



European Commission  
Directorate General for Health and Consumers

**Analysis of the socio-economic and environmental impacts of  
banning or not banning the movement of susceptible wood  
products from Portugal for stopping the spread of pine wood  
nematode (PWN)**

Framework contract for evaluation, impact assessment and related services  
Lot 3: Food Chain  
(awarded through tender n° 2004/S 243-208899)

**Final Report**

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**European Commission  
DG SANCO  
29 December 2008**

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## **Acronyms**

AIMMP: Associação dos Industriais de Madeira e Mobiliário de Portugal

DG: Directorate General

DG SANCO: DG Health and Consumers

EU: European Union

FCEC: Food Chain Evaluation Consortium

FEFBEP: European Federation of Wooden Pallet and Packaging Manufacturers

FVO: Food and Veterinary Office (DG SANCO)

GDP: Gross Domestic Product

GHG: Green House Gas (emissions)

INE: Instituto Nacional de Estatística (Portugal)

MS: Member State/s

NMS: New Member State/s

NPPO: National Plant Protection Organisation

PT: Portugal

PWN: Pine Wood Nematode

SCPH: Standing Committee on Plant Health

SG: Steering Group (for this study)

ToR: Terms of Reference

WPM: Wood Packaging Material

bln: billion

mln: million

## **1. Introduction and background**

The Commission has requested the FCEC to provide a fast track study to examine the socio-economic and environmental implications of possible options for the movement of susceptible wood products from Portugal in an effort to stop the spread of Pine Wood Nematode (PWN) to the rest of the Community.

As the whole of continental Portugal has been considered to be a demarcated area for PWN since May 2008, it is subject to emergency measures set out in Decision 2006/133/EC to prevent the further spread of PWN. These include compulsory heat treatment for all newly produced wood packaging material (WPM) leaving Portugal<sup>1</sup>.

In the past months, PWN has been intercepted by Sweden and Finland in wood material coming from Portugal. In November 2008, Spain notified several cases of non compliant movements of susceptible wood from Portugal to Spain, including some cases where PWN was identified. Sweden took national emergency measures, to be implemented from 27 October 2008 onwards, banning all non marked WPM coming from Portugal. Therefore, it appears that further strengthening of the existing Community emergency measures to better ensure that PWN is not spreading from Portugal to the rest of the Community is needed.

The full ToR for this assignment is attached in **Annex 1**. They describe the full background and objectives of the study.

This Final Report outlines the results of the work carried out by the study team (FCEC - Food Chain Evaluation Consortium), since the launch of the study on 24 October 2008.

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<sup>1</sup> I.e. WPM produced after 27 June 2008, i.e. the date of interim measures in Commission Decision 2008/489/EC.

## 2. Objectives

The ToR assign two specific objectives to the study:

1. To clarify and quantify the socio-economic impact to Portugal of a Commission Decision to ban all movements of susceptible wood (products) and WPM from Portugal; and to clarify and quantify the socio-economic impacts of such a ban to the other Member States; this is further called the ‘Ban scenario’;
2. To clarify and quantify the environmental (forestry decline) and economic impacts on EU forestry and forestry industry, including WPM industry, if PWN would spread all over the EU; this is further called the ‘No-Ban scenario’.

## 3. Methodology

### 3.1. Methodological approach

The impact analysis was based on the development of a logical framework, which was undertaken as a first step towards the evaluation of the various impacts. This provided an outline of the Portuguese wood supply chain and of the European WPM (pallets) supply chain (**Annex 2**), which served as the basis for the assessment of the various impacts.

In particular, the analysis assesses impacts on:

- the WPM industry (PT and EU);
- the sectors upstream of the WPM supply chain: forestry and saw milling (PT and EU);
- the sectors downstream of the WPM supply chain: industries using WPM and transport/logistics (PT and EU);
- the wider economy (PT and EU).

An overview of the EU and Portuguese WPM (pallets) industry was also undertaken to provide some basic definitions, facts and figures concerning this industry. This is presented in **Annex 3**. It is noted that both the structure of the industry and the sectors it serves (users of WPM-pallets) present a highly complex structure, and this significantly complicates the impact analysis.

The activities undertaken during this study have been based on the following main methodological tools, as outlined in our offer:

- Desk research, including data and documentation analysis. The research has involved extensive data collection and consultation of databases. The sources of data and information consulted for this study can be found in **Annex 6**;
- Interviews with key stakeholders at both industry level (forestry, wood industry, trade and logistics), and at Competent Authority level. Both Portuguese and European stakeholders/partners were interviewed. We note and appreciate the quick reaction of stakeholders and their willingness to meet the FCEC team and cooperate with the data collection within the tight timelines of the study. The full list of stakeholders contacted and interviewed is provided in **Annex 5**;
- Consultations with the relevant Commission (DG SANCO) services;
- Brainstorming within the FCEC research team. This was particularly important for the development of the logical framework and the impact analysis.

The following section gives an overview of the examined scenarios and of the broader assumptions and anticipated impacts under each scenario. The estimated impacts are presented in our findings (section 0). A detailed discussion of the assumptions and impacts is provided in the analytical background in **Annex 4**.

The research has looked only at the direct, first order, effects. The calculations provided in our findings include only such impacts and can therefore be seen as conservative estimates of a minimum impact. The secondary, spill-over effects on the economy are expected to be multiples of this. These are nonetheless described, as possible and appropriate, in the findings.

## **3.2. Scenarios and assumptions**

### **3.2.1. Ban scenario**

**Scenario:**

**Complete ban (all susceptible species (=coniferous wood), whether treated/marked or not, including imported pallets)**

**Likely impact:**

- trade impacts
- ban affects WPM supply availability & exports
- it also affects industry upstream and downstream in the WPM supply chain
- wider economy effects

**Assumptions:**

1. treated wood is affected (cannot be exported, even if imported from elsewhere);
2. eradication and control plans continue on the same basis and efficiency as under the no ban scenario

**Time period:**

- 3 months / 6 months / 1 year

### **3.2.2. No Ban scenario**

**Scenario:**

**No Ban**

**Likely impact:**

- Environmental impacts (risk of spread) + Trade impacts (infection affects supply availability and exports; loss of PWN free status)
- Impact will be a range (low impact / short term to high impact / long term)  
e.g. short term = direct impact ; long term = direct + indirect (secondary) impacts
- Direct epidemiological impact: spread risk and mortality rates verified with Dr Hugh Evans' model<sup>2</sup>
- Secondary impacts on users of pallets/WPM (logistics/distribution, manufacturing and construction sectors) left out as impossible to estimate at this stage.

**Assumptions:**

1. Treated wood is not affected (can still be exported extra-EU)<sup>3</sup>;
2. Eradication and control plans continue on the same basis and efficiency as under the ban scenarios

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<sup>2</sup> Dr Hugh Evans, Head of the Tree Health Division, Forest Research, UK.

<sup>3</sup> Exports to third countries (extra-EU) continue as currently their ISPM15 treatment. ISPM 15 is considering heat treatment as the single process to eradicate PWN and vector in wood. It seems that cool frying in high temperature areas could be used as well, but is not considered in ISPM 15 so far.

**Time period:**

- Short term (1 year) to long term (several years)

On 24 November the SCPH took a draft Decision banning the movement of Portuguese susceptible wood out of Portugal, with the exception of duly marked and treated WPM under a strengthened control system and with the exception of (non-marked) WPM originating in other MS<sup>4</sup>. We were informally requested by DG SANCO to outline the impact of a ‘soft’ ban scenario along the lines of the draft Decision mentioned above. Considering the timing of this request and of the present study, this scenario could obviously not be elaborated in detail.

## **4. Findings**

The key findings of the analysis are presented below. In all cases, more extensive analytical work underlies this assessment, and this is outlined in detail in **Annex 4**.

### **4.1. Ban scenario**

#### **4.1.1. Impact on Portugal**

The study estimates that the overall impact from the introduction of the ban scenario (for 1 year) for the Portuguese susceptible wood and WPM sector could reach some €115.5 mln in terms of export loss. This corresponds to some €176 mln of turnover loss (or 0.03% of the country’s GDP) and some €40 mln in loss of value added. To these impacts, the impact on the downstream segments of the supply chain must be added, i.e. the industries using susceptible WPM (loss in turnover estimated at €16 bln or 2.6% of GDP) as well as to the transport and logistics sector (loss in turnover estimated at €550 mln or 0.08% of GDP). In addition, there will be the loss in turnover for the sector transporting susceptible wood (€25 mln) and the costs of collection and destruction of superfluous pallets (€11.2 mln).

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<sup>4</sup> The draft Decision provides that the existing requirements for movements of susceptible material from the infested part of the demarcated area into other parts of the Community should be strengthened as follows:

- Instead of the limitation of the treatment and marking obligation to WPM produced from susceptible wood after 27 June 2008 (Decision 2008/489/EC), this obligation would now be applicable to *all* WPM from *Portuguese* susceptible wood, in particular including WPM produced before that date (WPM, originating in other MS and thus not marked, would not fall under these requirements);
- In order to improve compliance with the prohibition on movement of untreated susceptible wood out of the demarcated area, all such movements should be prohibited. An exception to this prohibition is only possible for wood that has been treated and marked in specially authorised processing facilities, under continuous official control for the verification of the correct and effective application of the treatment and traceability of the wood. The Commission will compile a list of such authorised facilities and keep it updated, taking into account monitoring and interception data. The list shall be conveyed to the SCPH and MS.

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These impacts mean that there will be significant social effects in terms of the potential implications in the loss of employment, especially amongst what appears to be some of the lowest paid, low skill workers (forestry and saw mill sectors). In total, in the susceptible wood and WPM sector, some 3,300 jobs could be at risk. To this, the jobs at risk in downstream sectors can be added (user industries: 160,000 jobs; transport and logistics: 4,055 jobs; transport of susceptible wood: 310 jobs).

Furthermore, the effects on the wider Portuguese economy are estimated to have the potential to reach a minimum of €2.5 bln in increased public deficit.

Within these total losses there would be winners and losers. For example, the paper and pulp industry may benefit from lower prices due to the higher availability of raw material. These effects have not been considered within the timeframe and scope of this study. The only case where such effects are explored is in the context of potential transfer of business from Portugal to the wider EU/other MS (see section 4.1.2).

The total cost of the ban can be decomposed to the various impacts explored under the study. An overview is provided in **Table 4-1**. The background analysis for each of these individual impacts is presented in **Annex 4.1**.

