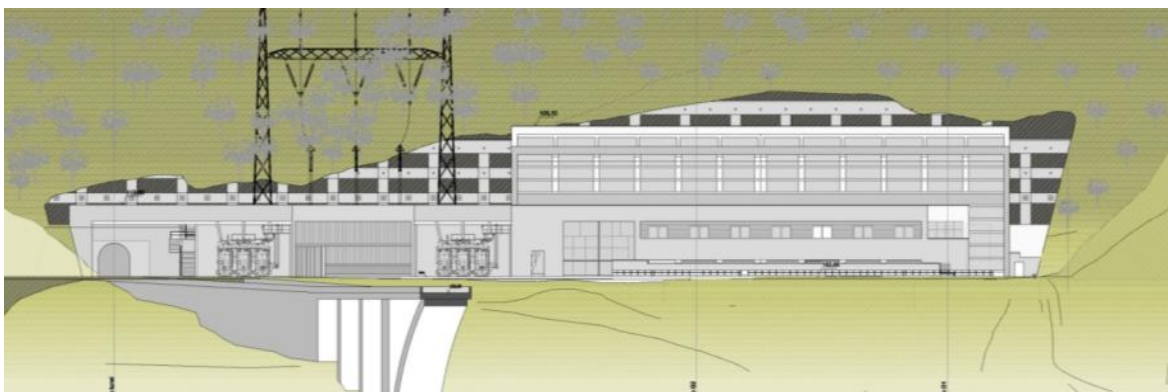


Figure 3.12: Original EDP design of the power house (2011)

<sup>3</sup> *Estudo de Impacte Ambiental do Aproveitamento hidroelétrico de Foz Tua*, p. 253, handed in by the State Party, p. 261, vol. I.

<sup>4</sup> Management Plan provided with the nomination in 2000, P.I.O.T., page 91.

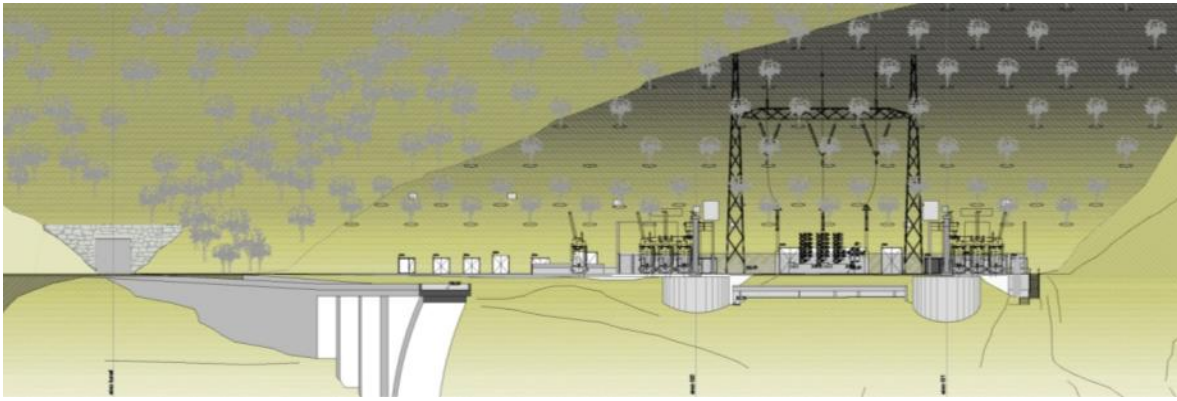


Figure 3.13: Current EDP design of the power house (2012)

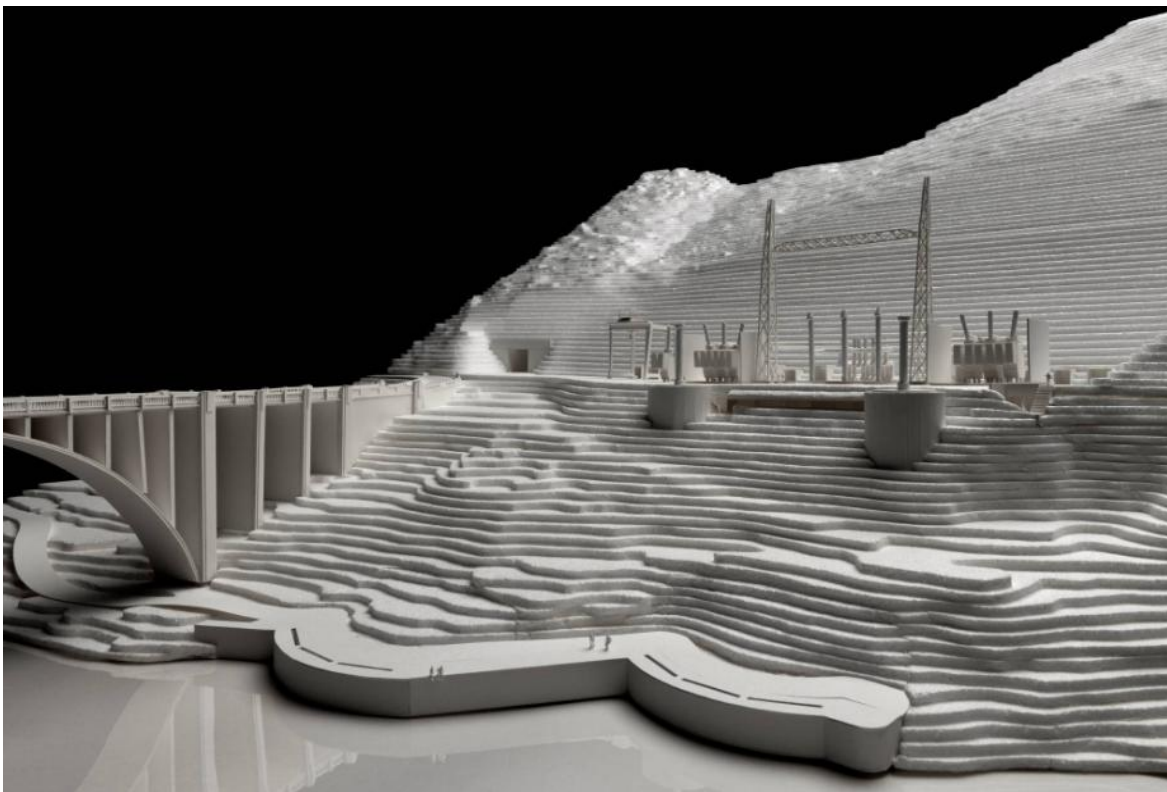


Figure 3.14: Overall design of the project by Architect Souto Mouro (July 2012)

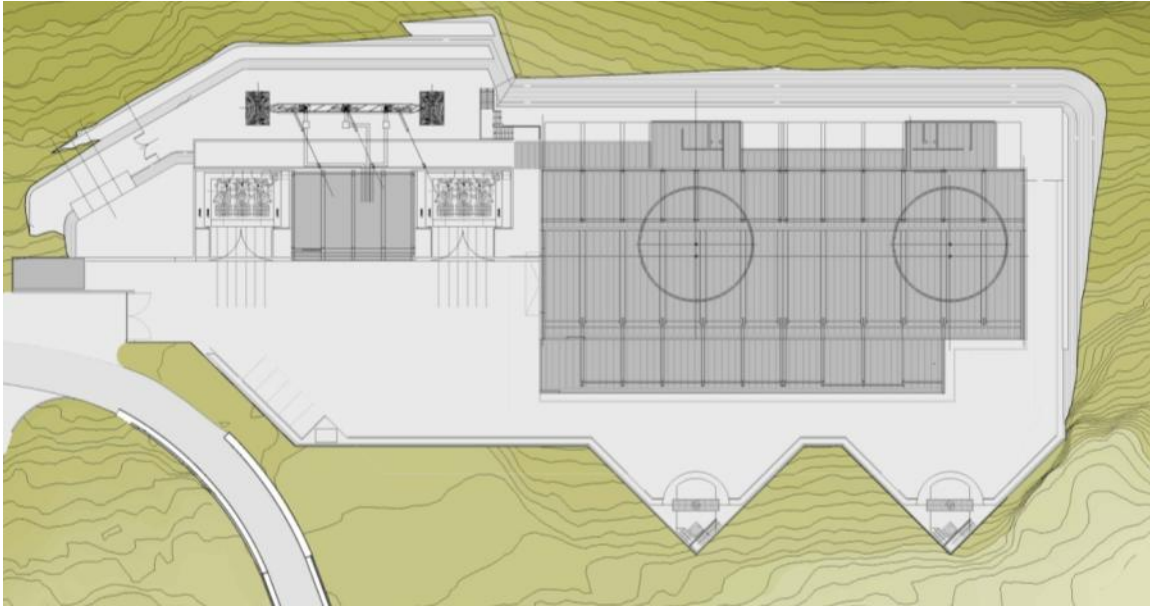


Figure 3.15: Original ground plan EDP design (2011)

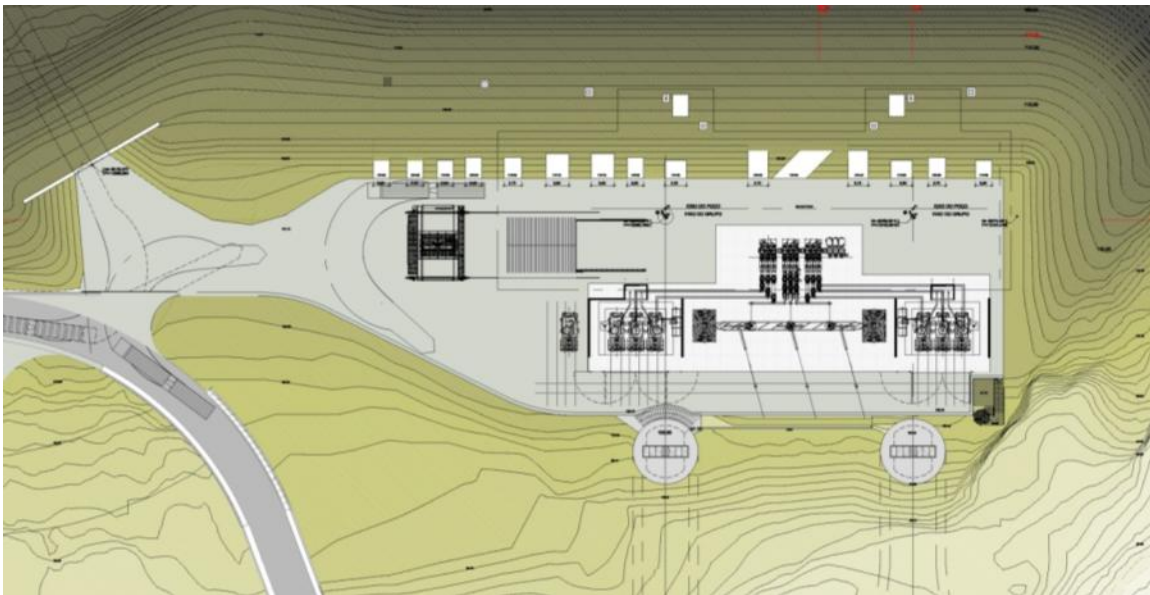


Figure 3.16: Revised ground plan EDP design (2012)



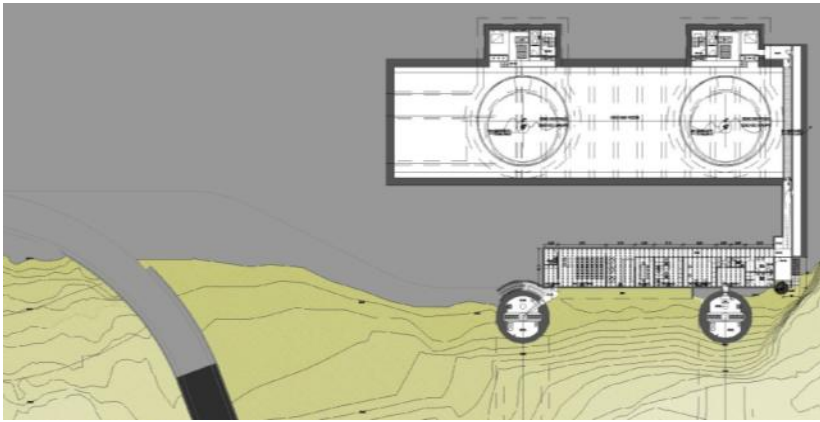


Figure 3.17: The revised ground plan covers a much smaller surface area, - here a detail plan of some of the underground facilities.



Photo: 3.1: View from the World Heritage property towards the Tua Valley (buffer zone) – initial project (2011)



Photo 3.2: view from the World Heritage site towards the Tua Valley – current project 2012.