**Table 4-1: Impact of ban scenario on Portugal**

	<b>3 months</b>	<b>6 months</b>	<b>1 year</b>
Round wood (a)	€1.25 mln export loss ≈ €4.6 mln turnover loss ≈ €1.2 mln value added ≈ 970 jobs at risk (c)	€2.5 mln export loss ≈ €9.2 mln turnover loss ≈ €2.3 mln value added ≈ 970 jobs at risk (c)	€5 mln export loss ≈ €18.4 mln turnover loss ≈ €4.6 mln value added ≈ 970 jobs at risk
Saw milling (a)	€20.5 mln export loss ≈ €31.7 mln turnover loss ≈ €7.3 mln value added ≈ 1,900 jobs at risk (c)	€41.1 mln export loss ≈ €63.4 mln turnover loss ≈ €14.6 mln value added ≈ 1,900 jobs at risk (c)	€82.2 mln export loss ≈ €126.9 mln turnover loss ≈ €29.1 mln value added ≈ 1,900 jobs at risk
Wood packaging industry	€7 mln export loss ≈ €7.6 mln turnover loss ≈ €1.6 mln value added ≈ 430 jobs at risk (c)	€14.1 mln export loss ≈ €15.3 mln turnover loss ≈ €3.1 mln value added ≈ 430 jobs at risk (c)	€28.3 mln export loss ≈ €30.5 mln turnover loss ≈ €6.2 mln value added ≈ 430 jobs at risk

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	<b>3 months</b>	<b>6 months</b>	<b>1 year</b>
<b>TOTAL (susceptible wood/WPM)</b>	€ 28.8 mln export loss ≈ € 43.9 mln turnover loss (or 0.001 % GDP)  ≈ € 10.1 mln value added  ≈ 3,300 jobs at risk (c)	€ 57.7 mln export loss ≈ € 87.9 mln turnover loss (or 0.014 % GDP)  ≈ € 20 mln value added  ≈ 3,300 jobs at risk (c)	€ 115.5 mln export loss ≈ € 175.8 mln turnover loss (or 0.028 % GDP)  ≈ € 39.9 mln value added  ≈ 3,300 jobs at risk
Industry (WPM user industries)	≈ €4 bln turnover loss, or 0.65 % GDP  ≈ 160,000 jobs at risk (c)	≈ €8 bln turnover loss, or 1.3 % GDP  ≈ 160,000 jobs at risk (c)	≈ €16 bln turnover loss, or 2.6 % GDP  ≈ 160,000 jobs at risk
Transport and logistics (excl. transport of susceptible wood)	≈ €0.14 bln turnover loss, or 0.02 % GDP  ≈ 4,055 jobs at risk (c)	≈ €0.28 bln turnover loss, or 0.04 % GDP  ≈ 4,055 jobs at risk (c)	≈ €0.55 bln turnover loss, or 0.08 % GDP  ≈ 4,055 jobs at risk
Transport of susceptible wood	€6.3 mln turnover loss  ≈ 310 jobs at risk (c)	€12.5 mln turnover loss  ≈ 310 jobs at risk (c)	€25 mln turnover loss  ≈ 310 jobs at risk
Costs of collection and destruction of superfluous pallets	€2,8 mln	€5,6 mln	€11,2 mln
Costs of installation of HT capacity (b)	€0,4 mln	€0,8 mln	€1,7 mln
PT economy as a whole	Increased public deficit by €0.6 bln (minimum)	Increased public deficit by €1.3 bln (minimum).	Increased public deficit by €2.5 bln (minimum)

(a) Includes direct losses in exports of wood and loss in demand for wood as a raw material for WPM because of the reduced export activity in this sector.

(b) Not directly arising from the total ban scenario.

(c) Job loss would take place from day 1 of the reduced activity, hence the impacts are the same under the 3-month, 6-month and 1-year scenarios.

In the individual sectors of the WPM supply chain, the impacts can be described as follows (all figures indicated below are for the 1-year ban scenario):

In the WPM industry and the segments upstream (round wood and sawn wood), the industry is expected to be affected by direct impacts, which are measurable by the value of direct export loss (exports of round wood, sawn wood and WPM as such), and indirect losses via the fall in demand for raw material from the WPM chain. The total impact in terms of the anticipated loss in export value is estimated at €115.5 mln (sawn wood accounts for the bulk of this). Including the indirect impacts exerted via the reduced demand for raw material from the reduced export activity, the loss in turnover and added value for the round wood sector could reach €18.4 mln and €4.6 mln respectively; similarly, turnover and added value loss for the sawn wood sector could reach €127 mln and €29 mln respectively; in the WPM sector itself, turnover loss could reach €31 mln and added value loss €6.2 mln. The socio-economic impact in all three segments is estimated at 3,300 jobs at risk (the bulk of these will be in the saw milling sector).

These impacts could be mitigated by the increased use of round and sawn wood as raw material in other sectors, e.g. paper and pulp, MDF, biomass. Conversely, a fall in the demand for raw material (round wood and sawn wood) by the WPM industry could mean a drop in prices, which would result in further turnover losses. These indirect impacts have not been taken into account here.

Regarding the industries using WPM, the prohibition of exports involving susceptible WPM is estimated to have the potential to result in a loss of the total turnover of these industries by 18.7% or €15.9 bln, which corresponds to 2.6 % of GDP on a yearly basis. This important reduction in activity could also put up to 158,600 jobs at risk.

The severity of the impact is due to the fact that susceptible WPM cannot be substituted for by plastic packaging or by non-coniferous wood packaging, except marginally (plastic packaging is currently estimated to account for 5% of total packaging material).

Regarding the sector of transport and logistics (excluding the transport of susceptible wood), the main impact will be for the road transport and the auxiliary services of the transport sector (handling, storage, harbours, etc.). On a yearly basis, this impact can be estimated to reach €0.55 bln in terms of turnover loss, or 0.09 % GDP, and up to 4,055 jobs at risk.

The transport of susceptible wood would also be affected but to a lesser extent, due to the volumes involved. The main sub-sector affected would be road transport. In total the impact could amount to €25 mln in terms of turnover loss and 310 jobs at risk.

In addition:

- The cost of collection and destruction of superfluous pallets, WPM and dunnage is estimated at around €11.2 mln;
- The costs of installing the additional HT capacity needed to treat new production of susceptible wood/WPM is estimated at €6.6 mln over a time horizon of 3-4 years;

These effects are the direct ones. Additional indirect effects should also be considered, resulting from:

- Reduced activity and employment for suppliers to these industries;
- Reduced overall activity (including the service sector) linked to reduced/lost revenues of the people affected in industry;
- Reduced revenues for the public authorities: € 0.85 bln of fiscal revenues (VAT), yearly;
- Increased public spending: in terms of unemployment compensation, management of forest and susceptible wood. Conservative estimates would put the likely extra spending resulting from these effects at €2 bln per year;
- Potential (increased) inflationary pressures due to increased prices of imported goods, in particular to cover the logistics management (including loss of WPM entering PT and not allowed to leave).

#### **4.1.2. Impact on other MS / the EU27**

The impact of the ban scenario for other MS of the EU27 includes:

- Reduced imports by Portugal, in proportion to the reduced overall activity, will mean reduced exports to Portugal by other MS, in particular Spain which is the major exporter to Portugal. A reduction of 2.6 % of PT GDP would mean a reduction of 0.9% of total imports (or a loss of €57 bln a year). This fall in PT imports would primarily affect other MS which account for 75 % of all PT imports (i.e. a potential loss of €43 bln), and Spain in particular which accounts for 26 % of all PT imports (i.e. a potential loss of €15 bln);
- Reduced exports by Portugal, estimated at a total loss of €15.9 bln, would mean an opportunity for additional exports by other MS; this opportunity would however be smaller than the potential loss of exports to Portugal (estimated above at €43 bln);
- Making the logistics/management of goods circulation in Europe more complex, due to the ban of susceptible wood pallets in PT. This is in part due to the fact that Portugal is a key supplier of new pallets to the sector. More complex management is likely to result in increased costs and prices of logistics for many trade operators;
- Increase in pallets manufacturing in other MS (to compensate for production lost in Portugal). This is required to allow for the continuation of the smooth international circulation of pallets, and to compensate for the lower availability of pallets from Portugal (either manufactured in Portugal or entering Portugal and blocked in Portugal due to the ban);
- Increased activity of Spanish harbours to compensate for the reduction of export (and probably also import) activity in the Portuguese harbours.

## 4.2. No Ban scenario

### 4.2.1. Impact on EU forestry

Under the No Ban scenario, WPM can continue to be imported to and exported from Portugal without any restriction. Impacts on the EU forest industry are linked to the spreading of the plant disease involving the possible establishment of new infected centres throughout the EU and the trees mortality ratio induced by the presence of PWN. The background analysis for these impacts is presented in **Annex 4.2**.

PWN can spread via two different ways:

- Biological dispersal;
- Human assisted dispersal.

Several research activities have been established to model the possible spread of PWN. These models are currently being tested in several areas of the EU and the first results indicate a possible tree mortality percentage ranging from 2,5% to 80-90% depending on the zone. Further testing and adaptation of the models is required before being able to determine more precisely the impacts on the EU forestry industry.

In terms of the biological dispersal, as *Monochamus spp* (i.e. the vector of PWN) is supposed to be present in most EU regions, and it is therefore expected that in the long term PWN will become established in the EU.

In terms of the human assisted dispersal, trade and movement of pallets can multiply the number of new infested centres from where the nematode can slowly spread. Risks are higher for a pallet of low quality. Therefore, the main risks for the spread of PWN are the wood traded and the trading of goods using low quality wooden pallets.

The economic impact of potential PWN spread is mainly in terms of the loss in forestry value from tree mortality. The mortality rate of coniferous trees is dependent on a number of factors including the share of susceptible tree species in the total tree population in the various MS/regions and natural climatic conditions (in particular moisture and temperature levels, with the geographical zone where temperatures average above 20°C during July or August period being at highest risk). Models defined to estimate the mortality level have been applied in a limited number of countries.

In the EU27, 81 mln hectares are covered with coniferous trees. The areas with an average temperature above 20°C in July or August represent 10 to 13 mln hectares (or 12-16% of the total EU: 81 mln hectares). In these areas a mortality rate of 50% to 90% could apply (see map, **Annex 4.2**).

#### **4.2.2. Impact on EU trade**

Trade impacts may be considered as a result of the loss of PWN-free status for other MS and/or the EU-27 as a whole. At the time of analysis it is not known what would be the trigger point for a complete loss of PWN-free status for the EU as a whole. It is assumed, however, that a relatively limited incidence of PWN detection in few parts of the Community would be sufficient to give rise to significant concern that PWN free status could be lost for the Community as a whole<sup>5</sup>.

The following impacts can be anticipated in this case:

- **Intra-EU trade (WPM).** MS may be forced to apply the ISPM15 standard for intra-EU trade in susceptible wood and WPM.

In this case, MS will be forced to install the capacity to treat wood/WPM destined for intra-EU use. This would result in increased costs adding to the price of these products, estimated for example at an additional 15-20% of the price of pallets<sup>6</sup>.

In addition, there will also be cost of installation of the extra capacity. Assuming that an extra 1,100 heat treatment plants will be needed to treat 70% of 450 mln new pallets produced annually in the EU, the total investment required is estimated at €110 to €165 mln<sup>7</sup>.

- **Imports into the EU (WPM).** The loss of PWN-free status may result in MS requesting that only ISPM15 treated material enters their territory.

Given that such products will not be immediately available within the EU, there are likely to be significant displacement effects of EU wood/WPM from international suppliers. It appears most likely that there will be a lead time of at least 6 months to 1 year, for the progressive instalment and operation of the necessary extra HT capacity to treat intra-EU imports. Furthermore, based on the existing HT installation capacity in the EU, it would appear that up to 9 years could well be needed for the installation to be complete. During this period, in the worst-case scenario, up to the totality of EU WPM could be replaced by imports. This would result in a loss of €7 bln<sup>8</sup> in turnover (intra-

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<sup>5</sup> Given the current concerns of several MS and of some of EU trading partners over PWN, this assumption appears to be realistic.

<sup>6</sup> Regarding the prices of treated pallets, FEFPEB indicated an increase of 15 to 20% of the pallet price, depending on the price of the energy used.

<sup>7</sup> According to industry sources, currently on average 30% of new pallets produced in EU are heat treated (source: interview of representative FEFPEB). Considering 3 bln pallets circulating in Europe (source: FEFPEB), of which only 30% are treated, and a yearly production of 420 mln (the assumption of a ratio 1 to 5 production/circulation is made on the basis of information provided by stakeholders), and given the current capacity of installation/treatment (see **Annex 4.1**), 1.3 mln pallets can be treated daily or 315 million a year.

<sup>8</sup> Based on 2006 data (for Bulgaria, Cyprus, Netherlands, Romania, Poland, United Kingdom, 2005 data), the

EU trade accounts for 70% of all production) per year for the first few years, or 0.06% of GDP and could affect up to 70,255 jobs<sup>9</sup>. This loss, in annual terms, can be multiplied by the period that will be necessary for the instalment of full capacity. It is assumed that on average 3-4 years will be needed at a minimum<sup>10</sup>: this scenario can be considered rather optimistic since it assumes that funds will be readily available to undertake this investment<sup>11</sup>.

These impacts may continue beyond the first few years, if EU suppliers of WPM intra-EU are permanently displaced by third country suppliers and/or there is a continuing deficit in the availability of treated WPM. Indeed, MS products will inevitably increase in cost due to the imposition of the ISMP15 standard, in which case they may find it difficult to remain in competition with the products of third country suppliers<sup>11</sup>. It could therefore be expected to lead to the permanent closures of the least efficient operators, in a sector generally characterised by extremely narrow margins (source: interviews with industry).

In terms of the EU relations with third country trading partners, a loss of PWN-free status may also mean that the EU would no longer be in a strong position to negotiate in international fora on this issue.

- **Impacts on user industries, transport and logistics.** The use of higher- cost (due to compulsory ISMP15 treatment) WPM in all trade will put up the price of transport and logistics and result in price increases for the final products and consumers (assuming that the price increases are transmitted to the final consumer). For industries and operators that rely especially on the use of one-way WPM/pallets the impact will be particularly severe. Prices of associated services, hence end products, may go up. However, it is beyond the scope of the current assignment to estimate such impacts in total monetary terms<sup>11</sup>.

Furthermore, the above analysis assumes that sufficiently treated WPM can be immediately found from third country suppliers (i.e. up to 70% of current WPM volumes in circulation). However, to the extent that sufficient volumes of treated WPM are not available, there may be significant temporary disruption of activity for EU user

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total turnover of the sector (NACE Rev 1.1, DD204) amounts to €9,948 mln.

<sup>9</sup> Based on 2006 data (for Bulgaria, Cyprus, Netherlands, Romania, Poland, United Kingdom, 2005 data), the total number of staff employed in the sector (NACE Rev 1.1, DD204) are 100,365.

<sup>10</sup> On the basis of the Portuguese case. However, at EU level, the period required is in reality expected to be much longer.

<sup>11</sup> Commission services are currently considering the introduction of such an obligation to intra-EU trade. However, as stated in the ToR, the impact of such a decision will be considered separate from this assignment, while a considerable timeframe is needed for full implementation of such measures.

industries (i.e. those using WPM), the transport and logistics industry and the wider EU economy. In addition, the limited availability of treated WPM may push prices of WPM even further up, with further potential implications (along the lines described above) in terms of the cost of associated services and final products.

- **Impact on forestry and saw-milling sectors.** During the period necessary for the instalment of the extra HT capacity, the EU forestry and saw milling sectors will suffer from the loss of demand for raw material for WPM production. This sector also operates on very low margins; hence, in many cases, even a temporary fall in demand can push the least efficient operators permanently out of business<sup>12</sup>. It is added that these industries are usually located in rural areas without much alternative employment which exacerbates the social impact of job losses.

However, the negative effects in terms of the fall in demand on the round wood for pallets might be mitigated by the potential for the use of the raw material by other sectors, such as paper industry/paperboard/MDF makers.

- **Exports from the EU.** It is assumed that EU exports to third countries would not be affected, because the ISPM15 currently applied for all extra-EU exports will continue to apply. As the ISPM15 standard is currently applied for all extra-EU exports (source: FEFPEB), it is assumed that this would be sufficient to continue to guarantee the quality of EU exports.

However, there could be a worst case scenario where third country trading partners are so reluctant to import from the EU altogether (or use PWN concerns as a justification to block exports) that the totality of current EU exports might be affected. In this case the impact could result in a loss of some €174 mln in export value and put 11,040 jobs at risk. The worst affected MS would be Germany, Sweden and France which account for 26%, 13% and 10% respectively of the EU export value. These would be the primary effects only on the susceptible wood and WPM; secondary effects on industries using WPM, transport and logistics and the wider economy would also be expected, along the lines of the analysis carried out for the ban scenarios.

### **4.3. ‘Soft’ ban scenario**

Under this scenario, the movement of Portuguese susceptible wood out of Portugal would be banned, with the exception of duly marked and treated WPM under a strengthened control system and with the exception for (non-marked) WPM originating in other MS.

This scenario would thus allow for PT exports of goods involving WPM not to be interrupted, and avoid the enormous potential socio-economic impacts associated with a complete ban, i.e.

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<sup>12</sup> In Portugal, 3 large companies cover 60% of the market (source: PT industry interview). The remaining is shared between a fairly fragmented sector.

2.7% of GDP and some 163,000 jobs at risk (cumulating impacts for industry at large and for transport and logistics).

The condition would be the use of WPM imported from other MS and their progressive substitution by WPM duly treated, marked and certified in Portugal. This condition would likely have the following impacts:

- Increased imports of WPM, with possible repercussions for the costs of WPM and logistics, and thus on prices or profit margins of PT exports. The likely increase in costs involved cannot readily be estimated at present ;
- Accelerated investments in Portugal in HT capacity and a certification system: at this stage, it is difficult to estimate the time needed for the PT WPM industry to produce sufficient treated and certified materials to replace imports<sup>13</sup>. Regarding the prices of treated pallets, FEFPEB indicated an increase of 15 to 20% in the pallet price, depending on the price of the energy used.

For the wood sector and its transport, the impacts would decrease in proportion of the production of duly treated and certified wood and WPM.

## **5. Conclusions and Recommendations**

The above analysis demonstrates that the two extreme scenarios imply enormous negative effects. In particular the ban of exports of susceptible wood/WPM and of any goods packaged in susceptible WPM from Portugal appears to have the potential to produce devastating effects for Portuguese industry and the wider economy. These effects suggest that the softer scenario, as described in this report, would present a more pragmatic and socially/politically acceptable option.

Generalisation of the treatment of wood and WPM in the EU according to ISPM 15 will take time. It is therefore indicated to accompany any decision in this sense with measures proportionate to risks in order to avoid the possible negative effects highlighted in the analysis; an impact assessment would be appropriate in this respect.

The final approach retained in this study should be discussed further with industry and with other stakeholders, as this is a preliminary analysis only. The industry is willing and eager to be consulted. A more in-depth analysis should take account of the forthcoming results of the epidemiological research, in particular the modelling of the spread of the PWN.

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<sup>13</sup> Currently, the PT WPM industry produces 17 mln pallets a year. We estimate that installing 53 new treatment units would allow coverage of the current level of production. The installation of this number of units would involve an investment between €5.3 and 7.9 mln (assumed here €6.6 mln on average). The costs due to the certification of the installed capacities would be quite limited and could be the responsibility of the NPPO, as this is also currently done free of charge in France.

**Annex 1: ToR for the study**

## **Analysis of the socio-economic and environmental impacts of banning or not banning the movement of susceptible wood products from Portugal for stopping the spread of pine wood nematode**

### **Task Specification**

#### **1. Title of the assignment**

Analysis of the socio-economic and environmental impacts of banning or not banning the movement of susceptible wood products from Portugal for stopping the spread of pine wood nematode.

#### **2. Context of the assignment**

##### **Importance of pine wood nematode to the European Community**

Pine wood nematode (PWN; *Bursaphelenchus xylophilus*) is a microscopic worm which is regulated in the EU as a harmful organism to coniferous trees. Specific emergency measures for Portugal are in place (Annex 1). The pest is transmitted by a vector insect (*Monochamus* spp.), which is naturally present in continental Europe. PWN is native to North America, where the native coniferous trees are generally resistant. European coniferous tree species are highly susceptible and entry and spread of the pest in Europe could have devastating effects for European coniferous forests (natural environment conservation, forestry). PWN has caused great damage in Asiatic countries to which it was introduced and at world level is seen as a very important pest. The EU has a status as 'free from PWN, with exception of some areas within Portugal where it is under strict control'. Losing the PWN-free status could lead to lifting of some EU import requirements, with trade consequences for the forest industry, and could generate import restrictions for the export of wood products from MS to third countries.

Wood packaging material (WPM) can be an important pathway for the dissemination of PWN. Because of the risk that PWN is spread in global trade through pallets and crates made from infected trees, the International Plant Protection Convention developed the International Standard for Phytosanitary Measures (ISPM) No. 15 (Annex 2). This standard

has an important impact on global trade because WPM is used for shipments of almost all types of commodities.

### **Situation in Portugal**

PWN was first detected in Portugal in 1999 in the Setubal region. Community emergency measures were taken to eradicate the pest or as a minimum to stop it from spreading. The measures were regularly updated. When eradication failed, the pest was tried to be contained to the Setubal area (demarcated area of about 1 million ha) by a major effort including the felling of 1 million trees, a 20 km wide buffer and, since 2007, surrounded by a 3 km wide and 300 km long clear-cut belt. The Commission supported Portugal for the total expenses with approx. 9 million euro. Since April 2008, 65 outbreaks occurred outside the clear-cut belt all over Portugal. In June, Portugal declared the entire territory of continental Portugal to be PWN infested. The Commission took on its own supplementary measures to stop the spread of PWN to the rest of Europe which were subsequently approved by the Standing Committee on Plant Health (Commission Decision 2008/646/EC) and later on further strengthened (Commission Decision 2008/790/EC; Annex 2). Strict measures, an extrapolation and even strengthening of those in force for the Setubal area until June 2008, are now in force in the whole of continental Portugal. The measures should stop the spread via the transport of infested wood as well as natural spread. They comprise provisions for inspection and plant passporting of susceptible plants in intra-EU trade, heat treatment or fumigation requirements for wood and bark from susceptible conifers; all newly produced wood packaging materials made from susceptible coniferous wood needs to be heat-treated or fumigated and marked according to the relevant International Standard (ISPM No. 15). Most stringent measures are applicable in a buffer zone of 20 km wide along the border with Spain.

### **Insufficient compliance by Portugal with the legal requirements**

Currently, Portugal has largely insufficient capacity for the required heat treatment of the wood materials that it produces. Several recent FVO inspections (the latest one from 13-17 October 2008) have shown that, in spite of large scale actions, in general Portugal complies insufficiently with the EU emergency measures (Annex 3-5). The controls on the movement of susceptible wood within the demarcated area are not applied to the whole of the demarcated area (continental Portugal) as is required. The treatment capacity and state of

the treatment industry are subject to serious concern, the more because Portugal seems not in control of the industry and unable to provide appropriate guidance and enforcement. This creates risks for spread of the pest out of Portugal. Indeed, Sweden notified in August and September 2008 in total 13 PWN findings in pallets from Portugal out of 160 analysed; in two cases for pallets marked as having been treated. This has caused political commotion in Sweden, where the wood industry is a major economic player. Sweden is now asking the Commission to strengthen further the measures, namely to ban the movement of all non-marked WPM from PT to the rest of the Community, and has taken national safeguard measures requiring destruction of all non-marked WPM from Portugal. Findings of PWN in WPM have also been made by Spain and Finland, and non-compliances concerning treatment of WPM from Portugal have been reported by many other MS.

Commission services are extremely worried. A letter from Ms. Vassiliou to the Portuguese Minister was sent on 15 September, requesting investigation and strong action. SANCO services have requested on 5 September all Member States to monitor more closely the status of Portuguese WPM that enters their territory and report on the outcome.

#### **International seminar in Lisbon on 7-9 October 2008**

Commissioner Vassiliou and Minister Silva of the Portuguese ministry of Agriculture, Rural Development and Fisheries agreed to organise a seminar on PWN, bringing together leading world experts in PWN management and research, to investigate the possibilities to stop PWN from spreading further into Europe. The seminar took place in Lisbon and involved experts from China, Korea, Japan and Taiwan, countries that suffered from PWN invasion in the past, as well as Canada, the USA and Europe. The outcome of the seminar (Annex 6) will be used as input for any possible amendments of the legal provisions.

Some main conclusions:

- The latest modelling prediction for the impact of PWN for the EU implies a huge impact on coniferous forests in the southern part of its territory.
- Complete eradication of PWN in all infested areas in Portugal is no longer realistic. The aim should now be to eradicate local PWN infestations and elsewhere contain it.
- Concerning the long-distance dispersal of PWN, the experience from PWN-affected countries in Asia shows that human activities are the key factor for outbreaks in new areas. In particular, this concerns the movement of infested wood of all kinds; e.g. fire

wood, wood debris, wood packaging material. Therefore, legal measures, enforcement of measures, communication about measures, and monitoring of compliance should focus on this risk, first of all.

- The experience from PWN-affected countries stresses the importance of effective government action, at all levels, to successfully eradicate and control natural and human-activity-related spread of PWN. Continued effective implementation of the PWN strategy and legal provisions is crucial.
- Risks from WPM and dunnage made from infected trees should be mitigated. Heat treatment (HT) facilities should be certified and audited; the capacity for HT in Portugal should be increased so as to meet the needs.