Photo: 3.3: View from the railway bridge in the World Heritage property towards the Tua Valley (buffer zone) – initial project (2011)





Photo 3.4: View from the railway bridge in the World Heritage property towards the Tua Valley (buffer zone) – current project (2012)

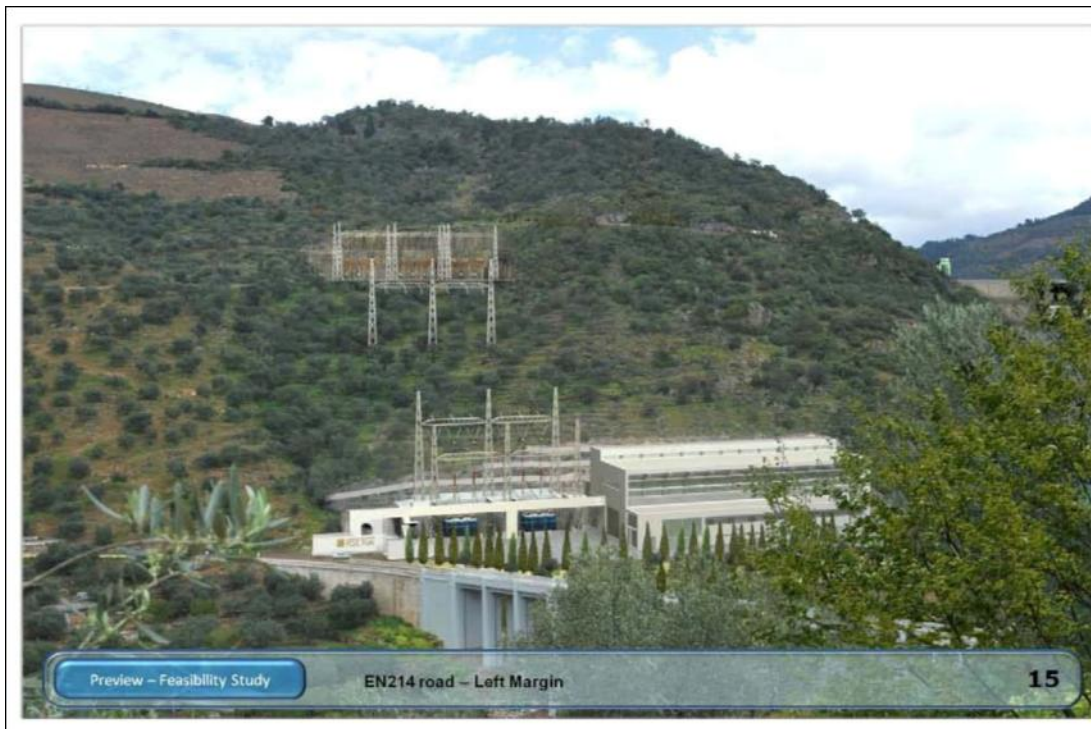


Photo 3.5: The actual project is still missing the design of the high voltage transmission lines. Neither the State Party nor Electricidade de Portugal have provided the visual impact analysis these will have on the World Heritage property. The photo above shows a photomontage of the previous project, which has not been provided for in the revised project.



### 3.3.4 Geology in the vicinity of the dam and potential issues

The geology in the vicinity of the dam site is shown on Figure 3.18 below:

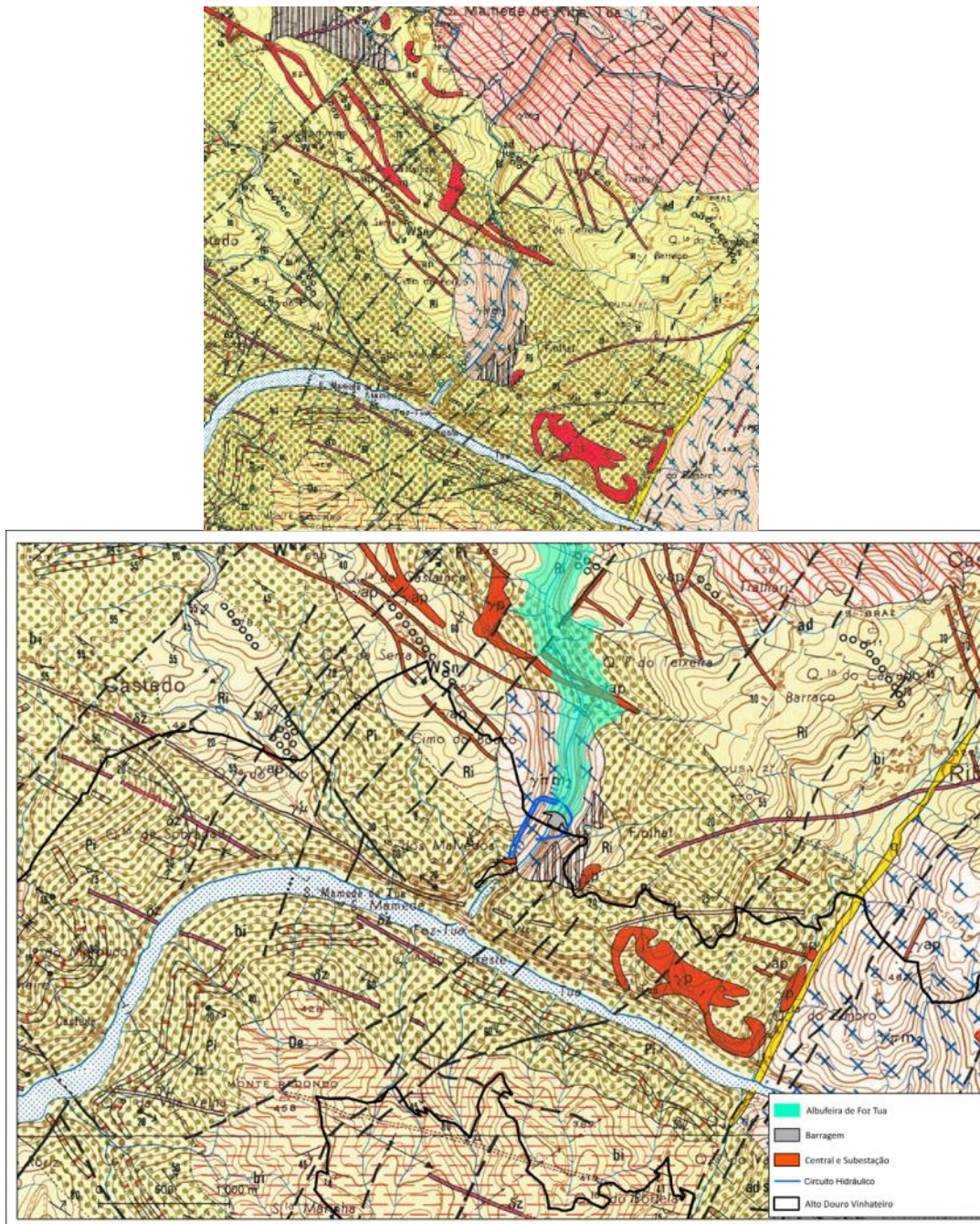


Figure 3.18: Geology in vicinity of Foz Tua Dam<sup>5</sup>

As shown on the above figure, the dam will be entirely constructed on fine to medium grained Granite

<sup>5</sup> Extract from 1:50,000 Carta Geologica de Portugal, Sheet 10-D Alijo, Portugal, 1989.

(Granite de Sabrosa (pale pink) and a little Granite de Favaio (pale pink with vertical stripes) higher up the eastern hillside). Founding strength is likely to be good on Granite.

The reservoir area will partly go through the granite and partly through the schist (pale yellow on the map). It should be noted that, as most schists have been derived from clays and muds which have passed through a series of metamorphic processes, this material may be susceptible to sliding along preformed preferential sliding planes. The impact of the reservoir operation on the stability of the reservoir rim shall be studied and mitigation measures proposed for dealing with potentially unstable areas. The mission has been informed that some unstable areas have already been identified along the reservoir rim; however no information on the potential volume of the unstable mass was obtained.

### **3.3.5 Impact Analyses**

#### **a) Cultural Impact Assessment**

The World Heritage Committee at its 36<sup>th</sup> session in 2012 requested the State Party to provide a Heritage Impact Assessment to assess the impact of the revised plans on the OUV of the property as follows:

*.....Notes that the State Party is revising the plans for the dam, power station and other landscape works linked to infrastructure and requests that full details of these plans, together with a heritage impact assessment, are submitted as soon as possible to the World Heritage Centre for review by the Advisory Bodies*

No such impact assessment has so far been undertaken.

The possible impact of the dam development on the cultural attributes of the World Heritage property itself is minimal, while it is significant within the buffer zone as the Tua Valley will be submerged by the reservoir and will disappear as one of the last wild rivers of Portugal.

Concerning the World Heritage property, the mission carefully considered:

- Direct impacts on the attributes of the site
- Visual impacts on the cultural landscape
- Indirect ecosystem impacts, climatic impacts
- Long-term cultural impacts on the property
- Other considerations

As indicated in section 2.1 of this report, ADWR is protected by the Portuguese Cultural Heritage Law, and as such regarded as a National Monument. This would imply that the Ministry of Culture would have been in charge of the property since 2001. The Ministry of Culture gave a negative evaluation report on the FTDD, on the basis of potential impacts it would have on ecological, landscape and cultural values of the World Heritage property. It is noted that it is the only authority which analyzed the project with regard to the World Heritage status. The management of the property, the Estrutura da Missiao do Douro, made a favorable report on the FTDD, and disregarded the Ministry of Culture's report.

The State Party did not provide these reports in line with paragraph 172 of the *Operational Guidelines* and the mission wondered why the repeated requests were not answered.

The mission therefore noted with concern that the original recommendations from the Ministry of Culture - Directorate of Heritage of the Northern Region was negative because of heritage impacts including on the historic railway. The mission questioned the contradiction with regard to the halting of the approval process, while this railway was considered an important one from the historic and technological point of view. The mission was present when the first rails were removed in the part to be submerged, making it no longer possible to recuperate the historic railway.

What has not been investigated is the potential for the reservoir to impact adversely on the micro-climate of the property and thus on the viticultural processes – an impact that has been identified in other

countries.

## Conclusion and Recommendations on Heritage Impact Assessments

The mission concluded that according to the information provided by the different sources the construction of the dam itself seems to have little overall impact on the outstanding universal value of the property, and its integrity and authenticity in terms of its impact on the landscape that reflects viticulture processes. The key attributes of this agricultural and wine producing site, that is the wine terraces, were not impacted. Nevertheless, there will be physical loss of part of the landscape, changing the way the viticultural landscape is experienced as the intervention will affect the pattern, context and setting of the World Heritage property. With regard to the visual integrity of the property the mission noted that already two technological structures are placed in the entrance of the Tua Valley (bridges) to which a few minor new structures will be added (e.g. power pylon above the power station). The new project of planning to construct the power house underground (project by Souto Moura, July 2012), while ensuring daylight in the building is much welcomed by the mission. It substantially reduces the visual impacts of the construction. The mission notes that the dam is at the boundary between the World Heritage property and its buffer zone, and confirms the April 2011 mission report which assessed that the dam itself has little visual impact (in the long term the colour will also be more adapted through weathering).

The mission urges that environmental impacts are carefully monitored, particularly relative humidity, and also including water flow, water quality, biodiversity, fish movements etc. and especially that the Douro Mission team be informed and receive updated information to be able to analyse potential mid- and long-term impacts on the World Heritage cultural landscape and its viticultural processes..

Concerning long-term impacts on the OUV of the World Heritage property, the mission notes (and as stated in the previous report of June 2011), that no assessment has been done with regard to the impact on the attributes of OUV in the documentation presented by the State Party. Both in the Declaration of Environmental Impact (DIA) by the Ministerio do Medio Ambiente to permit the licensing of the FTDD, as well as in the *Memorando of the Programa Nacional de Barragens com Elevado Potencial Hidroelétrico*, which includes an analysis of some possible 25 sites for hydroelectric plants, no cultural heritage issues were evaluated. The mission questioned whether there may have been traditional connections between the local communities of the Tua and the Douro Rivers and that these exchanges may have been lost since the communication lines were cut (railway connection ceased in 2008).

The mission notes that there is one single paragraph in the annexes (page 22) of the DIA which states that “due to the significative heritage and landscape impacts the FTDD will generate in the declared both ADWR WH Site & National Monument, as well as in the Railway line of Tua, an historical railway line, the Direcção Regional de Cultura do Norte (the administrative body of the Portuguese government dealing with heritage issues in Portugal), does not approve this project”.