### **Conclusions drawn by Commission services**

Commission services conclude that Portugal is unable to effectively control the critical points for spread of PWN out of Portugal to the other MS. Susceptible wood and wood products, including WPM, are the most important pathway for PWN spread but Portugal is unable to appropriately control movements of wood (products) and WPM inside and out of its territory. Commission services acknowledge the considerable efforts made by Portugal to improve the situation but, nevertheless, conclude that the existing Community emergency measures have not led to an acceptable level of control and that more Community emergency intervention needs to be considered to safeguard the other MS. Technically, the nematode will need to be contained inside Portugal by blocking all movement of susceptible wood (products) and WPM from Portugal to other MS as long as it is not yet in full control of the movements of susceptible wood (including wood products like WPM), has insufficient capacity in treatment facilities and is not sufficiently supervising the correct application of heat treatment in approved facilities.

Currently, the ISPM 15 treatment and mark are not yet compulsory for WPM moved within other parts of the Community. Therefore, traceability of susceptible material within the Community is not possible for any origins outside Portugal. The timeframe for introducing an obligation to apply the treatment and mark in all 27 Member States is currently under discussion. Commission services consider that introduction throughout the EU of such an obligation may be necessary. The impact of such a decision to the EU and its MS will be considered separate from this assignment. Nevertheless, such initiative could only be part of

a mid-term strategy for better control of WPM because a considerable timeframe is needed for full implementation of such measures.

If movement of susceptible wood (products) and WPM out of Portugal would be blocked, any WPM entering Portugal from other MS would need to be kept in Portugal too. Such WPM cannot be differentiated from WPM originating in Portugal itself because it may or may not have been marked in the other MS. In practice, this implies that all coniferous WPM entering Portugal within that period cannot be re-used for trade outside its territory. This aspect shall be taken into account in the current assignment.

The impact of a Commission Decision to ban all movements of susceptible wood (products) out of Portugal may have serious socio-economic impacts to Portugal. The current assignment considers the quantification of these impacts. The assignment also considers the quantification of the impacts of such a ban to the other Member States, as well as of the impacts to the other Member states in case PWN would spread all over the EU territory.

### **3. Description of the assignment**

#### **Purpose and objective of the assignment**

The global objective of the assignment is to deliver the justification for the EU plant health policy safeguarding the health of the European coniferous forests and the competitiveness of European coniferous wood and WPM trade, in view of the problems posed by PWN in Portugal.

The specific objectives of the assignment are:

- First, to clarify and quantify the socio-economic impact to Portugal of a Commission Decision to ban all movements of susceptible wood (products) and WPM from Portugal under 3 different scenarios: during 3, 6 and 12 months; and to clarify and quantify the socio-economic impacts of such a ban to the other Member States;
- Second, to clarify and quantify the environmental (forestry decline) and economic impacts on EU forestry and forestry industry, including WPM industry, if PWN would spread all over the EU.

#### **Specific Tasks**

##### *Assignment definition*

The contractor is required:

- To identify, clarify and quantify the direct and indirect socio-economic impacts for Portugal that are likely to occur (both intended and unintended ones) as a consequence of a prohibition for movement of susceptible wood (including products like WPM) out of Portugal during 3, 6 or 12 months and to clarify and quantify the socio-economic impacts on other Member States;
- To clarify and quantify the environmental (forest decline) and economic impacts on EU forestry and forestry industry, including WPM industry, if PWN would spread all over the EU.

#### *Scope of the prohibition*

The prohibition would be put in place for 3, 6 or 12 months for the continental territory of Portugal, for all susceptible plants as well as for all susceptible wood, wood products and wood packaging material currently covered by Commission Decision 2008/790/EC, but irrespective of when such wood (products) of WPM was produced and from where it originated.

Commodities covered:

- Susceptible plants: plants (other than fruit and seeds) of *Abies* Mill., *Cedrus* Trew, *Larix* Mill., *Picea* A. Dietr., *Pinus* L., *Pseudotsuga* Carr. and *Tsuga* Carr.
- Susceptible wood: wood and isolated bark of conifers (*Coniferales*), except that of *Thuja* L.: raw wood, timber, packing cases, boxes, crates, drums and similar packings, pallets, box pallets and other load boards, pallet collars, dunnage, spacers and bearers, wood chips, wood shavings, wood bark, pallets entering Portugal from other MS or from outside the EU, wood waste or particles obtained in whole or part from coniferous trees.

Exempted are:

Wooden furniture made from susceptible coniferous wood and processed in such a way as to eliminate PWN infestations.

Medium-density fibreboard (MDF) and plywood prepared from susceptible coniferous wood under conditions lethal to PWN.

Wood and wood products (including WPM) from non-susceptible species (= not from conifers).

The prohibition would not only cover WPM used for transport of agricultural commodities, but for WPM applied for transport of any commodity (trade in general).

#### *Data collection*

The contractor is required to provide the Commission with the necessary quantitative data, as well as analytical and descriptive inputs on economic and social impacts, as identified in the specific tasks requested below. Where possible, these inputs shall be consistent with the policy requirements, quality and standards necessary to conform with the Commission's Guidelines on Impact Assessment.

For the collection and collation of the required data, the contractor should consult with the relevant stakeholders, including the competent authorities in Portugal. An indicative, yet incomplete, list of stakeholders / experts / organisations who should be consulted is provided in Annex 7.

#### *Impacts to be analysed*

The following impacts (in value) should be investigated:

For objective 1: In general, all direct and indirect losses/costs that could affect any Portuguese economic actor operating along the wood and WPM value-chain; this includes at least:

- Direct losses in susceptible wood and wood products under the prohibition;
- Direct losses of susceptible wood used as a tool in logistics (including wood packaging material, pallets, dunnage) under the prohibition;
- Costs for collection and storage/destruction of superfluous pallets, WPM and dunnage (wood used to wedge or support cargos) made from susceptible wood and entering or made in Portugal;
- Costs for substituting pallets / WPM / dunnage etcetera by substitutes (e.g. plastic) materials;
- Impacts on price / demand levels for WPM / pallets and their substitutes;

- Losses/costs for the transport and logistics industry;
- Losses/costs for trade in general (e.g. trade in washing machines, televisions, andsoforth)<sup>14</sup> as a result of (i) the unavailability of WPM and wood products used in trade such as dunnage; (ii) the prohibition to move such WPM out of Portugal when shipped into Portuguese points of entry and therefore (iii) the reloading of shipments onto substitute pallets (plastic pallets or pallets made from non-susceptible wood);
- The implementation of a system to ensure and control compliance with legislation;
- Socio-economic impacts on points of entry such as Portuguese harbours and airports;
- Indirect impacts on other industries and on the Portuguese economy as a whole.

These aspects should be quantified for the Portuguese domestic market, the intra-EC trade market, and the trade with third countries.

- Possible impact on other MS and on the EU internal market (qualitative estimation only) (for instance impacts on pallet pools owned by companies in other Member States; impacts on harbours and airports in other Member States, etcetera).

For objective 2: Expected impact on the environment (forest health) of refraining from a ban on wood products from Portugal, under the assumption that PWN is spreading throughout the EU:

- Possible lethal effect on EU forestry in different regions.
- Impact on wood industry and trade: for instance, the altered status of the EU as PWN-infested instead of PWN-free could lead to additional export restrictions for susceptible wood products to certain third countries.

### *Methodology*

The assignment is for a fast-track study that will allow Commission services to evaluate how serious the aforementioned prohibition of movement of susceptible wood (products) and WPM out of Portugal would impact on the Portuguese economy and society and, in a broader

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<sup>14</sup> N.B: this impact considers ALL trade into and via Portugal for ALL commodities.

context, on the associated impacts on other Member States. The study also pertains to the impacts on forestry and forestry industry in the Member States of spread and establishment of PWN in the entire EU.

The contractor is free to choose his own methodology to carry out the assignment having in mind that final estimations, even if from a fast-track study, should be unbiased and representative of the potential socio-economic impacts. Detailed quantitative estimation of impacts and error margin estimations are welcomed even if not fundamental. As for environmental impacts, the study should include estimates of coniferous forest mortality acreages in Member States, based on the PWN mortality prediction model developed by Dr Hugh Evans (UK) in the PHRAME research project combined with coniferous forestry acreages in the Member States.

The contractor is supposed to (and free to) contact the necessary stakeholders in Portugal, including competent authorities. In case no collaboration is given, the contractor should use the fallback option of proxy data from neighbouring / similar MS or other countries tackling the same problem.

#### *Reporting, deliverables, organisation, timetables*

The contractor should present a report which summarises the aforementioned analysis of the socio-economic impact of the policy option under study. The report must be delivered ultimately 10 working days after the contract has been signed, that is, at the latest by Friday 7 November 2008 (electronically and “on paper”).

For sake of transparency, the Annexes of the report should include the data and facts collected by the contractor (and their sources), and the assumptions and calculations made. If possible, the structure of the report should follow that set out in Section 9.3 of the Commission’s impact assessment guidelines (Annex 8), as appropriate, and include a chapter on the methodology.

The contractor will work in close collaboration with DG SANCO services. The contractor should include a possibility for Commission services (1) to ask for an interim meeting in Commission premises and (2) to ask for a presentation of the results at the time of delivering the report.

Contact unit for the technical aspects of the study is DG SANCO, unit E1 (contact person: Mr Harry Arijs, tel. +32 229 87645, e-mail [harry.arijs@ec.europa.eu](mailto:harry.arijs@ec.europa.eu)).

*Special requirements*

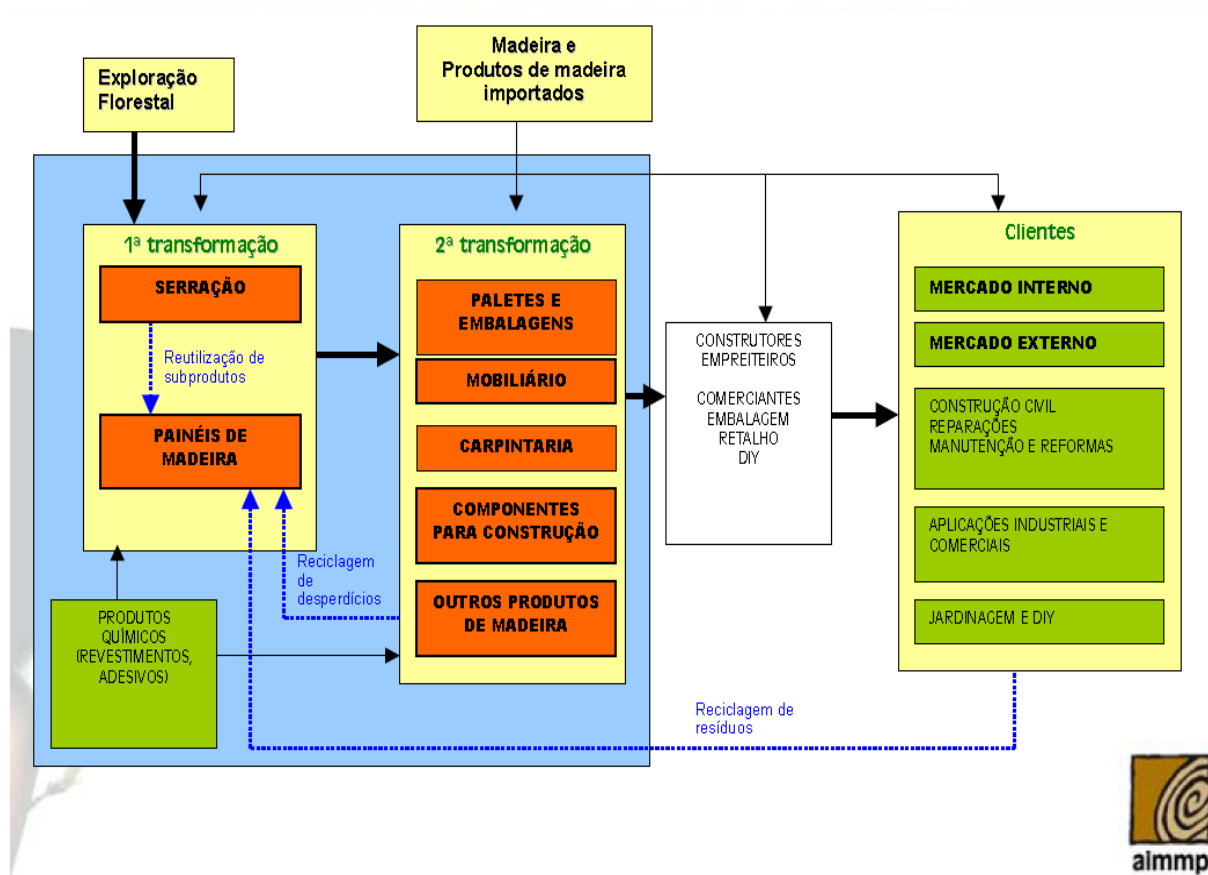
The contractor staff carrying out the study should have solid experience with collection and interpretation of economic data, both as concerns direct and indirect effects.

The contractor will need to involve staff mastering the Portuguese language (or utilize interpretation).

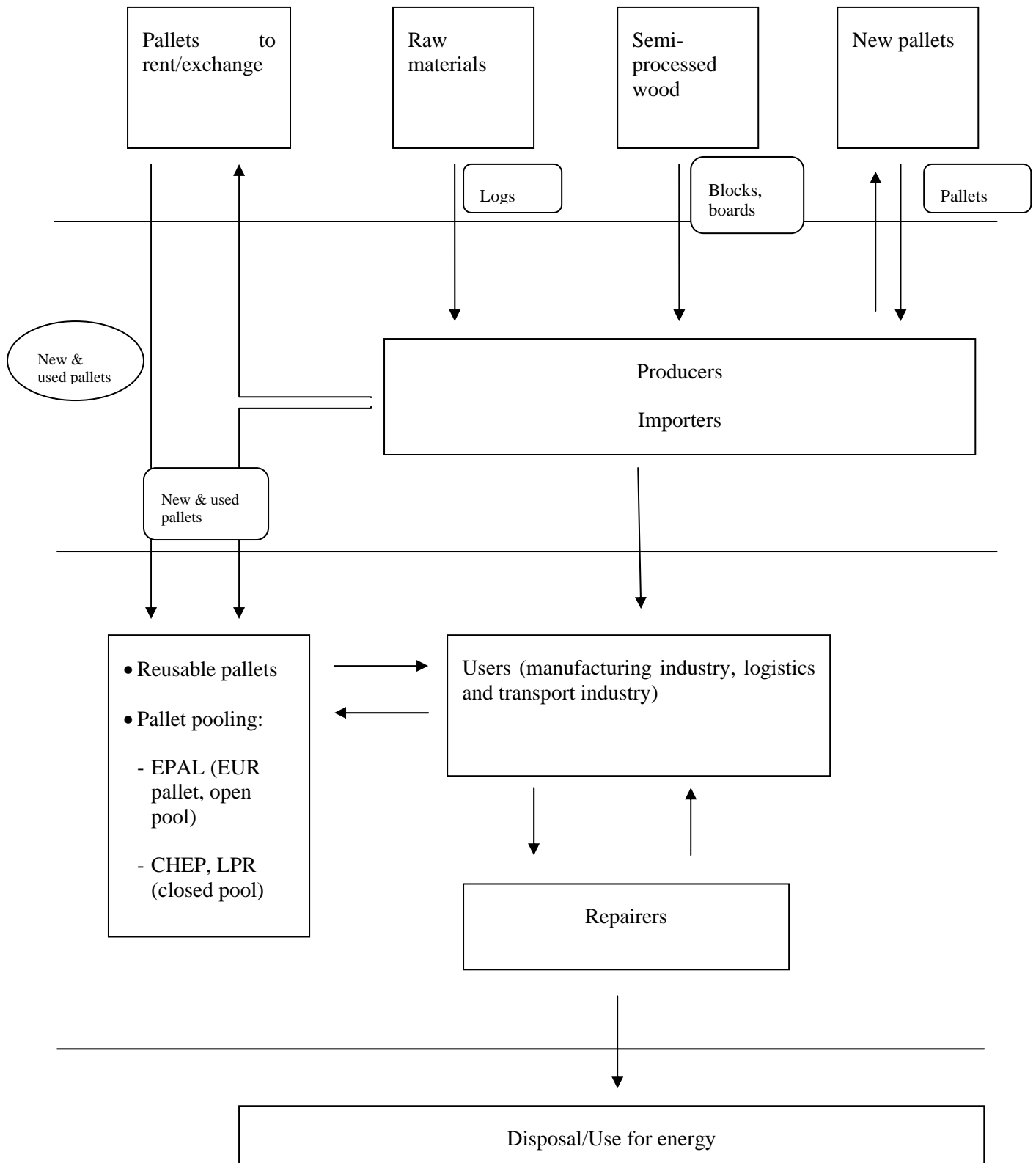
**Annex 2: Logical framework (supply chain)**

- PT Wood Supply Chain
- EU WPM (Pallets) Supply chain

## PT Wood Supply Chain



**EU WPM (Pallets) Supply Chain**



### **Annex 3: Overview of PT and EU WPM (pallet) industry**

The European wood packaging industry is represented by pallets (75%), industrial packaging (20%), crates (5%) (by volume) and dunnage (source: FEFPEB).

As regards pallets, a distinction is made between standard pallets (manufactured according to specific norms) and non-standard ones. Some standard pallets are manufactured for use in specific sectors such as the 9 types of CP pallets used in the chemical industry, the VMF pallets used in the mechanical glass industry, cement pallets used in the cement industry and the GALIA pallets used in the automotive industry. In these specific sectors, the pallet is usually returnable. The deposit charged for the pallet can amount to 2 to 3 times the selling price of the pallet, i.e. in the building sector, the deposit on a returnable pallet amount to €23 compared to € 4,5-5,5 for a new pallet (ADEME, 2004).

Another distinction is made between one-way pallets, reusable pallets owned by distributors/transporters, pallets of open pools and pallets of closed pools:

- One way wooden pallets are simply non-reusable pallets;
- An open pallet pool is a cooperative pool aiming at the cross-sector exchange of standardised pallets of quality, which are certified by independent agencies like Bureau Veritas in France. In Europe, there is one open pallet pool run by EPAL (a non-profit organisation). Users can forward the EUR pallets on directly to customers, or exchange them for newly reconditioned EUR pallets. These pallets are designed for reuse. The pool does not charge a profit margin. Producers and repairers of EUR pallets must be licensed to produce or to repair and have the right to use the protected trademarks;
- Closed pallet pool: commercial pool renting standardised pallets of quality, which are designed for reuse. The pool organisation charges a profit margin and is responsible for the production, provision, picking-up and repair of its pallets. It is run by businesses like CHEP or LPR.

FEFPEB estimates that one-way pallets, reusable pallets, open pool pallets and closed pool pallets respectively represent 45%, 30%, 10-15% and 10% of the European market. Pallets of open and closed pools are also reusable.

The lifespan of pallets within a pallet pool (i.e. checked and repaired over time) is 8 to 10 years. In a close pool, the same pallets are used 3 to 4 times a year. The lifespan of a pallet out of a pallets pool is 4 to 5 years (ADEME, 2004).

There are 3 bln pallets in circulation in Europe. The rule is that on average per year one pallet per head of population is produced. Portugal produces 10 mln pallets per year. Spain uses some 45 mln pallets per year of which 7 mln come from Portugal (produced in excess of the 10 mln mentioned above). 50 mln pallets are in circulation in Portugal (Interview of Portuguese representative of the pallet industry).

According to the ADEME, in 2004, there are 250 to 300 mln pallets in circulation in France, with an annual production of 60 mln pallets.

Boxes of wood are in most of the cases manufactured for a specific use and are not recovered. They are usually not repaired to be reused (ADEME, 2004).

The wood packaging sector is mainly small-scale, with a large majority of companies with less than 20 employees. In France, they represent 75% of the total number of companies involved in the wood packaging sector and generate 25% of the total annual turnover. The packaging market is important in the wood chain since it provides an essential outlet for sawn timber, from small logs and as boards of larger logs. More than 30% of the French production of sawmills is used annually for the production and/or the repairing of pallets and crates (Ministère de l'Economie, des Finances et de l'Industrie, 2004).

**Annex 4: Background analysis of the scenarios**

## **A4.1: Ban scenario**

### ***A4.1.1 Impact for Portugal***

The individual impacts on the various sectors in Portugal have been estimated on the basis of the following analysis:

#### **Impact on wood industry**

The wood industry is expected to be affected by direct impacts, which are measurable by the value of direct export loss (exports of wood), and indirect losses via the fall in demand for raw material from the WPM chain.

Impacts on individual wood commodities are therefore calculated as follows (the figures below are for the one-year ban scenario):

- **Commodity: Round wood**

Characteristics of the sector: 84.2% privately owned<sup>15</sup>. Fragmented ownership: 115,000 holdings (Mendes, 2007), small dimensions (average: 0-4 ha.), marginal incomes. Low skilled employment.

- Loss of exports<sup>16</sup>: €5.0 mln (2007)
- Loss in turnover: 70% \* 41% \* 34% \* €189 mln = €18,4 mln
- Loss in value added: 70% \* 41% \* 34% \* €47.3 mln = €4.6 mln
- Socio-economic impact (effects on employment): 968 employees at risk

According to interviews conducted with stakeholders and on the basis of the data from the industry, the share of round wood which is used to produce pallets amounts to 66-70%<sup>17</sup>. Of the total pallet proportion, 41% is exported<sup>18</sup>. Furthermore, in 2007, the proportion of coniferous removals on total removals was 34%.

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<sup>15</sup> The structure of forestry ownership reflects the agricultural structure, with large professional operators in the South (Ribatejo and Alentejo), and smaller operators and parcels in the North

<sup>16</sup> Code HS6: 440320

<sup>17</sup> Interview with Verdasca, P.; Sonae Indústria data

<sup>18</sup> Portugal produces yearly 17 mln pallets, 10 mls are directed to domestic use, while 7 mln are exported, mainly to Spain. Interview with P. Verdasca

In terms of the direct impact on loss of exports of coniferous round wood as such, it is noted that exports only account for 3% of production.

The number of employees working in the sector is 10,900 for 2004 (FAO), assuming a share of 34% of coniferous removals on total removals (UNECE, 2007), the number of workers in the pine sector amounts approximately to 3,700. This figure is confirmed by the interview with relevant stakeholders in Portugal<sup>19</sup>. There are mainly two companies operating in the country (Logistica Florestal, Floponor) providing contracting services to the forestry sector, and employing 2000-3000 people (each) on a subcontracted basis. The first one focuses on pine for 70-80% of its total activities, the share is 60% for the other. The estimated number of people employed on the basis of the data provided amounts therefore to 3,375. Considering the shares above, it could be estimated that approximately 970 jobs are at risk. Additionally, many owners (smallholders in the north) tend to do the work themselves, relying on forestry income for relatively small but still significant shares of total income.

- Commodity: Sawn wood<sup>20</sup>

Characteristics of the sector: small-medium scale enterprises; few large enterprises account for a large share of the industry's output.

- Loss of exports: sawn wood €80.9 mln (2007) + wood chips €1.3 mln = €82.2 mln
- Loss in turnover: 60% \* 41% \* 90% \* €573 mln = €126,9 mln
- Loss in value added: 60% \* 41% \* 90% \* €131.6 mln = €29,1 mln
- Socio-economic impact (effects on employment): 1,906 employees

In terms of the direct impact on loss of exports of coniferous sawn wood as such, it is noted that exports account for 56% of production.

The majority (90%) of sawn wood yearly produced in Portugal is coniferous wood (UNECE); the main destination of the sawn wood is the production of packaging materials: data provided during interviews with stakeholders indicate that 60% of total sawn wood is used to produce pallets<sup>21</sup>. The percentage of 41% is the share of total pallet production which is internationally traded.

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<sup>19</sup> Cerrao m., Logistica Florestal.

<sup>20</sup> Code HS6: 440710

<sup>21</sup> Interview with Verdasca

- Commodity: Wood packaging materials<sup>22</sup>

Characteristics of the sector are provided in **Annex 3**.