Especially puzzling is the submersion of 15,9 km. of the Tua railway line, for which a designation process as Cultural Heritage began by the Ministerio da Cultura in September 2010 (Diário da República, Anúncio nº 8665/2010). Backed up by 5003 signatures, the Ministry of Culture recognised its “exceptional heritage value in terms of historical, social, technical and landscape assets”. Nevertheless, in November 2010, after a letter explaining that the consecration of the FTDD was independent of this classification and that the objective of the Ministry of Culture must be to conserve its patrimonial assets, regardless of other projects, the procedure was archived (letter dated 4 November 2010, by the Conselho Nacional de Cultura). The halting of the process of protection status of the Tua railway line is not justified in any document handed in by the State Party, it is only published in the Diário da República (11 November 2010, Anúncio 10853/2010).

Despite these issues, the project got an overall approval from the Portuguese government, which means that a series of compensatory measures have been put forward to mitigate the effects of the dam construction. These are namely:

- Ensure the public transport due to the submersion of part of the railway line; The analysis of various alternatives may well take into account building a new railway line;



- As soon as the works start, the mobility between the Foz Tua station and Brunnheda has to be guaranteed;
- Draw up a project for the 4 thematic nuclei / museums to be established in memory of the Tua valley;
- Ensure the follow up of the works by a special Commission appointed to do so.

All the above had to be handed in during the RECAPE phase (which is now), though, as far as documents have been presented to the mission team, they are only partially under way.

### ***b) Environmental Impact Assessments (EIA)***

Before addressing particular environmental issues in the FTDD under analysis, several considerations have to be noted:

The World Heritage property is classified solely under cultural criteria (iii) (iv) (v), so no specific natural criteria were deemed relevant at the time of its inscription. The site was submitted as a cultural landscape and not a mixed nomination and inscribed as a cultural landscape. Not even in the description and details of each one of the cultural criteria are natural values and thus nature conservation issues mentioned.

The FTDD area does not coincide with any specially protected areas with European or International protection.

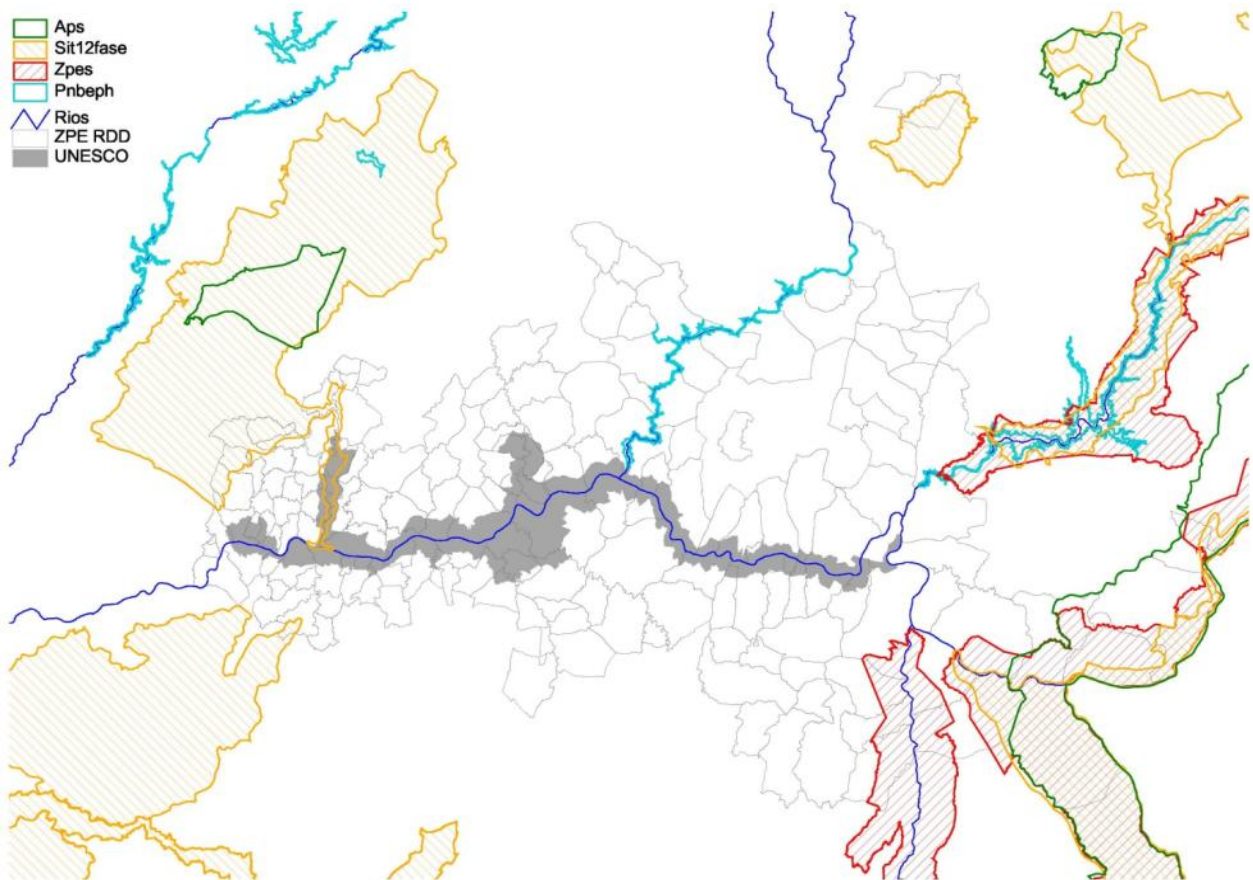


Figure 3.19: The World Heritage area and other protected areas in its vicinity;

Therefore all the following comments deal with environmental issues at national level and specific habitat

sensibility due to the intervention by the FTDD, but do not imply a threat to the specific outstanding universal value, authenticity or integrity as defined by the Decision of the World Heritage Committee for the inscription of the property. The FTDD is set in the River Tua, which is placed in the middle section of the River Douro, and which in this section flows in a NE-SW direction fairly perpendicular to the Douro itself. This area is characterized by some olive, almond and wine plantations resting alongside more natural areas covered by Mediterranean forest and riparian galleries. In the specific area of the FTDD, the river Tua cuts through a granite area creating a deep gorge at the bottom of which the river gushes wildly. It is a very well preserved natural habitat, highly interesting from a conservationist and functional point of view. “Due to its singularity, rarity and beauty it is considered a landscape of high value and sensibility<sup>6</sup>”.

The Environmental Impact Assessment (EIA) produced by Electricidade de Portugal records a high ranking ecological landscape value for this area when analysing natural indicators (structural diversity, floristic diversity, rarity, rare or endangered species, hemerobius, maturity, resilience, resistance, phytocenoses threat and connectivity). This is surely due to the fact that this downstream section of the Tua Valley “has high scenic and ecological values in relation to the cultural and biophysical parameters that characterize its structure and dynamics<sup>7</sup>”, as stated by the State Party itself (see figure 3.20 below).

Surely, this natural setting with frequent rocky escarpments, with a valley cross profile as a narrow and deep canyon, is but an example of the “intimate relation between human activity and nature that has allowed for the creation of a uniquely priceless ecosystem in which land characteristics are exploited in an exemplary manner with the modeling of the landscape ridges, thus preserving it from erosion and enabling vineyard cultivation<sup>8</sup>”.

Figure 3.20 Ecological landscape Value of the Douro and Tua Valleys, as handed in by the State Party in the *Foz Tua Hydroelectric Project and the Alto Douro Wine Region Landscape*. The ecological assessment is presented in a qualitative scale: limited (1), average (2), and high (3).

Indicator	Douro Wine Region	Baixo Tua	Terra Quente Transmontana
Structural diversity	2	3	1.5
Floristic diversity	2	3	1
Rarity	1	2	1
Rare or endangered species	1	1	1
Hemerobius	1	3	2
Maturity	1.5	2	1.5
Resilience	2	2	2
Resistance	2	2	2
Phytocenoses threat	2	1	2
Connectivity	2	3	2
<b>Ecological landscape value</b>	<b>1.6</b>	<b>2.0</b>	<b>1.7</b>

<sup>6</sup> As stated in the *Estudo de Impacte Ambiental do Aproveitamento hidroeléctrico de Foz Tua*, page 253, handed in by the State Party.

<sup>7</sup> As stated in the “The Foz Tua Hydroelectric Project and the Alto Douro Wine Region Cultural Landscape”, November 2010, handed in by the State Party.

<sup>8</sup> IPPAR database.



The placing of a dam at 1 km from the flow of the Tua into the Douro will consequently create a reservoir located in the buffer zone which will cover an estimated surface of 421 ha. This change will translate into loss of the valley bottom upstream from the dam, in addition to the consequent effects of the submersion of different elements and change in the river's torrential flow.

Environmental issues and discussions started in 2007, when Portugal launched the National Programme of Dams of High Hydroelectric Power Potential in which the FTDD appears as a priority project. That same year the FTDD was subject to a Strategic Environmental Assessment. In 2008 the Portuguese Water Institute promoted a public tender –in accordance with Decreto-Lei nº 391-A/2007, of 21 December which alters Decreto-Lei n.º 226-A/2007, of 31 May - for the FTDD which was attributed to EDP Produção, which developed a Feasibility Study for three alternative storage levels (195,180 and 170), and the corresponding Environmental Impact Assessment (EIS). This document gave rise to an Environmental Impact Declaration (DIA) by the State Party in 2009, conditionally approving the project for storage level 170, and the creation of a Comissão do Acompanhamento Ambiental (CAA), or Commission for the follow up on the project's environmental issues. This was an exceptional measure –there is only one other such commission in Portugal, dealing with the dam at Baixo Sabor, in a specially protected area (ZEP) located in the ADWR buffer zone, with the aim of ensuring that all the compensatory measures established in the DIA would be fully accomplished. All the measures established by the State Party were then included in the corresponding Environmental Compliance Report (RECAPE) drawn by EDP Produção on 1 July 2010. Presently, the CAA makes sure that these measures are being put in place, though the generation of the new project by Souto Moura will imply a new amendment to these last documents, which will in turn need an evaluation by the State Party.

Though the Environmental Impact Assessment originally drawn up in 2007 is a complex document, the Mission has to comment on two facts which seem contradictory:

- 1) The *Plano Intermunicipal de Ordenamento do Território do Alto Douro Vinhateiro* (referred to as the Management Plan), handed in by the State Party of Portugal for the Nomination of the property, Oporto 2000<sup>9</sup>, and referring to the protection already in place in the proposed World Heritage site, notes that some areas (which include the FTDD) are declared REN (National Ecological Reserve). This is of high importance: The State Party defines REN as a biophysical structure which integrates the various systems which are subject of special protection due to their value and/or ecological sensitivity or because of their exposure or susceptibility to natural risks. Its aim is to contribute to a sustainable territorial use. This protection ought to be a priority in the EIA, though it does not appear as such;
- 2) In Article 1 of the Management Plan's "Normative Guidelines"<sup>10</sup> the alteration of the rivers margins' morphology and the partial or total destruction of riparian vegetation are considered prohibited actions;

**Approval of the EIA:** The State Party, through its Ministério do Ambiente, do Ordenamento do Território e do Desenvolvimento Regional, gave a favourable report in 2009 to this EIA. Though some of the administrative agencies of the Portuguese Government gave a conditionally favourable answer and only the Direcção Regional de Cultura do Norte a non-favourable one, the project is deemed to be of national interest, in the light of the National Programme of Dams of High Hydroelectric Power Potential (2007), and therefore its execution is solely conditioned to the following measures in the DIA (Declaração de Impacte Ambiental, dated May 2009):

- Ensure public transport due to the submersion of part of the railway line; This analysis of various alternatives may well take into account the construction of a new railway line;
- As soon as the works start, the mobility between the Foz Tua station and Branhada has to be guaranteed;

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<sup>9</sup> *Plano Intermunicipal de Ordenamento do Território do Alto Douro Vinhateiro*, handed in by the State Party of Portugal for the Nomination of the property, Oporto 2000, p.16.

<sup>10</sup> Management Plan handed in for the nomination in 2000, P.I.O.T. chapter on "orientaciones normativas" artículo 1º, p. 12.

- Prepare a project for the 4 thematic nuclei / museums to be established in memory of the Tua valley;
- Transposition of all these requirements into the territorial management legislation;
- The energy transport infrastructure and substation will need to minimize visual impacts on the World Heritage site;
- The energy transport infrastructures will not cross through any specially protected areas (ZPE, Red Natura 2000 etc);
- Abide to all the measures listed in this plan;
- Hand in during the RECAPE phase (actually, at this stage) all the projects aforementioned;
- Ensure the follow up of the works by a special commission appointed to do so.

Regarding nature conservation issues, the compensatory measures include:

- The loss of natural values and their preservation has to be ensured through annual compensation to the *Fundo para a Conservação da Natureza e da Biodiversidade*;
- Not to construct the road at the left bank side of the river Tua due to its impact on important flora communities;
- Draw up a project dealing with the landscape integration of the Dam and its components

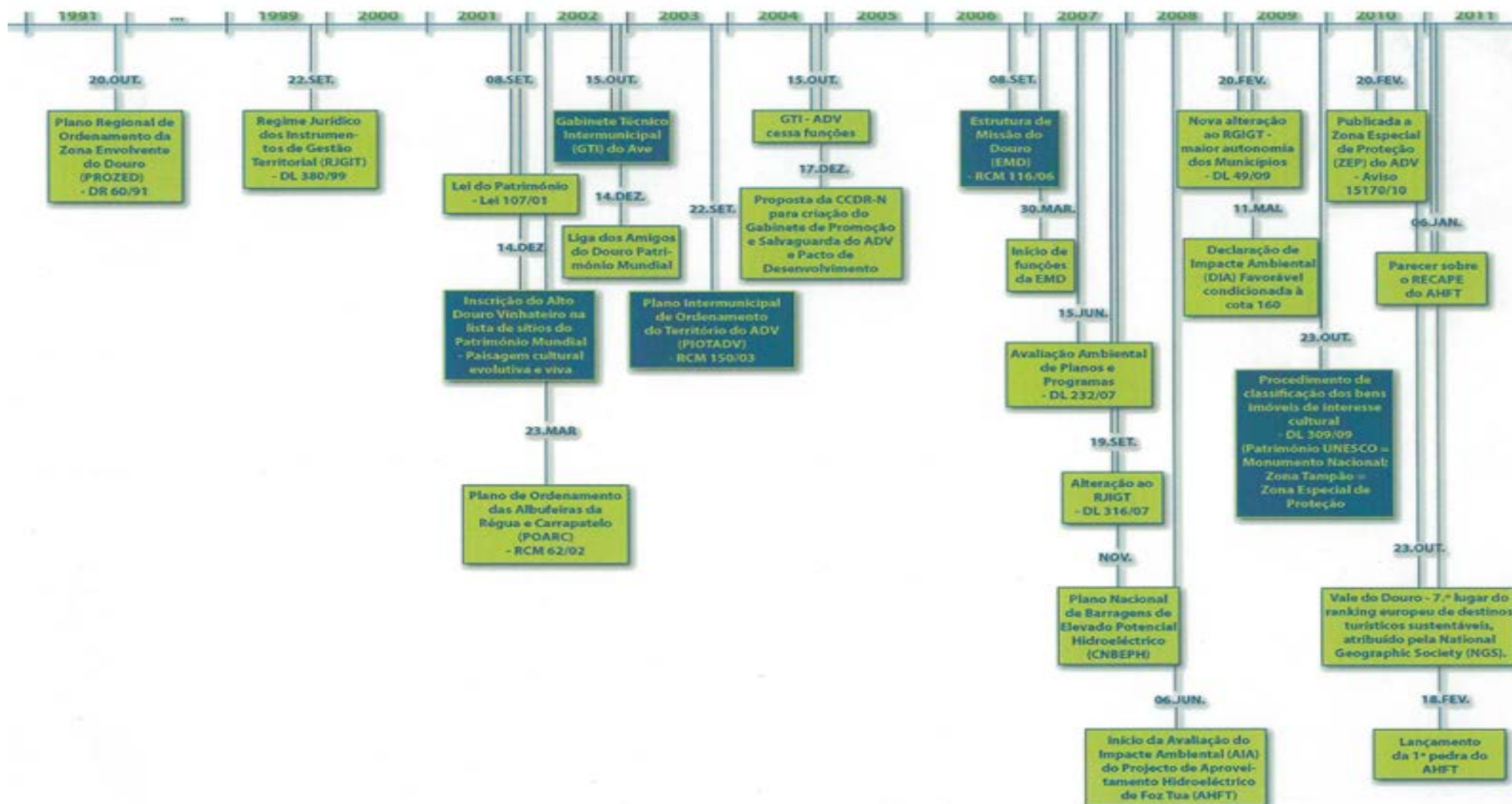
Though the projects for these compensatory measures take “into consideration a combination of the ecological, aesthetic, functional and economic aspects, aiming for a correct and efficient environmental and landscape recovery and integration of the areas intervened in the construction work, pursuing the maintenance or recovery of valuable landscapes and of environmentally significant natural habitats of vegetation communities”<sup>11</sup>, not all of the detailed projects have been made available to the mission team.

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<sup>11</sup> As stated in the “The Foz Tua Hydroelectric Project and the Alto Douro Wine Region Cultural Landscape”, November 2010, handed in by the State Party, page 17.

Figure 3.21: Chronogramme of the Foz Tua Dam Development.

Due to its complexity, this chronogramme has been included here in order to better follow up following comments in the EIAs



## Conclusions and Recommendations on EIAs

The mission considers that it is not its purpose to question the *National Programme of Dams of High Hydroelectric Power Potential* (2007), as this has already been analysed and was also subject to a demand from various NGO's at the European Commission. The mission however carefully took into account any potential threats emerging from the FTDD on the outstanding universal value of the World Heritage property.

The mission considers that there is certainly severe and permanent damage by the FTDD on the ecological system of the river Tua. The mission fully agrees with the Declaração do Impacto Ambiental drawn up by the State Party (DIA, p. 22) that the dam will produce a significant alteration in the river's ecosystem, as a result of the barrier effect of the dam. Equally, it will mean a loss from a nature protection point of view of the river, taking into account that the FTDD will fully affect the lower part of the river, considered highly interesting for flora and fauna.

The mission notes that the mitigation measures which condition the execution for the FTDD are not as advanced in their definition as they should be in this phase of the project, so their detailed evaluation is impossible. The preliminary assessment concludes that some are inappropriate (i.e. as a result of the DIA, the building company does not consider a fish path, or states that 100.000 trees will be planted without having even defined the area. Both of these issues were discussed with the company on 1 and 2 August 2012. The mission also considers that measures should be taken to avoid dust and water pollution into the Douro River (i.e. into the World Heritage area) during construction.

The mission moreover considers that special focus should be provided to the cumulative effects that the building of several dams (e.g. Baixo Sabor) will bring onto the Douro basin. The river is today a succession of water basins as the Douro itself is now water filled behind dams: its valley covered by the World Heritage property contains a long successive reservoir of 100 to 200 m width. Cumulative effects regard not only impacts on identified ecosystems such as the one in the Tua Valley, but also the water's quality, effects on erosion of the reservoir banks, or the risk of eutrophication, etc. that projects such as this may impact on the whole World Heritage site. Environmental impacts should be addressed taking into account the document "Ecosystem Impacts of Large Dams" (Background Paper No. 2, prepared for IUCN/UNEP/WCD).

The mission also notes contradictions between the State Party's evaluations or actions and the Management Plan which should not occur: cultural landscape and related ecosystem issues should be properly addressed in the re-evaluation currently being undertaken, and in the management plan.

The mission strongly recommends proper risk assessments of impacts of climate change to be carried out and to promote adaptation strategies among the stakeholders within the World Heritage property. The mission was pleased to note that ADVID is involved with the Alto Douro University in scientific assessments and training seminars on biodiversity and climate change issues.

### 3.3.6 Status of construction works

#### 3.3.6.1 Approval process

The mission notes that there is discrepancy in the approval process as not all the elements of the project have yet been approved. Namely, the proposed underground power house is yet to be designed and approved. Also, the route for the transmission power line is yet to be selected and approved. It is highly unusual that the construction works have started in April 2011 but important elements of the works have not yet been designed, approved or publically consulted. This status of the approval could put a pressure on the approval authority and the public consultation process and undermine their credibility.

### 3.3.6.2 Construction programme

The work on the dam of Foz Tua is being implemented by Mota-Engil, Somague and MSFconsortium. The original construction programme for the FTDD is attached in Annex V. It can be seen that according to the original programme, the construction works started in April 2011 and were due to be completed on 15 November 2015.

The construction is going ahead at the site and the preparatory works, access roads, part of the diversion tunnel and some excavation for the area around the power house and the dam foundation have already been done. The photograph of the site is shown below.

The revised construction programme issued in July 2012, enclosed in Annex V, states that the works would be completed in Sep 2016, hence delayed by 10 months compared with the original programme.

The following comments have to be made:

- Neither the original construction programme nor the July 2012 revised version provides a timescale for the construction and commission of the transmission power line;
- It is noted that the completion of the dam construction has been delayed by 6 months;
- Completion of the power house has been delayed by 10 months.

No explanation was provided by EDP on the above items.



Photo 3.6: Progress of the construction works

### **3.3.6.3 Safety Issues and Concerns**

The mission was informed by NGOs that three accidents occurred on the construction site since August 2011. These were as follows:

- Accident in August 2011: It was reported that a crane platform slid and 3 people were seriously injured;
- Accident of 26 January 2012<sup>12</sup>: a huge rock toppling occurred at the site and several machines were crushed leaving 3 people killed. It was reported on the national TV that the administrator of EDP said that he would open an investigation into causes of the accident;
- Accident of 8 February 2012: Publico<sup>13</sup> reported that after a controlled explosion there was a sliding of the rock which left 5 workers injured; 4 workers had minor injuries and 1 worker was seriously injured with broken ribs.

It was also reported in Renascença<sup>14</sup> on 15 February 2012 that on the Foz Tua dam construction site three accidents occurred in less than 6 months, one of which provoked the death of 3 people.

The mission was also informed that NGOs were asking for more health and safety measures to be implemented at the site.

It should be noted that a multiple fatality on any construction site is an element of very serious concern and it has a significant impact on how the project continues and is being managed. This also includes the impact on the local community who typically feeds a good portion of the construction workers on these projects. In particular these accidents have to be put into the local context where the Construction Sector in Portugal shows high numbers of fatal accidents, with special occurrences in falls from height, crushing by rocks, burying and electrocution. From the 130 fatal accidents in 2010 (latest statistics available), 55 came from the Construction Sector; therefore three fatalities in six months on one single project is not a number that can be ignored!

The mission would expect that the following issues are addressed in the accident investigation and made publically available:

- Description of the accidents;
- Findings from accident investigations;
- Preventative measures taken immediately after the accidents (i.e. temporary works, revised emergency planning);
- Medium and long term improvement measures undertaken following the accident investigation (site supervision, health and safety training, more frequent H&S inspections, etc);
- Update on the conditions of the workers involved in the other two non-fatal accidents;

In particular, given the nature of the accident (the risk of rocks falling from height is pretty common in the projects and temporary works should be in place to prevent this from happening) activities should have been re-considered and planned to ensure that the risk had been eliminated and that other workers were not at risk.

### **3.3.6.4 Social compensation**

The mission was informed by NGOs that not all the people affected by the dam construction were compensated and that some of them have lost land with no compensation. This is not acceptable and should be rectified.

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<sup>12</sup> tví 24- national TV;

<sup>13</sup> Publico, Portuguese daily newspaper.

<sup>14</sup> National newspaper



### 3.3.7 Railway of Tua and Tua Valley

The mission was informed by a number of NGOs on the situation with regard to the Tua Railway line. This line is connected to the main Douro line at the Tua Station and it runs from the Tua Station for 134km along the Tua River to Mirandela and Bragança. The line was opened in 1887. It was the first and longest of all the narrow gauge railways built to serve the area north of the River Douro. It was originally operated by Companhia Nacional de Caminhos de Ferro (CN). From 1947 onwards, until closure, the line was operated by Comboios de Portugal (CP) a state-owned company which operates freight and passenger trains in Portugal.

Part of the route of the Tua Railway line will be submerged under water when the Foz Tua Dam project is completed.

The mission team visited the railway within the World Heritage property at the first tunnel – this section will not be submerged and will remain, while the section after the tunnel and behind the dam in the buffer zone will be submerged. The mission noted that the railway has not been classified as a national monument or heritage designation although a classification process commenced which was stopped.



Photo 3.7: *The Tua Railway and its historic bridge and tunnel just in front of the dam location.*

The mission was also made aware of the values of the Tua valley by a number of local people and associations, including its biodiversity (e.g. wolves, Egyptian vultures, boars) and its tourism potential (e.g. river rafting). The mission was informed that there are no archaeological sites of any value, which would be flooded contrary to the Foz Coa valley (see section 1.2). EDP informed the mission that these questions were covered in the Plano de Salvaguarda do Património Cultural do FTDD and to mitigate or minimize any impacts on any cultural heritage of the Tua Valley. The mission notes that the valley

itself is located in the buffer zone of the property and has less vineyards and terracing contributing indirectly to the cultural values, integrity and authenticity of the World Heritage property. Concerns were raised that the current freshwater release into the Douro would turn into 'still water' and that the flooding of the valley would result in microclimatic impacts on both the Tua Valley (buffer zone) and the mouth of the Tua (World Heritage property). It seems that the broader landscape impacts may not have been fully taken into account in the Environmental Impact Assessment (EIA), especially for the wild river Tua. The recuperation and rehabilitation of its biodiversity and geological values (hot springs) should certainly be carefully monitored.