- Loss of exports: €28.3 mln (2007)
- Loss in turnover:  $41\% * 90\% * €67\text{mln} = €30.5 \text{ mln}$
- Loss in value added:  $41\% * 90\% * €16.9 \text{ mln} = €6.2 \text{ mln}$
- Socio-economic impact (effects on employment): 432 employees

The majority (90%) of WPM yearly produced in Portugal is made of coniferous wood (UNECE). The percentage of 41% is the share of total pallet production which is internationally traded.

Other impacts (not included herewith):

- The fall in demand on the round wood for pallets will result in a fall in price for round wood for other sectors (absorbing 30-34% of round wood), such as paper industry/paperboard/MDF makers.

Basic statistics on the sector are presented in the table below:

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<sup>22</sup> Code HS 2006: 441510, 441520

**Analysis of impacts of options for PWN susceptible wood products from Portugal:  
Final Report**

*DG SANCO Evaluation Framework Contract Lot 3 (Food Chain)*

**Basic statistics on PT coniferous wood industry**

Commodity	Trade value (€) <sup>23</sup>		Trade quantity (100kg) <sup>23</sup>		Main Recipients (value, 2007)	Industry Turnover (€)	Employment	% of wood production <sup>24</sup>	% exports on production <sup>24</sup>	
	2006	INTRA-EU	2006	INTRA-EU						
<b>Coniferous Round wood</b>	2006: 5,433,620	INTRA-EU: 100%	2006: 1,038,149	INTRA-EU: 100%	INTRA-EU: ES: 96.9% UK: 1.6% IT: 0.9%	189 mln 47.3 mln (value added at factor cost <sup>25</sup> )	Forestry owners: 115,000 holdings (28% of total holdings)	3,701 1,000m3 (34%)  70% used for pallet production	3% (total coniferous round wood)   1% (total round wood removals)	
	2007: 5,020,397	INTRA-EU: 99%	2007: 923,040	INTRA-EU: 100%	EXTRA-EU: Cape Verde: 0.6%					Employees: 3.375 (pinewood sector)
	2008 (Jan-Sept.): 2,989,313	INTRA-EU: 99%	2008 (Jan-Sept.): 119,166	INTRA-EU: 99%						

<sup>23</sup> Source: EUROSTAT

<sup>24</sup> Source: UNECE

<sup>25</sup> Source: Estimation on the basis of Mendes (2007) Economic Accounts for Forestry, 2006

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Commodity	Trade value (€) <sup>23</sup>		Trade quantity (100kg) <sup>23</sup>		Main Recipients (value, 2007)	Industry Turnover (€)	Employment	% of wood production <sup>24</sup>	% exports on production <sup>24</sup>
	2006:	INTRA-EU: 90%	2006:	INTRA-EU: 91%					
<b>Coniferous Sawn wood</b>	2006: 62,401,535	INTRA-EU: 90%	2006: 4,073,371	INTRA-EU: 91%	INTRA-EU: ES: 81% UK: 8% FR:1% EXTRA-EU: Morocco: 6% Israel: 2% Cape Verde: 1%	573 mln <sup>26</sup> 131.6 mln <sup>27</sup> (value added at factor cost)	Employees <sup>28</sup> : 8,222	909 (90%) 60% of total sawn wood used for WPM production	51% (total sawn wood) 56% (total coniferous sawn wood)
	2007: 80,852,938	INTRA-EU: 90%	2007: 4,751,390	INTRA-EU: 91%					
	2008 (Jan-Sept.): 39,259,720	INTRA-EU: 86%	2008 (Jan-Sept.): 1,759,688	INTRA-EU: 86%					
<b>Coniferous wood chips</b>	2006: 483,717	INTRA-EU: 100%	2006: 125,612	INTRA-EU: 100%	INTRA-EU: IT: 79% ES: 21%				
	2007: 1,292,703	INTRA-EU: 100%	2007: 197,129	INTRA-EU: 100%					

<sup>26</sup> INE, 2006

<sup>27</sup> EUROSTAT, Structural Business Statistics, 2006

<sup>28</sup> EUROSTAT, 2006

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Commodity	Trade value (€) <sup>23</sup>		Trade quantity (100kg) <sup>23</sup>		Main Recipients (value, 2007)	Industry Turnover (€)	Employment	% of wood production <sup>24</sup>	% exports on production <sup>24</sup>
	2008 (Jan-Sept.):	INTRA-EU:	2008 (Jan-Sept.):	INTRA-EU:					
	3,845,148	100%	600,276	100%					
<b>Wood packaging materials</b>	2006: 24,392,971	INTRA-EU: 95%	2006: 804,272	INTRA-EU: 97%	INTRA-EU: ES: 66% FR: 22% NL: 3% DE: 1%  EXTRA-EU: Angola: 3% US: 1%	67 mln  16.9 mln (Value added at factor cost, 2005)	Employees: 1200		41%  Share of susceptible wood: 90%
	2007: 28,358,778	INTRA-EU: 95%	2007: 882,484	INTRA-EU: 98%					
	2008 (Jan-Sept.): 20,510,443	INTRA-EU: 96%	2008 (Jan-Sept.): 480,460	INTRA-EU: 97%					

### **Impact on industries using WPM**

The prohibition of export<sup>29</sup> with susceptible WPM will affect at least 44.5% (in volume) of the exports of industry i.e. industries using pallets<sup>30</sup>. This effect is deflated by 5% to take into account the share of plastic pallets<sup>31</sup>.

In 2007, PT exports of goods amounted to € 37.5 bln<sup>32</sup>, i.e. 44.2 % of an estimated total volume of sales of €84.9 bln<sup>33</sup>.

The ban would thus concern 44.5% \* 95% \* 44.2 % \* 84.9 bln, i.e. 15.9 bln or **18.7 % of the total turnover of industry.**

Applying the percentage of turnover impacted (18.7%) to the added value of industry results in an impact of 2.6 % of GDP<sup>34</sup>.

Applying the percentage of turnover impacted (18.7%) to employment in industry (848,103 in 2007<sup>33</sup>) indicates that some **158,600 jobs would be at risk.**

### **Impact on transport and logistics**

Impact on transport and logistics refers to the impact of the ban on the activity in the following sectors:

- road transport
- rail transport
- maritime transport
- air transport
- supporting and auxiliary transport activities<sup>35</sup>, except travel agencies and tour operators.

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<sup>29</sup> Both exports to EU 27 and to third countries are concerned.

<sup>30</sup> Source : Instituto Nacional de Estatísticas, Inquérito ao Transporte Rodoviário de Mercadorias, 2007. The percentage of exports involving pallets mentioned in this study has been applied to exports by all means of transport (due to the importance of road transport, and the unavailability of such statistics for the other means of transport). A study by the Ministry of Agriculture and Forestry of New Zealand indicates that approximately 50% of all loaded shipping containers entering New Zealand contain WPM.

<sup>31</sup> Source: interviews of the representatives of the pallet industry.

<sup>32</sup> Source: Eurostat, International Trade (values and other indicators) of EU and the main third countries per product CTCI 1-digit.

<sup>33</sup> Source: Eurostat, structural statistics of companies (NACE Rev.1 C-K) - main indicators.

<sup>34</sup> Source: Eurostat, structural statistics of companies and national accounts.

The data provided refer to 2007 for the volumes transported<sup>36</sup> and preliminary data regarding turnover and employment<sup>37</sup>, with the exception of rail for which most recent data of turnover and employment refer to 2004.

The estimates consider the transport of goods except transport of susceptible wood.

The estimates do not take into account indirect impacts, e.g. the ban of exports on wood pallets might have indirect effects on domestic transport.

Impacts on turnover and employment are estimated by applying to the sub-sectors the proportion of volume exported with pallets to the total volume of transport of the sub-sector (domestic + international).

Regarding the auxiliary services, we applied a weight factor of 5,4% mixing the above mentioned proportions of volume exported with pallets, with the relative shares of each sub-sector in the exports with pallets.

The table below presents for each sub-sector the direct impact on turnover and on employment.

<b>Sub-sector</b>	<b>Impact on turnover (€mln)</b>	<b>Impact on employment</b>
Road	146	1966
Rail	8	170
Sea	61	131
Air	21	64
Auxiliary services	311	1724
<b>Total</b>	<b>547</b>	<b>4055</b>

These data might be underestimated due to the difficulty of considering re-exported goods, in particular for sea transport (data not accessible in the time span of the study).

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<sup>35</sup> This includes cargo handling (e.g. in harbours) and storage (e.g. refrigerated) and other activities and agencies supporting the different types of transport.

<sup>36</sup> Source : Eurostat, statistics on transport.

<sup>37</sup> Source : Eurostat, detailed statistics on services.

### **Impact on transport of wood**

Impact on transport of susceptible wood refers to the impact of the ban on the following sectors:

- road transport;
- rail transport;
- maritime transport.

The data refer to 2007 for the volumes transported and usually regarding turnover and employment (except for rail: last data of 2004).

Impacts on turnover and employment are estimated by applying to the sub-sectors the proportion of volumes exported of coniferous wood to the total volume of transport of wood and cork (domestic + international).

The table below presents for each sub-sector the following figures: % of volume of susceptible wood exported of the total volume transported; direct impact on turnover; direct impact on employment.

<b>Sub-sector</b>	<b>Volume of susceptible wood exported (%)</b>	<b>Impact on turnover (€mln)</b>	<b>Impact on employment</b>
Road	0,4	20,4	275
Rail	0,6	1,4	30
Sea	0,5	3,2	7
<b>Total</b>		<b>25</b>	<b>312</b>

Basic statistics used to establish the figures provided are presented in the following pages.

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**PT international transport: % of goods transported on pallet**

Type of good	International transport - volume loaded (Thousands tons)	International transport - volume loaded on pallets (Thousands tons)	International transport - % of total goods loaded on pallets	International transport - % of goods loaded on pallets	International transport - volume unloaded (Thousands tons)	International transport - volume unloaded from pallets (Thousands tons)	International transport - % of total goods unloaded from pallets	International transport - % of goods unloaded from pallets
Cereals	129	0	0.0%	0.0%	139	25	0.5%	18.0%
Potatoes, other fresh or frozen fruits and vegetables	217	165	3.0%	76.0%	389	253	4.9%	65.0%
Live animals, sugar beet	58	0	0.0%	0.0%	82	0	0.0%	0.0%
Wood and cork	1848	238	4.3%	12.9%	310	58	1.1%	18.7%
Textiles, textile articles and man-made fibres, other raw animal and vegetable materials	49	18	0.3%	36.7%	102	38	0.7%	37.3%
Foodstuff and animal fodder	915	522	9.3%	57.0%	1417	852	16.7%	60.1%
Oil seeds and oleaginous fruits and fats	64	19	0.3%	29.7%	196	92	1.8%	46.9%
Solid minerals fuels	0	0	0.0%		31	0	0.0%	0.0%
Crude petroleum	0	0	0.0%		0	0	0.0%	
Petroleum products	99	0	0.0%	0.0%	857	17	0.3%	2.0%
Iron ore, iron and steel waste and blast furnace dust	119	0	0.0%	0.0%	26	0	0.0%	0.0%
Non-ferrous ores and waste	84	0	0.0%	0.0%	18	0	0.0%	0.0%
Metal products	923	131	2.3%	14.2%	935	255	5.0%	27.3%
Cement, lime, manufactured building materials	948	607	10.9%	64.0%	553	474	9.3%	85.7%
Crude and manufactured minerals	1176	328	5.9%	27.9%	1408	309	6.0%	21.9%
Natural and chemical fertilizers	69	10	0.2%	14.5%	100	37	0.7%	37.0%
Coal chemicals, tar	0	0	0.0%		0	0	0.0%	
Chemicals other than coal chemicals and tar	599	305	5.5%	50.9%	750	382	7.5%	50.9%
Paper pulp and waste paper	228	71	1.3%	31.1%	30	30	0.6%	100.0%
Transport equipment, machinery, apparatus, engines, whether or not assembled, and parts thereof	1094	580	10.4%	53.0%	887	427	8.4%	48.1%
Manufactures of metal	284	173	3.1%	60.9%	198	110	2.2%	55.6%
Glass, glassware, ceramic products	719	526	9.4%	73.2%	278	186	3.6%	66.9%
Leather, textile, clothing, other manufactured articles	1941	1322	23.6%	68.1%	1175	688	13.5%	58.6%
Miscellaneous articles	990	577	10.3%	58.3%	1428	880	17.2%	61.6%
<b>Total</b>	<b>12553</b>	<b>5592</b>	<b>100.0%</b>		<b>11309</b>	<b>5113</b>	<b>100.0%</b>	
		<b>44.5%</b>				<b>45.2%</b>		