Concerning cultural values in the valley, the mission was made aware of the cultural identity of local people linked to the diverse agricultural production systems and natural beauty of this steep valley. Concerns were raised with regard to a number of social issues, including the reduced mobility of people and the lack of compensation.

### **Conclusions and Recommendation on the revised dam project**

The mission recommends that the power house is constructed underground and the adjacent area is landscaped, as currently proposed, to minimise the impact on the World Heritage property. Even though the revised project (with the underground powerhouse and the landscaping) is considered much more appropriate for the integration into the landscape, the mission believes that a thorough Landscape Master Plan is missing. Following a broad approach as outlined in the ICOMOS Xi'an Declaration, the mission believes it is also important to address the scale of this specific intervention, the so-called "significance of effect". The direct impact onto the ADWR World Heritage property arises as a primary consequence of the proposed FTDD resulting in the physical loss of part of the landscape, changing the way the viticultural landscape is experienced as it affects the pattern, context and setting of the World Heritage property. In this sense, the Landscape Regeneration Project presented by the company to the mission only deals with the establishment of vegetation communities. An overall Master Plan which is able to provide a comprehensive and holistic project for the overall area of intervention, at a much smaller scale and at in depth analysis is required. This means that besides dealing with plants communities, it will also take into account visual effects from across the river, mobility issues (e.g. assessment of the Tua railway line in the project, new roads or accesses) and zoning. Such a plan should also incorporate the proposal to plant 100.000 trees as part of the dam proposal – as currently where these go and whether they can be satisfactorily incorporated in to the landscape has not been demonstrated.

Four options have currently been proposed for the High Voltage Transmission Power line which will link the FTDD site to the national electrical grid. The project for the power line is still not finalised. The mission recommends that a line with a minimal impact onto the WH property should be adopted. The potential visual impact of the various options needs to be evaluated formally and the preferred option submitted to the World Heritage Centre for appraisal. Neither the original construction programme nor the July 2012 revised version provides a timescale for the construction and commission of the transmission power line. Electricidade de Portugal (EPD) will need to present a proposal which will then be assessed by the State Party authorities for its impact on the World Heritage property and if approved, transmitted to the World Heritage Centre for evaluation and review by the advisory bodies;

The reservoir area will partly go through the schist which may be susceptible to sliding along preformed preferential sliding planes. The impact of the reservoir operation on the stability of the reservoir rim shall be studied and mitigation measures proposed for dealing with potentially unstable areas.

The mission notes that there is discrepancy in the approval process and underlines that not all the elements of the project have yet been approved. It is highly unusual that the construction works have started in April 2011 while important elements of the works have not yet been designed, approved or publically consulted upon. This status of the approval could put a pressure on the approval authority and the public consultation process and undermine their credibility. Full transparency in the procedure has to be ensured for the public to have any credibility in the process.



Concerning health and safety issues, the mission expresses concern that over a period of six months, from August 2011 and February 2012 three accidents occurred on the site with one accident of three fatalities. The mission would expect that in the interest of full transparency, credibility of the project and to avoid any further incidents which could also impact on the World Heritage property, the following issues are addressed in the accident investigation and made publically available: Description of the accidents; Findings from accident investigations; Preventative measures taken immediately after the accidents (i.e. temporary works, revised emergency planning); Medium and long term improvement measures undertaken following the accident investigation (site supervision, health and safety training, more frequent health and safety inspections, etc); Update on the conditions of the workers involved in the other two non-fatal accidents;

The mission recommends to maintain the section of the railway within the World Heritage property and to valorize it, possibly as a tourist trail or as railway to be visited. The green iron railway bridge just before the tunnel could be a visitor platform to view the Douro Valley section and the two bridges which demonstrate engineering technology from 1887 (railway bridge) and 1940 (concrete road bridge) and appreciate the industrial and technological history of these steep valleys;

The continuous monitoring of the supportive ecosystems of the Tua Valley for the Douro, in terms of impact of the reservoir on relative humidity, on viticultural processes, on water quality and on biodiversity and of any other effects on the World Heritage property is strongly encouraged to be carried out by the site management of the Douro Mission.

Concerning social issues, transport and mobility, it is necessary that the Douro Mission and the authorities ensure the connectivity within the Douro region to enhance the communication and interconnectivity among people in this living landscape. The disruption of the railway needs to be compensated by other means of public transport and the current mobility plan (tourist mobility/daily mobility) submitted does not seem to be sufficient.

In this regard the mission seriously questions the cable car solution proposed, as a means to connect between the railway station at Foz Tua and the reservoir, as the mobility rail/bus/cable car/boat/rail is not adapted to local needs at all.

### **3.3.8 Future infrastructure projects**

The mission notes that a number of other projects have been either carried out or are planned, including road constructions. A major European highway has been constructed since the designation of the site, the A 24, which passes through the property and its buffer zone (the section Vila real to Peso da Regua at the Douro has been put into service in 2004). While this brings visitor access to the Douro, any impacts of future road constructions should be carefully assessed.

The mission also noted that as a part of the Foz Tua dam construction, the river channel downstream of the FTDD will be widened and deepened. The impact of these works on navigation in the Douro River should be studied and measures should be taken so that their impact is minimal.

The mission recommends that any project within the World Heritage property, its buffer zone or within the Douro region should be evaluated for its potential impacts on the outstanding universal value, integrity and authenticity of the property. Traditional EIAs do not cover these aspects properly and therefore the use of the Heritage Impact Assessment Guidance (ICOMOS 2010, [http://openarchive.icomos.org/266/1/ICOMOS\\_Heritage\\_Impact\\_Assessment\\_2010.pdf](http://openarchive.icomos.org/266/1/ICOMOS_Heritage_Impact_Assessment_2010.pdf)) and Guidance for the conservation and management of cultural landscapes (UNESCO 2009, [http://whc.unesco.org/documents/publi\\_wh\\_papers\\_26\\_en.pdf](http://whc.unesco.org/documents/publi_wh_papers_26_en.pdf)) is strongly recommended.

In order to ensure full transparency of the processes and compliance with the Operational Guidelines (para 172), the Douro Mission should inform through the appropriate channels the World Heritage Centre, of the intention to undertake or to authorize in an area protected under the *Convention* major

restorations or new constructions which may affect the Outstanding Universal Value of the property. Notice should be given as soon as possible (for instance, before drafting basic documents for specific projects) and before making any decisions that would be difficult to reverse.

### **3.4 Boundaries of the property and its buffer zone**

The draft statement of outstanding universal value states: “The boundaries fully encompass all the attributes of Outstanding Universal Value. The cultural landscape of the Alto Douro is an outstanding example of humankind’s unique relationship with the natural environment. Its nature is determined by wise management of limited land and water resources on extremely steep slopes. It is the outcome of permanent and intense observation, of local testing, and of the profound knowledge of how to adapt the culture of the vine to such extremely unfavourable conditions.”

It appears to the mission that some of the critical issues regarding the project for the development of the dam are related to the boundaries. The company EPD stated at the meeting on 1 August 2012, that the boundaries indicated were those by UNESCO, and for that reason the dam was to be constructed at the border between the property and its buffer zone. The mission notes that the Douro Mission Structure should enhance the knowledge among all stakeholders about the beneficial provisions of the World Heritage Convention and the full understanding of the concept of a buffer zone to better protect the World Heritage property.

While the winegrowing associations commented that the property could be extended, the mission considers that the current boundaries of the buffer zone and the World Heritage property are adequate to represent the outstanding universal value of the property.

### **3.5 Presentation of the property**

The mission visited the Douro Museum at Regua, as well as substructures, such as the Bread and Wine Museum which was opened in July 2012. It was also briefly informed about a 2,5 million Euro project for a new “Tua Valley and Railway Museum” to be established at Foz Tua in the historic railway station linking the Douro and the Tua Valley lines. The mission did not receive any written information about the details of the project, but considers that it could potentially contribute to local development and interpretation of the World Heritage property. In case the museum project goes ahead, it would be useful to include the history of the Tua Valley and the project of the dam construction to better explain to the general public the divergent views, including from local stakeholders and NGOs, on the project and ensure full transparency.

The mission noted that the overall presentation of the site has improved and that panels along the main access roads explain the location of the World Heritage property. The designation is also promoted through the Alto Douro Mission structure and the decentralized museum concept.

The mission welcomed the participation of the Alto Douro in the Vitour (European World Heritage Vineyard) project, which provides for a forum about good practices in successful landscape preservation and enhancement in wine cultural landscapes. This exchange could be enlarged to other regions in the world to share the presentation and interpretation of this type of property and experiences with managing such complex cultural landscapes.

The mission also noted that the Douro valley is a prime tourism destination which could be even more used to embrace sustainable tourism and demonstrate best practice at World Heritage cultural landscapes in line with the new sustainable tourism programme adopted by the World Heritage Committee in 2012.

## **4 ASSESSMENT OF THE STATE OF CONSERVATION OF THE PROPERTY**

The mission considered that the World Heritage property is currently not under major ascertained threats, but as the current dam project has shown it is highly vulnerable as a result of the current lack of adequate planning and management that respects the OUV of the property. However, if the concerns indicated above are not addressed effectively, potential threats to the World Heritage property could emerge. These threats lie especially in the cumulative effects of current and future infrastructure development, including access roads, bridges and power lines due to a number of dam projects beyond the World Heritage property, but in the broader Douro Region.

It is important to note that a careful assessment of the implementation and revision of the management plan has to be carried out to ensure that the outstanding universal value of the World Heritage property is well understood and that any new developments are assessed in relation to the outstanding universal value, authenticity and integrity of the property, especially in the light of the draft Statement of Outstanding Universal Value which has been recently prepared by the authorities and submitted to the World Heritage Centre.

The mission also considered the overall development of this dynamic cultural landscape, which has changed greatly over time. Before the building of the dams the River Douro flowed along its irregular and rocky bed at the bottom of a deep valley according to the time of the year: in summer, the river was almost completely dry and was responsible for frequent epidemics of malaria; in winter, the violent floods that followed heavy rain rose it to one of the highest levels in Europe; The low dams along the Douro and the succession of reservoirs constitute the Douro as we know it today. The terraces along the Douro are among the most exceptional constructions in the world demonstrating the interaction between people and the land. Over centuries, the rows have been raised according to different techniques, starting with small irregular shapes and developing into regularly shaped terraces at the end of the 19th century. This evolution demonstrated the accumulated know-how of the people. Today, the transmission of this know-how is crucial with new challenges, including climate change. The role of the management structure of the World Heritage site in ensuring the maintenance of these structures is crucial.

## 5 CONCLUSIONS AND RECOMMENDATIONS

The joint reactive monitoring mission carried out by representatives of UNESCO's World Heritage Centre, ICOMOS and IUCN, which took place from 30 July to 3 August 2012, came to the following conclusions and recommendations after review of the documents provided as well as on-site visits and meetings with key stakeholders.

### 5.1 State of conservation and management

1. The mission found that any future infrastructure developed at the World Heritage property buffer zone and the broader Douro region needs to be assessed for its impacts on the outstanding universal value of the property. The mission was concerned about potential cumulative effects of dam developments (Tua River, Sabor River), related power lines, road construction (highway across the site) on the attributes of the site and the property's integrity. Therefore the mission considered that although the key attributes are satisfactory, the overall property is vulnerable to incremental change and lack of structural management and appropriate planning.
2. The mission also noted other potential threats to the outstanding universal value, such as climate change impacts on the wine growing region and that these need to be carefully assessed in order to maintain this agricultural landscape and its exceptional terracing structure. The mission was pleased to note the scientific support from different stakeholders, including winegrowing associations (e.g. ADVID) and the University of Trás-os-Montes and Alto Douro (UTAD) and strongly encourages the Douro Mission Structure to work closely with these to ensure proper risk assessments of impacts of climate change to be carried out and to promote adaptation strategies among the stakeholders within the World Heritage property. The mission was pleased to note that ADVID is also involved with the Alto Douro University in scientific assessments and training seminars on biodiversity and climate change issues.
3. The mission stresses the importance of recognizing that the property is a cultural landscape with strong links between the natural and cultural environment and that these links do not seem to be fully taken into account in the daily conservation and management of the property, including resources allocation for management activities, communication, presentation, interpretation, information exchange and tourism management. The mission found that the Management Plan in place at the time of inscription (as precondition for the inscription) has not been used as a guiding document and had no legal effect at the municipality level in the World Heritage property and its buffer zone. The mission therefore strongly recommends that the revision of the Management Plan and its updating for use as a key management tool should be of utmost priority. The mission furthermore considers that this new Management Plan should make special provisions for: the *National Plan for the River Douro River Basin*, the *Plano de Ordenamento das Albufeiras da Régua e Carapatelo* (strengthening the Douro as a regional structural element), the *National Programme of Dams of High Hydroelectric Power Potential* (cumulative effect of dam construction, related infrastructures and alteration of river habitats need to be properly addressed), and the *protection of the buffer zone*;
4. Although the key attributes are satisfactory the overall property is vulnerable to incremental change and lack of structured management and appropriate planning: as long as there is no operational Management Plan and an agency enabled to implement it and to put this into action, the conservation of the site is not effectively guaranteed. In view of the updating of the management plan, the mission encourages the Douro Mission Structure (EMD) to ensure that the overall management of this World Heritage property is better balanced and coordinated, giving adequate attention to all components of the site. The mission also strongly recommends that the EMD must take up its competence in directing the Management Plan.