Source: Estatísticas dos Transportes - 2007 - Inquérito ao Transporte Rodaviário de Mercadorias. Nota: Este inquérito foi realizado no Continente

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#### Key data on economic impact

##### Macro for PT (2007 €bln)

Gross Domestic Product (GDP) (at market prices)		163
Gross Domestic Product (at factor costs)		140
Imports of goods		57
	from EU27	43
	from Third Countries	14
Exports of goods		38
	to EU27	29
	to Third Countries	9
Growth of GDP in volume 2006-2007 (%)		1,9

Source: Eurostat, Euro-indicators, National Accounts

##### Industry PT (mining + manufacturing) (€mln)

	2006	2007
Turnover	78198	84877
Added value (at factor costs)	19450	19820 (for 2007: estimation with 1,9% growth)
Number of salaried	823510	830000 (for 2007: estimation with 1,9% growth and % occupied but not salaried: 1%)

Source: Eurostat, statistics on industry, trade and services

##### Transport sector (2007)

	Turnover (€mln)	Nbr persons empl.	% freight
Freight transport by road	5092	68730	100 (by definition)
Railways transport	237,3	4953 (2004 data)	50 (based on UIC statistics, Operators' traffic, 2007 data)
Sea and costal water transp.	647,7	1402	100 (estimation)
Air transport	3135,4	9601	1,9 (estimation based on ratio freight flights/all flights)
Auxiliary transp. Services without travel agencies	5787	32080 (est. based on 2006 data)	na

Source: Eurostat, statistics on industry, trade and services

Volumes transported 2007 (*1000 t)	Total	Export
Road	324019	22634
Rail	10556	902 (est.)
Sea	60556	13568
Air	128	107 (est.)

Source: Eurostat, statistics of transport

### **Indirect impacts on PT economy as a whole**

The effects on industry mentioned above are the direct ones. Additional indirect effects should also be considered, such as:

- Reduced activity and employment for suppliers of industry<sup>38</sup>;
- Reduced overall activity (including the services sector) linked to reduced/lost revenues of the people affected.
- Loss in tax income, i.e. government revenues, due to reduced activities<sup>39</sup>: a loss of 2.6% in GDP terms means loss of €0.85 bln in fiscal revenues (VAT); in addition, reduced revenues from income taxes, but these are difficult to estimate;
- More government spending due to:
  - increased unemployment compensations (even temporary): €1.7 bln<sup>40</sup> per year;
  - increased forest management (fighting the PWN);
  - support to investment in HT plants;
  - collection, storage/destruction of susceptible wood and WPN; etc.
- The above mentioned effects (loss in tax income and increase in government spending) will increase the public budget deficit;
- Potential (increased) inflationary pressures due to increased prices of imported goods, in particular to cover the loss of WPM entering PT and not allowed to leave.

### **Destruction costs (WPM)**

The cost of collection and destruction of superfluous pallets, WPM and dunnage is estimated at around €11.2 mln. We consider as ‘superfluous packages’ the reusable packages that enter Portugal and may not leave the country anymore. The ‘one way’ packages entering Portugal are not considered as ‘superfluous’ as, whatever the existence of a ban or not, their lifespan

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<sup>38</sup> The indirect jobs at risk in supplying companies are difficult to estimate: they can be two to three times larger than the direct figures in some sectors (e.g. transport vehicles) and half the direct figures in others (e.g. food).

<sup>39</sup> From July 1<sup>st</sup> 2008, the VAT rate in PT is 20% for most products, with the exception of food (e.g. 12% for restaurants or 5% for basic food products); it previously amounted to 21% for most products (see [http://www.worldwide-tax.com/portugal/por\\_other.asp](http://www.worldwide-tax.com/portugal/por_other.asp)).

<sup>40</sup> About €1,000 per month for about 166,000 people:  
(<http://info.assedic.fr/unijuridis/index.php?module=bdd&idmenu=2567&idarticle=2773&chemin=2468%7C2563%7C2567%7C&idPage=36739bc7391e82bf0922374a261505d6>)

would have stopped in Portugal anyway. We assume that, in case of a total ban, the production of coniferous packages to export Portuguese goods would stop so that there will not be ‘superfluous’ production.

Overall, pallets represent 75% of the volume produced by the wood packaging industry (FEFPEB). Among them, 95% are made of coniferous wood. 45% of the pallets are one-way pallets and 55% are reusable pallets. The reusable pallets may be part of closed pallet pools (around 10%), open pallet pools (around 15%) or be owned by transporters or distributors (30%) (Source: interviews of representatives of the packaging industry).

The market share of wooden pallets (coniferous and non-coniferous) is 95%. Substitute materials like plastics have a limited share estimated at 5% (Source: interviews of representatives of the wood and plastic packaging industry)

Industrial packaging and crates respectively represent 20% and 5% of the volume produced by the wood packaging industry (FEFPEB). They are usually manufactured for a specific use and are not reused (ADEME).

The number of pallets in circulation in Portugal is estimated at 50 mln (interview of Portuguese representative of the pallet industry). Considering that, for international transport, 45.2 % of all imported goods in Portugal are transported on pallets (Portuguese Statistics on Transport 2007 – table above), the number of superfluous reusable pallets is estimated at 11,218,075 pallets i.e.  $50 \text{ mln pallets} * 95\% \text{ (wooden pallets)} * 95\% \text{ (coniferous pallets)} * 55\% \text{ (reusable pallets)} * 45.2\% \text{ (imported pallets)}$ . For the purpose of our estimation, this number is rounded down to 11.2 mln superfluous reusable pallets.

We make the assumption that the cost of collection and destruction of one pallet is €1. This is on the basis that: a) the net cost of forestry residue disposal into biomass sector is estimated to €2-3 per ton (Source: interview of one Portuguese representative of the forestry sector); and, b) additional costs are associated with making the pallets usable as input to biomass (e.g. removal of nails, etc).

The total costs for the collection and destruction of the pallets is thus estimated at €11.2 million.

**Substituting wooden coniferous pallets by plastic pallet seems to be very difficult in practice due to the large variety of used pallets combined with the inability of a niche market to rapidly become a major supplier.**

In case of a total ban, the substitution of coniferous wooden packages by non-wooden packages will be compulsory for Portuguese exports. Our analysis focuses on the coniferous pallets, representing 71.25% (i.e. 95% of 75%) of the WPM.

The market share of substitute pallets is estimated at 5% (interviews of representative of the packaging industry). Substitute pallets can be plastic pallets (mainly used in sectors with high hygiene requirements such as butcheries and industrial bakeries and in the pharmaceutical industry) or corrugated pallets (limited use e.g. for air transport). Substitute wooden pallets

are usually made of poplars (cultivated mainly in France), another soft wood. Trials have been made in the past to substitute pine pallet with eucalyptus pallet but it was catastrophic as eucalyptus is difficult to work with (Source: interviews of representatives of the wood packaging industry).

The price of a plastic pallet is estimated at €20 for a standard pallet compared to €11 for a comparable new wooden pallet. (Source: interview of one large Portuguese producer of pallets). The difference in cost can be higher depending on the type of pallet.

The general opinion of the WPM industry is that substituting coniferous pallets with plastic pallets would be very difficult because:

- There are some 600 different pallet specifications (size and strength, metal reinforcement etc.) and clearly it would be impossible to produce moulds for plastic pallets for all of these;
- Around 2/3 of pallets are non-standard; these are developed in response to specific sector or client requirements (ADEME);
- There is insufficient production capacity;
- Plastic pallet cannot be repaired;
- There are adverse environmental effects (GHG balance and disposal issue) associated with plastic pallets;
- An indication of the difficulties is the fact that plastic pallets exist for around 15 years but have never achieved a significant market share.

One consultant representing the plastic industry has nonetheless indicated that every model can be done in plastics, broken pallets can be remoulded and the ecological balance of plastic is good as it is recyclable.

### **Costs of building HT capacity**

We estimate that a total of 53 additional heat treatment units would be needed to treat the new coniferous pallets produced each year in Portugal. Each of these units would have an investment cost of €100,000 - 150,000. Subject to the progress of installation of such units and the available funds, the implementation of such capacity could be achieved in a time horizon of 3 to 4 years. Thus, the total investment cost over this period would amount to €6.6 mln, or on average €1.7 mln per year.

These estimates have been developed as follows:

Considering that:

- One average treatment unit is able to treat around 2 \* 600 standard pallets a day (Source: one representative of the wood package industry);
- Portugal produces 17 mln new coniferous pallets per year, of which 7 mln are exported to Spain (Source: interview of one large Portuguese producer of pallets);
- The current heat treatment capacity in Portugal is estimated at maximum 10% (Source: FVO report);

The additional capacity required to be able to treat the Portuguese pallets produced each year is 53 units; i.e. 90 % of 17 mln pallets / (1,200 pallets treated/day \* 240 days per year).

In total, 53 units + 10% (i.e. units already implemented in Portugal) would be sufficient to treat all newly produced Portuguese coniferous pallets, so including all newly produced coniferous pallets leaving Portugal.

Considering that, in Europe, 5 to 6 companies can provide each one around 20 installed units per year (Source: interview with one representative of the packaging industry), the maximum theoretical heat treatment capacity available per year is estimated at 120 units.

A standard unit has an investment cost between € 100,000 – 150,000 and annual energy consumption equal to around 25% of the investment costs (depending on the type of energy used: fuel, wood, gas). The cost of the certification of the installed capacities is not considered here but, based on the analysis of the situation in France, such costs would be quite limited (the French ISPM programme doesn't consider the cost linked to the control of the installed units because such control is done by the French NPPO's and is free of charge).

Subject to the progress of installation of the treatment units and of the Portuguese funding availability; we can reasonably estimate that Portugal would be able to install the heat treatment capacity required to treat all new pallets produced per year in a time horizon of 3 to 4 years.

Such estimation is quite coherent with the rough estimation made by one non-Portuguese representative of the wood packaging industry that Portugal would be able to get the capacity required to treat all new wooden products within 2 to 3 years, if strict deadlines are imposed regarding the compulsory treatment of susceptible wood/WPM products.

It must be noted that, considering the low profit margin and the already heavy investment required in the saw milling sector, only the large companies are expected to be able to support the cost of investment in heat treatment capacities. (Source: interview with one large Portuguese producer of pallets).

## **A4.2: No Ban scenario**

### **A4.2.1 Impact on EU forestry**

PWN can spread via two different ways: biological dispersal, and human assisted dispersal. The scenarios, assumptions and analysis for the calculation of each impact are detailed below:

#### *Biological dispersal*

It seems obvious from the biology of the PWN that long term establishment and further spread of *B. xylophilus* in the EU requires the presence of *Monochamus spp* as a suitable vector insect. As *Monochamus spp* is supposed to be present in most of EU areas, PWN will, in the long term, establish in the EU. Spread should be considered of 1 or 2 km per year only in continuous forest, but a non determined portion of vector will fly several kilometres (10 to 20 / year). The developed model on population dispersal doesn't not allow estimating average figures in long dispersal figures.

Worst case scenario would be a jump of 20 kms of the vector (and then PWN) to new centres, and from then spread of 1 or 2 kms / year, but in reality it would be less than that.

#### *Human assisted dispersal*

Spread of PWN can be accelerated by human activities, especially wood movement, that will support a faster dispersal. Risks are higher for a pallet of low quality, but it has to be mentioned that there is very low risks that nematodes are present in the pallets, only the vector will be present.

Trade and movement of pallets will multiply number of new infested centres from where the nematode will slowly spread.

Therefore, the main lever for the spread of PWN is the wood trade and the trade of material using low quality wood pallets.