5. The mission welcomes the preparation of a draft Statement of Outstanding Universal Value, which is currently under review and strongly recommends using the final version as a basis for the revised management plan and monitoring the state of conservation of the property.
6. The mission recommends that the State Party presents the draft management plan prior to the next session of the World Heritage Committee in June 2013. The mission therefore urges the State Party to present by **1 February 2013** documentation clearly stating the competencies of the Douro Mission Structure (EMD), its relation to other governmental bodies and relevant NGO's, and its legal status for managing the World Heritage property.

## 5.2 Dam Project and impacts on the property

1. The mission recalls that the World Heritage Committee noted with concern that initial planning processes for this project have not taken full account of the World Heritage status of the property through an analysis of impact on its Outstanding Universal Value, and that an Environmental Impact Assessment (EIA) had already given a conditionally favourable approval and that it expressed its concern that construction works commenced in April 2011, before the recommendations of the advisory mission were known and before the World Heritage Committee could consider the project (Decision 36 COM 7B.81 point 4 and 6);
2. While the mission regrets that information on this project was not mentioned in the nomination dossier and was not communicated to the World Heritage Centre before commitments have been made, it noted with satisfaction that the State Party provided necessary documentation and is fully committed to address any issues with stakeholders, even though the requested Heritage Impact Assessment will still need to be provided;
3. The mission considers that it is not its purpose to question the *National Programme of Dams of High Hydroelectric Power Potential* (2007), as this has already been analysed and was also subject to a demand from various NGO's at the European Commission. The mission however carefully took into account any potential threats emerging from the Hydro-electric Foz Tua Dam Development (FTDD) on the outstanding universal value of the World Heritage property:
4. The mission considers that there is certainly severe and permanent damage by the FTDD on the ecological system of the Tua River located in the buffer zone. The mission fully agrees with the Declaração do Impacto Ambiental drawn up by the State Party that the dam will produce a significant alteration in the river's ecosystem, as a result of the barrier effect of the dam and also, when working in reversible mode, as it might create in the dry periods a eutrophic reservoir. Equally, it will mean a loss from a nature protection point of view of the river. The changes could also alter the micro climate of the property in terms of its relative humidity which might have a detrimental impact on the viticultural processes.
5. The mission notes that the mitigation measures which condition the execution for the FTDD are not as advanced in their definition as they should be in this phase of the project, so their detailed evaluation is impossible. The preliminary assessment concludes that some are inappropriate (i.e. no fish path, planning for the planting of 100.000 trees not defined);
6. The mission moreover considers that special focus should be provided to the cumulative effects that the building of several dams (e.g. Baixo Sabor) will bring onto the Douro basin. The river is today a succession of water basins as the Douro itself is now water filled behind dams: its valley covered by the World Heritage property contains a long successive reservoir of 100 to 200 m width. Cumulative effects regard not only impacts on identified ecosystems such as the one in the Tua Valley, but also the water's quality, effects on erosion, or the risk of eutrophication, that projects such as this may impact on the whole World Heritage site;

7. The mission welcomes changes proposed to the project, including that the power house will be constructed underground and the adjacent areas are to be rehabilitated and landscaped to minimise the impact on the World Heritage property;
8. Concerning related infrastructure, four options have currently been proposed for the High Voltage Transmission Power line which will link the FTDD site to the national electrical grid. The project for the power line is still not finalised. The mission recommends that a line with a minimal impact onto the World Heritage site should be adopted and any potential impacts including visual integrity be carefully assessed;
9. The mission is concerned that the reservoir area will partly go through the schist which may be susceptible to sliding along preformed preferential sliding planes. The impact of the reservoir operation on the stability of the reservoir rim shall be studied in detail with mitigation measures to be proposed for dealing with potentially unstable areas;
10. The mission notes that there are discrepancies in the approval process and underlines that not all the elements of the project have yet been approved. It is highly unusual that the construction works have started in April 2011 but important elements of the works have not yet been designed, approved or publicly consulted upon. This status of the approval could put pressure on the approval authority and the public consultation process and undermine their credibility. Full public transparency in the procedure has to be ensured to gain any credibility in the process.
11. Concerning health and safety issues, the mission expresses concern that over a period of six months, from August 2011 to February 2012 three accidents occurred on the site with one accident of three fatalities. The mission would expect that in the interest of full transparency, credibility of the project and to avoid any further incidents which could also impact on the World Heritage site and on local communities, the following issues are addressed in the accident investigation and made publicly available: Description of the accidents; Findings from accident investigations; Preventative measures taken immediately after the accidents (i.e. temporary works, revised emergency planning); Medium and long term improvement measures undertaken following the accident investigation (site supervision, health and safety training, more frequent health and safety inspections, etc.); Update on the conditions of the workers involved in the other two non-fatal accidents;
12. The mission recommends to maintain the section of the railway within the World Heritage property and to valorise it, possibly as a tourist trail or as railway track to be visited. The green iron railway bridge just before the tunnel could be a visitor platform to view the Douro Valley section and the two bridges which demonstrate engineering technology from 1887 (railway bridge) and 1940 (concrete road bridge) and appreciate the industrial and technological history of these steep valleys;
13. The continuous monitoring of the supportive ecosystems of the Tua Valley for the Douro, in terms of micro-climate, relative humidity, impacts on viticulture, water quality and on biodiversity and of any other effects on the World Heritage property is strongly encouraged to be carried out by the site management of the Douro Mission;
14. Concerning social issues, transport and mobility, it is necessary that the Douro Mission Structure and the relevant authorities ensure the connectivity within the Douro region to

enhance the communication and interconnectivity among people in this living landscape. The disruption of the railway needs to be compensated by other means of public transport and the current mobility plan (tourist mobility/daily mobility) submitted does not seem to be sufficient; In this regard the mission seriously questions the cable car solution proposed, as a means to connect between the railway station at Foz Tua and the reservoir, as the mobility proposal for rail/bus/cable car/boat/rail to reach the upper Tua Valley is not adapted to local needs at all;

15. The mission concluded that according to the information provided by the different sources the revised construction itself seems to have little overall adverse impact on the outstanding universal value of the property, and its integrity and authenticity. The key features and attributes of this agricultural and wine producing site, which are the wine terraces, were not impacted. Nevertheless, there will be physical loss of part of the landscape, changing the way the viticultural landscape is experienced as the intervention will affect the pattern, context and setting of the World Heritage property. With regard to the visual integrity of the property the mission noted that already two technological structures are placed in the entrance of the Tua Valley (bridges) to which a few minor new structures will be added (e.g. power pylon above the power station). The new project of planning to construct the power house underground while ensuring daylight in the building is much welcomed by the mission. It substantially reduces visual impacts of the construction. The mission notes that the dam is at the boundary between the World Heritage property and its buffer zone, and confirms the April 2011 ICOMOS Advisory Mission which assessed that the dam itself has little visual impact.

16. The mission considers that there are a number of pending issues, which need to be reviewed:

(a) The assessment of the energy lines which still cannot be carried out as there is no specific project proposed by the State Party, while potential options were indicated. Electricidade de Portugal (EPD) will need to present a proposal which will then be assessed by the State Party authorities and if approved, transmitted to the World Heritage Centre for evaluation and review by the advisory bodies;

b) Even though the amended project is considered much more appropriate for the integration into the landscape, the mission believes that a thorough Landscape Master Plan is missing. An overall Master Plan which is able to provide a comprehensive and holistic project for the overall area of intervention, at a much smaller scale and at in depth analysis is required. This should include details of how the proposed new tree planting will be incorporated into the landscape in an acceptable way.

### 5.3 Other issues

1. The mission considers that the current boundaries of the buffer zone and the World Heritage property are adequate to represent the outstanding universal value of the property.
2. The mission noted that the presentation of the property could be strengthened, in order to make all stakeholders aware of the values of the property and avoid potential development which would not be compatible with the World Heritage status. The mission considers that the project for a Foz Tua Museum at the railway station could potentially contribute to local development and interpretation of the World Heritage property. In case the museum project goes ahead, it would be useful to include the history of the Tua Valley and the project of the dam construction to better explain to the general public the divergent views on the project and ensure full transparency.
3. The mission was pleased to learn that the staff of the Douro Mission Structure is fully committed to World Heritage preservation and to ensure compliance with the Operational Guidelines (e.g. Paragraph 172) and the World Heritage Convention. The mission felt that communication with all stakeholders was essential to make them feel partners in World Heritage conservation. Full transparency of World Heritage processes have to be ensured.
4. The mission notes that a number of other projects have been either carried out or are planned, including highway and road constructions. Any impacts of future development projects should be carefully assessed.
5. The mission also noted that as a part of the Foz Tua dam construction, the navigation channel at the Douro entrance is envisaged to be broadened and deepened. As no details of this project were provided so far, this should be carefully assessed.
6. The mission recommends that any project within the World Heritage property, its buffer zone or within the Douro region should be evaluated for its potential impacts on the outstanding universal value, integrity and authenticity of the property. Traditional EIAs do not cover these aspects properly and therefore the use of the Heritage Impact Assessment Guidance (ICOMOS 2010), and Guidance for the conservation and management of cultural landscapes (UNESCO 2009) is strongly recommended. In order to ensure full transparency of the processes and compliance with the *Operational Guidelines* (paragraph 172), the Douro Mission Structure should inform through the appropriate channels the World Heritage Centre, of the intention to undertake or to authorize in an area protected under the *Convention* major restorations or new constructions which may affect the Outstanding Universal Value of the property. Notice should be given as soon as possible (for instance, before drafting basic documents for specific projects) and before making any decisions that would be difficult to reverse.
7. Finally, the mission recalls that the World Heritage Committee decided “to request the Director-General, in consultation with the Chairperson of the World Heritage Committee, to officially put forward concrete requests for action to the State Party based on the results of the joint reactive monitoring mission, if necessary” and therefore submits its report to the Director-General of UNESCO and to the Chairperson of the World Heritage Committee.



**Concerning concrete follow-up actions and immediate requests, the mission would like to propose to:**

1. Submit the report and recommendations of the reactive monitoring mission stated above to the State Party authorities for consideration and adequate follow-up. The construction works on the FTDD project should slow down until it is demonstrated that the specific recommendations of the mission presented in this report, in particular concerning the high voltage transmission power lines, are taken into account.
2. Request the State Party to submit the missing documentation required especially on the high voltage power line grid and the Landscaping Master Plan of the affected construction area and its surrounding to the World Heritage Centre as soon as possible and at the latest by **1 February 2013** for review by the Advisory Bodies;
3. Recall that an updated report on the status of the Foz Tua Hydro-Electric Dam project and an overall state of conservation of the property for examination by the World Heritage Committee at its 37th session in 2013 has been requested by the Committee by **1 February 2013**. This report should also include a response to the conclusions and recommendations by the mission, as well as the status of the updated Management Plan.

## 6 ANNEXES

### 6.1 Annex I Terms of Reference and Decision 36 COM 7B.81

#### **Terms of Reference for the Joint UNESCO-WHC/ ICOMOS/ IUCN Reactive Monitoring Mission to the Alto Douro Wine Region, Portugal (C 1046)**

**30 July – 2 August 2012**

In accordance to **Decision 36 COM 7B.81** taken by the World Heritage Committee at its 36<sup>th</sup> session (St. Petersburg, 2012), the reactive monitoring mission will undertake the following tasks:

- Assess the overall state of conservation of the World Heritage property of Alto Douro Wine Region, and the factors affecting its Outstanding Universal Value;
- Evaluate the property's management system in terms of its adequacy and efficacy, including the planning tools and procedures currently in place, to ensure the protection of the property, its buffer zone and its setting;
- Critically analyse the revised Foz Tua Hydroelectric Dam project and the National Plan for Dams of High Hydroelectric Potential, taking into consideration all relevant documents, based on available information (including the Environmental Impact Assessment), scientific evidence, and consultation with relevant organizations and stakeholders at national and local levels;
- Carry out field visits to ascertain and identify any current and potential threats of the revised Foz Tua Hydroelectric Dam and related infrastructure project to the Outstanding Universal Value, the integrity and authenticity of the Alto Douro Wine Region property;
- Prepare practical recommendations and identify measures to ensure the conservation and protection of the Outstanding Universal Value, authenticity and integrity of the property to be presented to the Government of Portugal, as part of a joint mission report, in English or French, that incorporates the above findings and recommendations for review by the World Heritage Committee at its 37<sup>th</sup> session in 2013.

The mission report should follow the attached format and take into account the provisions in the *Operational Guidelines* in Chapter IV on the process of monitoring the state of conservation of World Heritage properties (paragraphs 169-198). The report should be submitted to the UNESCO World Heritage Centre, ICOMOS and IUCN headquarters in hard copy and an electronic version by **7 September 2012** at the latest.

## Alto Douro Wine Region (Portugal) (C 1046)

### Decision 36 COM 7B.81

The World Heritage Committee,

1. Having examined Document WHC-12/36.COM/7B,
2. Recalling Decision **25 COM X.A**, adopted at its 25th session (Helsinki, 2001),
3. Notes with concern the conclusions of the ICOMOS advisory mission that the potential impacts of the Foz Tua Hydro-electric Dam Project on the property and its setting would cause irreversible damage to the Outstanding Universal Value of the property;
4. Also notes with concern that initial planning processes for this project have not taken full account of the World Heritage status of the property through an analysis of impact on its Outstanding Universal Value, and that an Environmental Impact Assessment had already given a conditionally favourable approval;
5. Regrets that information on this project was not mentioned in the nomination dossier and was not communicated to the World Heritage Centre before commitments have been made, as required by Paragraph 172 of the *Operational Guidelines*, but notes with satisfaction the explanation which has since been provided by the State Party;
6. Expresses its concern that construction works commenced in April 2011, before the recommendations of the advisory mission were known and before the World Heritage Committee could consider the project;
7. Notes with satisfaction the invitation by the State Party for a joint World Heritage Centre/ICOMOS/IUCN reactive monitoring mission to the property to consider the potential impact of the revised Foz Tua Hydro-electric Dam project on the Outstanding Universal Value of the property, and to consider the property's management system, the protection of the setting and the overall state of conservation of the property;
8. Takes note of the decision of the State Party to significantly slow down the pace of the construction work of the Foz Tua Dam and related infrastructure, as from the adoption of this decision until the report of the joint reactive monitoring mission is published and to implement the recommendations;
9. *Decides* to request the Director-General, in consultation with the Chairperson of the World Heritage Committee, to officially put forward concrete requests for action to the State Party based on the results of the joint reactive monitoring mission, if necessary;
10. Notes that the State Party is revising the plans for the dam, power station and other landscape works linked to infrastructure and requests that full details of these plans, together with a heritage impact assessment, be submitted as soon as possible to the World Heritage Centre for review by the Advisory Bodies;
11. Further requests the State Party to submit to the World Heritage Centre, by **1 February 2013**, an updated report on the revision or reconsideration of the Foz Tua Hydro-Electric Dam project and on the overall state of conservation of the property for examination by the World Heritage Committee at its 37th session in 2013.

## 6.2 Annex II Programme of the mission

<u>Monday, July 30<sup>th</sup></u>	<u>Tuesday, July 31<sup>st</sup></u>	<u>Wednesday, August 1<sup>st</sup></u>	<u>Thursday, August 2<sup>nd</sup></u>	<u>Friday, August 3<sup>rd</sup></u>
<p>(10h00, 11h05, 11h30) – Arrival of the UNESCO mission's experts at Porto International Airport</p> <p>13h00 – Lunch at restaurant 'Traça' in Porto</p> <p>14h00-16h00 – Experts internal meeting</p> <p>16h00 – Departure to Vila Real</p> <p>17h00 – Car trip to Tua region and along the Douro river (Vila Real - Cheires - Sanfins - Favaio - Pinhão - Régua)</p> <p>19h30 – Check in at the Régua Douro Hotel</p> <p>20h00 – Diner at restaurant 'Castas &amp; Pratos'</p>	<p>10h00 – Meeting with:</p> <ul style="list-style-type: none"> <li>- Minister of Agriculture, Sea, Environment and Spatial Planning (MAMAOT);</li> <li>- President of UNESCO National Commission;</li> <li>- Members of the Portuguese Permanent Delegation to UNESCO;</li> <li>- Teresa Andresen (Evaluation Team);</li> <li>- Members of CCDR-N / Douro Mission</li> </ul> <p><u>Place:</u> Douro Museum</p> <p>11h15 – Coffee-break</p> <p>11h30 – <u>Foz Tua Hydro-electric complex:</u> meeting with:</p> <ul style="list-style-type: none"> <li>- António Mexia - EDP (Electricity of Portugal);</li> <li>- Souto de Moura, architect</li> </ul> <p><u>Place:</u> Douro Museum</p> <p>13h00 – Lunch at the Douro Museum's restaurant 'A Companhia' (the Mayor of Régua will attend)</p> <p>14h30 – Departure to Foz Tua Dam site</p> <p>15h30 – Visit to the Foz Tua Dam's construction site</p> <p>18h00 – Return to Régua</p> <p>20h00 – Diner (offered by Minister) at restaurant 'DOC'</p>	<p>09h00 – <u>Civil Society:</u> meeting with representatives from:</p> <ul style="list-style-type: none"> <li>- ADWR's friends League (LADPM);</li> <li>- Invited Portuguese NGO's</li> </ul> <p><u>Place:</u> Douro Museum</p> <p>10h45 – Coffee-break</p> <p>11h00 – <u>Development and Local Administration:</u> meeting with representatives from:</p> <ul style="list-style-type: none"> <li>- Advisory Body of the Douro Mission;</li> <li>- CIMDOURO - Douro's Intermunicipal Community;</li> <li>- Tua Valley Regional Development Agency;</li> <li>- SPA Consulting</li> </ul> <p><u>Place:</u> Douro Museum</p> <p>12h30 – Departure to Quinta do Seixo</p> <p>13h00 – Working lunch <u>Vineyards and Innovation</u> and visit to Quinta do Seixo, with representatives from:</p> <ul style="list-style-type: none"> <li>- Association for Douro Viticulture Development (ADVID);</li> <li>- Regional Department of Agriculture and Fisheries (DRAP-N);</li> <li>- Douro and Port Wines Institute (IVDP)</li> </ul> <p>15h30 – Visit to Alto Douro Wine Region with Teresa Andersen</p> <p>20h00 – Dinner at 'Casa de Vilarinho de S. Romão'</p>	<p>10h15 – Departure to Vila Real</p> <p>10h45 – Welcome by Dean of the University of Trás-os-Montes and Alto Douro (UTAD)</p> <p>11h00 – <u>Culture, Landscape and heritage:</u> meeting with representatives from:</p> <ul style="list-style-type: none"> <li>- Regional Department of Culture (DRC-N);</li> <li>- CCDR-N (Environment);</li> <li>- Institute for Nature Conservation and Forests (ICNF)</li> </ul> <p><u>ADWR Management System:</u> meeting with representatives from:</p> <ul style="list-style-type: none"> <li>- Douro Mission;</li> <li>- CCDR-N (Territorial management)</li> </ul> <p><u>Place:</u> UTAD</p> <p>12h30 – Lunch at UTAD</p> <p>14h00 – Departure to Pinhão</p> <p>15h00 - 19h00 – Boat trip from Pinhão to Ferradosa (passing by the Valeira Dam sluice). Visit to Valeira Dam Power Station, with representatives from:</p> <ul style="list-style-type: none"> <li>- Association for Douro Viticulture Development (ADVID);</li> <li>- ADWR's friends League (LADPM);</li> <li>- EDP</li> </ul> <p>20h10 – Departure to Porto</p> <p>21h30 – Dinner at restaurant 'The Yeatman' in Gaia.</p> <p>23h00 – Final meeting</p> <p>00h00 – Hotel in Porto</p>	<p>Hour to be defined:</p> <p>Transfer of the UNESCO mission's experts to Porto International Airport</p>

### 6.3 Annex III: Composition of the mission team

Dr Mechtild Rossler (Head of Mission)  
Chief, Policy and Statutory Meeting Section  
UNESCO World Heritage Centre

Dr Ana Luengo (Spain)  
Representative of ICOMOS and IUCN  
Landscape Architect

Dr Ljiljana Spasic-Gril (United Kingdom)  
Associate Director, Infrastructure London Group;  
Arup, London, United Kingdom  
Representative of ICOMOS

### 6.4 Annex IV: List of people met during the mission

Ministério da Agricultura, do Mar, do Ambiente e do Ordenamento do Território (MAMAOT):

Assunção Cristas	Ministra
Duarte Bué Alves	Chefe de Gabinete
Daniel Costa	Assessor

Ministério dos Negócios Estrangeiros (MNE):

António de Almeida Ribeiro	Embaixador, Secretário-Geral do MNE e Presidente da Comissão Nacional da UNESCO
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Francisco Seixas da Costa	Embaixador, Representante Permanente junto da UNESCO
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Comissão de Coordenação e Desenvolvimento Regional do Norte (CCDRN):

Duarte Vieira	Presidente e Encarregado de Missão
Álvaro Carvalho	Vice-presidente da CCDRN

Estrutura de Missão do Douro (EMD):

Célia Ramos	Chefe de Projeto da EMD
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Graça Fonseca Técnica da EMD / CCDRN

Rui Lima	Técnico da EMD / CCDRN
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Aproveitamento Hidroelétrico de Foz Tua (AHFT):

António Mexia	CEO da EDP
Sérgio Figueiredo	Administrador da EDP
Pita de Abreu	EDP Produção
Clara Maia	Diretora EDP

Eduardo Souto Moura	Arquiteto, projetista da central de produção, subestação e elementos associados
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Nuno Manuel Gonçalves	Presidente Câmara Municipal de Peso da Régua
Freitas da Costa	EDP - Responsável pela obra do AHFT
Nuno Portal	EDP - Ambiente
Domingos Silva Matos	EDP - Especialista em barragens
Dulce Gonçalves	EDP - Arquiteta paisagista, responsável pelo estudo de integração paisagística

and several collaborators of EDP

#### Civil Society Representatives / NGOs:

Armando Moreira	Presidente da Liga dos Amigos do Douro Património Mundial
Augusto Macedo	Liga dos Amigos do Douro Património Mundial
João Branco	Vice-presidente da QUERCUS
António Cabeço	QUERCUS
Manuela Cunha	“Os Verdes”
Sónia Colaço	“Os Verdes”
Rui Cortes	LPN – Liga Proteção da Natureza
Pedro Teiga	LPN – Liga Proteção da Natureza
João Joanaz de Melo	Presidente do GEOTA
Graciela Ferreira Nunes	Movimento Cidadãos em Defesa da Linha do Tua
Agostinho Guedes Rafal	Associação dos Amigos do Vale do Tua
José Manuel Pavão	Associação dos Amigos do Vale do Tua
Mário Sales de Carvalho	Movimento Cívico pela Linha do Tua
Isabel e Inês Bernardo	Proprietárias lesadas
Luísa Ambrósio	ICOMOS Portugal
Miguel Roquette	Quinta do Crasto

#### Desenvolvimento e Administração Local:

Luis Braga da Cruz	Presidente do Conselho Consultivo da EMD
Artur Cascarejo	Presidente da Comunidade Intermunicipal do Douro (CIM Douro)
José Silvano	Diretor Executivo da Agência de Desenvolvimento Regional do Vale do Tua
Cristina Coelho	SPA, Consultadoria
Vinha e Inovação	
Manuel Cardoso	Diretor Regional da Agricultura e Pescas do Norte (DRAPN)
Manuel Cabral	Presidente do Instituto do Vinho do Douro e Porto (IVDP)

Rosa Amador                      Diretora-geral da ADVID

António Graça                      ADVID

Visita to ADV guided by Prof Teresa Andresen:

Teresa Andresen                      Coordenadora do Estudo de Avaliação do Estado de Conservação do Alto Douro Vinhateiro (ADV)

Francisco Estável                      Funcionário Quinta da Roeda, Pinhão

Cristiano Van Zeller                      Proprietário Quinta D.<sup>a</sup> Maria, Sanzedinho

Manuel Vilas Boas                      Proprietário Casa da Calçada, Provezende

Isabel Freitas                      Coordenadora do ex- Gabinete Técnico Intermunicipal (GTI) do ADV

José Carvalho Marques                      Presidente da Câmara Municipal de Sabrosa

Cristina Van Zeller                      Proprietária da Casa de Vilarinho da S. Romão

Cultura, Paisagem e Património e Sistema de Gestão do ADV:

Carlos Sequeira                      Reitor da Universidade de Trás-os-Montes e Alto Douro (UTAD)

Fontainhas Fernandes                      UTAD - Empreendedorismo

João Rebelo                      UTAD – Estudo de Avaliação do ADV

Paula Silva                      Diretora Regional de Cultura do Norte (DRCN)

Rui Fonseca e José Freire                      Direção de Serviços de Ambiente da CCDRN

Armando Loureiro                      Instituto de Conservação da Natureza e Florestas (ICNF)

Cristina Guimarães                      Diretora de Serviços do Ordenamento do Território da CCDRN

Célia Ramos                      Chefe de Projeto da EMD

Percurso de barco Pinhão – Ferradosa:

Laura Regueiro                      Vice-presidente da Liga dos Amigos do Douro Património Mundial

Rosa Amador e António Graça                      ADVID

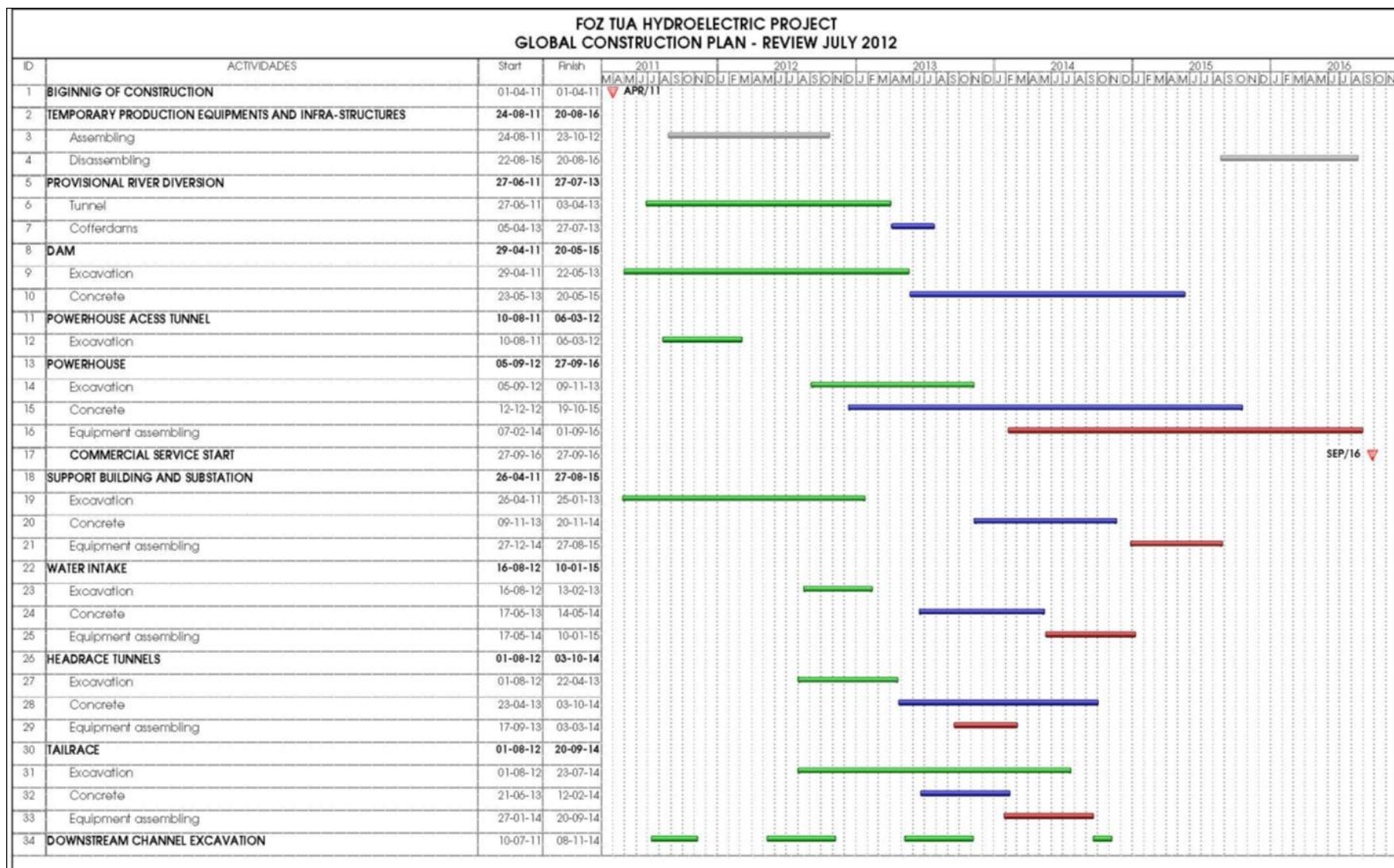
Freitas de Costa, Sérgio Figueiredo                      EDP

Dinner at “The Yeatman”:

Adrian Bridge                      Diretor-geral

Ana Paula Amendoeira                      ICOMOS Portugal

## 6.5 Annex V: Foz Tua Construction Plans of 2012 and of 2011



FOZ TUA HYDROELECTRIC PROJECT  
GLOBAL CONSTRUCTION PLAN - APRIL 2011

ID	ACTIVIDADES	Start	Finish	2011	2012	2013	2014	2015
1	BIGINNIG OF CONSTRUCTION	01-04-11	01-04-11	JFMAMJJASONDJ				

## 6.6 Annex VI Synthesis table to assess the differences of the 2010/11 and 2012 Foz Tua Dam project

Issue	2010/11	2012	Comments and recommendations
<b>Main building: power house</b>	Height: 25 meters	underground	The mission reviewed the plans and designs with the architect and considers this to be a major improvement to enhance visual integrity and to avoid visual impacts at the World Heritage site;
<b>Landscape plan and immediate surroundings</b>	Landscape Regeneration Plan: Schematic proposal with no definition	Landscape regeneration project, still with no clear definition (e.g. river borders, plantations).	Landscape Master Plan needed: landscaping project should include broader surroundings and definition; a number of issues require requires clarification (e.g. planting of 100 000 trees);
<b>Dam structure</b>	Height 108 m	Height 108 m	Dam structure is at border of World Heritage property with the buffer zone and has little visual impact as two technical structures (railway and road bridges) are already there;
<b>Reservoir</b>	27km length	27km length	The impact of the water reservoir in terms of water quality for the Douro River has been reviewed in the EIA. (Accordance with the EU Water Framework Directive ;) The impact of the reservoir on the reservoir banks stability needs to be studied and addressed: if necessary remedial measures should be implemented to mitigate possible landslides being triggered by the operation;
<b>Power line</b>	intrusive	Design and itinerary of the high voltage powerline not yet identified;	The mission team strongly recommends to not cross the Alto Douro World Heritage property or to use an existing line: plans need to be carefully reviewed;
<b>Railway line and mobility</b>	16 km flooded, Proposals of mobility by EDP not approved by State Party;	16 km flooded, Proposals of mobility by EDP not approved by State Party	Final mobility plan needs to be approved and sent for revision: the mission recommends to leave the railway line from Tua station up to the dam and make an exploratory trail for tourists from the Foz Tua station/Museum
<b>Hydraulic tunnels</b>	Underground	Underground	Impact of earth excavation needs to be addressed: Where does the excavated material go, minimize dust into the Douro valley during construction, the recuperation and rehabilitation of area needs to be addressed in a landscape master plan.
<b>Footprint in relation to World Heritage-Boundaries</b>	Inside/Outside of World Heritage site; Dam structures tangential to World Heritage site (on boundary); Reservoir in buffer zone	Inside/Outside of World Heritage site; Dam structures tangential to World Heritage site and located on the boundary; Reservoir in buffer zone	The % has not changed as the location has not changed;
<b>Biodiversity issues including Fish path</b>	Mitigation measures to be defined; fish path demanded in Impact assessment by State Party	List of mitigation measures, but definition of many of them still underway. Fish will be moved back into the reservoir at	The mission notes that the mitigation measures should have been at this stage of implementation completely defined and the execution to be demonstrated by State Party authorities (e.g. thermal waters monitoring)



		regular intervals;	
<b>Soft issues:</b> <b>Social issues</b> <b>Mobility (see also railway above)</b> <b>Improvements of lives</b> <b>employment</b>	Regarded inside mitigation measures yet to be defined.	Mobility plan 40m Employment 0.7m	The mission took note of the mitigation measures but raises questions as to their implementation: Mitigation measures need to be more clearly defined; the execution is to be demonstrated by State Party authorities.
<b>Tourism</b>	No data.	No data furnished, though requested.	State Party needs to present a tourism analysis and strategy, since the declaration of the World Heritage site and future plans.
<b>Heritage investments</b>	Cultural Centres to be created,	Heritage plan 1,5m 4 thematic museums to be built: "wine and bread" museum (already executed), Tua Valley railway museum (in preparation), and 2 other still not defined.	Feasibility study of how these museums meet criteria in management plan not done. Cultural strategy for ADWR needs to be revised and presented including the decentralized museum structures (4 new museums, besides definition of the 2 pending ones.)
<b>Health and safety</b>		3 accidents happened since the last mission of April 2011 (August 2011, January 2012 and February 2012). One accidents had 3 fatalities;	A multiple fatality on any construction site is an element of very serious concern and it has a significant impact on how the project continues and it is being managed. Need to investigate the accidents and review the health and safety plan and mitigation measures (including impacts on the local community);
<b>General Protection and Conservation of Property</b>	Protected as National Monument by means of Cultural Heritage Law (Law n.º 107/2001)	Protected as National Monument by means of Cultural Heritage Law (Law n.º 107/2001).	The management agency in charge of the conservation of the ADWR (Estrucutra do Missiao do Douro), depends on the Ministry of Environment and Agriculture, even if the World Heritage site is protected by Cultural Legislation. Coordination should be ensured between Environment and Culture for the overall management.

## **6.7 Annex VII: Documents received during the mission to the Alto Douro World Heritage property (selection)**

### **EDP**

PPT presentation by EDP on the Foz Tua Hydroelectric Project, July 2012  
Underground Power House, Foz Tua Dam, Basic Project, July 2012, Souto Moura Arquitectos,  
Foz Tua Dam, Safety and Health Plan according to Portuguese Law Np 273/2003, transposition of  
Directive 92/57/EEC; received 2 August 2012 on CD;  
EDP, Centro de producao, Douro, flyer  
EDP, Producao, Valeira, November 2008;  
Pictures of the construction process  
Answers to questions asked by the representatives of UNESCO (EDP document)

### **Douro Mission/Museums**

Guia Orientador de Intervencoes do Douro Vinhateiro, 35 p.  
Museo do douro, arquiteturas da paisagem vinhateira, Peso da Regua 2008,p.175.  
Dona Antonia, A Life of her own, Douro Museum, 2012, p.218  
Bread and Wine, Nucleao Museologico Favaio, Pao e Vinho, 2012, p.127  
Reminiscence of the Wine Country – Permanent Exhibition, Douro Museum, 60p.  
Douro heritage/wines/culture/landscape/excellence Turismo do Douro;  
Douro Tourism Guide

### **NGOs**

ICOMOS ICTC Recommendations for Douro Valley, PPT, 21 June 2010  
Petitions 'Is it worth?'; Salvar o Vale do Tua, Patrimonio de Tras-Os-Montes;  
FAPAS/Wildlife Protection Fund, Some Arguments about the Tua Dam, 25 July 2012;  
Memorandum, The Portuguese Dam Program: economic, social and environmental disaster (GEOTA,  
FAPAS, LPN, Quercus, Aldeia, COAGRET, Flamingo, SPEA, MCLT) August 2011:

### **Wine institutions/Associacao para o Desenvolvimento da Viticultura Duriense (AVID)**

Impacts of Climate Change on Wine Production (several articles and abstracts, July 2011)  
Avid Training Review, Information Bulletin 01-12  
2011 Viticultural Year, Information Bulletin 14-11  
Monitoring arthropod diversity in Douro Wine Region vineyards  
Does the landscape of Douro wine region (Portugal) affects the complex of antagonist of the grape  
berry moth? (AVID/UTAD)

### **CDs received on 2 August 2012**

- Linha Foz Tua Armamar a 400kV, Estudio Ambiental, May 2011; Aditamento ao EIA, October 2011
- Plano Nacional de Barragens COM, Elevado Potencial Hidroelectrico, November 2007;
- Aproveitamento Hidroelectrico de Foz Tua; Programa de Trabalhos (Regua 31.7.2012; Foz Tua 31.7.2012)
- Aproveitamento Hidroelectrico de Foz Tua, Plano de Gestao Ambiental
- Aproveitamento Hidroelectrico de Foz Tua Desenhos do projeto
- Aproveitamento Hidroelectrico de Foz Tua Prjeto Base, Architextura Paisagistica

### **CD Comissao de Coordinacao e Desenvolvimento Regional do Norte (CCDRN) received on 2 August 2012**

Pareceres Finais da CA; Relatorios da Consulta Publica; DIA e Alteração: CAA: Protocolos e Escritura da ADRV

Additional documents received after the mission by e-mail:

COMISSÃO DE ACOMPANHAMENTO AMBIENTAL APROVEITAMENTO HIDROELÉTRICO DE FÓZ TUA  
PONTO DE SITUAÇÃO (JULHO 2012)