If PWN increases significantly in PT in the coming years, natural spread and human assisted spread will increase with the potential to increase risks of failure of quarantine methodologies leading to establishment of a large number of new infested centres.

#### *Tree mortality*

Several factors affect the mortality rate of coniferous trees:

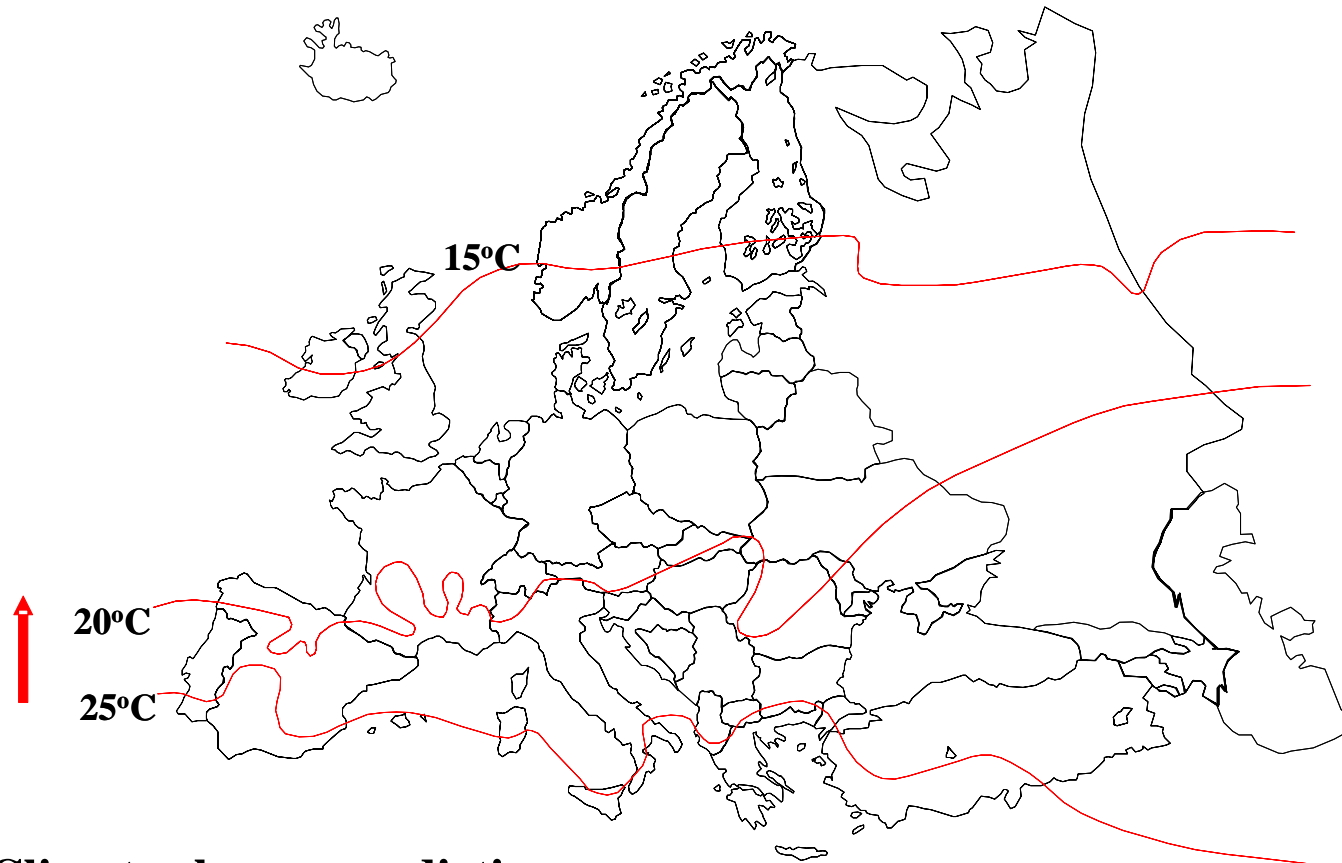
- Species: susceptible population of trees in EU;
- Temperature: percentage of mortality is highest in areas where the average temperature in July or August is higher than 20°C;
- Soil type;

- Soil moisture deficit: partially dry conditions;
- Rainfall pattern;

Models that have been defined to estimate the mortality level have been applied in a limited number of countries. First results indicate a possible trees mortality percentage ranging from 2,5% to 80-90% depending on the zone. As a worst case scenario, predictions of mortality in both Sweden and the UK are estimated at 2.5% (but not significantly different from zero). In Portugal, the tree mortality rate is estimated at 50 to 60%.

In the EU27, 81 mln hectares are covered with coniferous trees. The areas with an average temperature above 20°C in July or August represent 10 to 13 mln hectares where a mortality rate of 50 to 90% could apply.

The rough map of Europe presented below indicates the zone of highest risk of wilt expression. Depending on the climate change predictions, the zone will move northwards, driven by the 20°C July or August isotherm. This is still a very approximate representation of where trees are most likely to die. Research will eventually be in a better position to predict tree mortality provided the further gathering of climate and site data for the modelling.



**Climate change prediction:**

**Wilt expression will move northward**

**Severity will increase in the south**

## **Annex 5: List of people interviewed**

Mr Fons Ceelaert, Secretary General of FEFBEP (European Federation of Wooden Pallet and Packaging Manufacturers)

Mr Stan Bowes, President of EPAL (open pallet pool organisation)

Mr Marcello Di Benedetto, Director, Quality & Sourcing Europe of CHEP (closed pallet pool organisation)

Mr Gil Covey, Managing Director of Unit Pallets (UK)

Mr Dider Moncel, CEO of Perurena Pallets (France)

Dr Hugh Evans, Tree Health Division of Forest Research (UK)

Mr Niele Mayne, consultant for APME (Association of Plastics Manufacturers in Europe)

Mr Paulo Verdasca, President of FEFBEP, owner of Madeca, one of the largest sawmill enterprises in Portugal

Mr Antonio Pacheco, Ministry of Agriculture - phytosanitary division

Mr Miguel Cerrao, Managing Director of Logistica Florestal, the largest company of contracting services for the forestry sector

Mr Luis Rodrigues Dias, Vice President Confederaçao dos Agricultores de Portugal

Mrs Claudia Viliotis, National Forest Authority, Portugal

Mr. Rui Almeida, National Forest Authority, Portugal

Clara Serra, Ministry of Agriculture, Portugal

Ms. Filipa Pico, Embar - Associação Nacional de Recuperação e Reciclagem de Resíduos de Embalagens de Madeira

Mr. Paulo Pinto Sousa, Sonae Indústria - P.C.D.M., SA

## **Annex 6: Sources**

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### **Statistics/Databases consulted**

EUROSTAT: Statistics were used from the euro-indicators (national accounts) and from the following themes: industry, trade and services (Structural Business Statistics); external trade (COMEXT); transport.

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UN COMTRADE

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Portugal, Instituto Nacional de Estatísticas :

- Inquérito ao Transporte Rodoviário de Mercadorias, 2007 ;
- Estatísticas da Produção Industrial 2006, 2008

**Annex 7: Statement issued by FEFPEB**

- FEFPEB letter
- FEFPEB statement



**Fédération Européenne des Fabricants de Palettes et  
Emballages en Bois**  
**European Federation of Wooden Pallet and Packaging Manufacturers**  
*Europäischer Verband der Holzpackmittel und Palettenhersteller*

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*Reference* : fpb.bri\_eng.4  
*Subject* : ISPM 15 / Pine Wood nematode study  
*Date* : 1 December 2008

Dear Mrs. Van Nieuwenhuysse, dear Mr. Spaey,

Following the interviews with FEFPEB representatives Paulo Verdasca, Gil Covey, Didier Moncel, Stan Bowes, Marcelo di Benetto and the undersigned we do assume that you obtained relevant information and a clear industry view on the economic and environmental impact of the extreme scenarios to control the Pine Wood Nematode infestation areas in Portugal.

We have understood that the study has to show the huge consequences of these extreme scenarios and that the outcome might serve as a benchmark for any future decision by the European Commission.

In addition to the FEFPEB position statement on the possible extension of ISPM 15 to intra-community movements of wood packaging material (attached) we would like to stress the crucial importance of wooden pallets and packaging as a facilitator of trade across the national EU-borders and beyond. Wooden pallets and packaging are fundamental to the materials handling chain and are economically and environmentally superior to all alternatives.

**Analysis of impacts of options for PWN susceptible wood products from Portugal:  
Final Report**  
*DG SANCO Evaluation Framework Contract Lot 3 (Food Chain)*

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In nearly all movements in the EU wooden packaging (pallets, industrial packaging, light-weight packaging) is involved, at least 90 % of palletized transport is by wooden pallets.

The scale of the issue needs to be carefully taken into account.

Our estimation is that there are currently over 3 billion pallets in circulation within the EU and 460 million new pallets are manufactured every year in the EU. Any restrictions on the use of wooden pallets and packaging will cause severe trade disruptions.

Therefore, it remains critical that any measure in this field is based upon scientific evidence, new regulations should be properly researched and formulated by the Plant Health experts.

It is vital that control systems are practical, effective and properly enforced.

The European wooden pallet and packaging industry believes it to be of the utmost importance to be consulted and is ready and willing to offer expertise and advice.

Finally, we would like to receive a copy of the final report.

Kind regards,

Fons J.M. Ceelaert  
Secretary general

fpb.bri\_eng.4.2



POSITION STATEMENT ON THE POSSIBLE EXTENSION OF ISPM 15 TO  
INTRA COMMUNITY MOVEMENTS OF WOOD PACKAGING MATERIAL

*FEFPEB, the representative European Federation for the timber pallet and packaging industry (including manufacturers, repairers, traders and pallet pool organisations) would like to address the European Commission and the Standing Committee on Plant Health with the industry view on the possible extension of ISPM 15 to all intra-community movements of wood packaging.*

*FEFPEB noted the intention of the European Commission to discuss the possible extension of ISPM 15 with relevant stakeholders such as our industry.*

Our forest resources need to be protected, this is a common interest and responsibility and the long term interest of the EU, its member states, National Plant Protection Organisations and the woodworking industries. The (further) spreading of the Pine Wood Nematode (PWN) in Portugal is of major concern for FEFPEB.

The situation has been taken seriously by Portugal and the EC as proven by the recent Commission Decisions 2008/684/EC and 2008/790/EC. We endorse these decisions and ratify our duty to ensure compliance within our industry.

The purpose of this paper is to develop a position and its arguments to indicate that the decision for extending ISPM 15 for intra-community flows of wood packaging should only be made after careful consideration of the following elements:

- ✦ Measures orientated to control the spread of PWN must take priority and concrete actions and controls must be put in this direction.
- ✦ Joined effort, between the industry and forestry authorities, should lead to harmonising and strengthening the organisation and control mechanisms of ISPM 15.
- ✦ Scientific evidence should be at the heart of the discussion and be conclusive enough to justify the economic and environmental adverse consequences of the extension of ISPM 15.
- ✦ While ISPM 15 does not make any distinction between new and used wood packaging, this distinction is of utmost relevance for the industry, as the majority of trade in Europe is achieved by utilising used or repaired wood packaging.

FEFPEB is recognised as the European Federation of representative national associations and organisations in the field of wooden pallets, light-weight packaging and industrial packaging. FEFPEB has 13 European full members from Italy, Germany, UK, Switzerland, Spain, Portugal, Austria, Sweden, France, The Netherlands and Belgium and 14 associated members.



- ✦ There is at present lack of installed capacity to ensure Heat Treatment of all intra-community wood packaging flows.

In more detail, FEFPEB main arguments are elaborated beneath.

1. What caused the further dissemination of PWN in Portugal?

The International Seminar on Control Strategies for PWN in Portugal (7-9 October 2008) concluded that human activities are the key factor for outbreaks in new areas.

The European Commission observes in Decision 2008/684/EC that a survey plan for the entire Portuguese territory was not approved because of insufficient monitoring intensity.

It also became obvious that ISPM 15 was not implemented to the required standard in terms of organisation and control of the national wood marking scheme.

With reference to the FEFPEB position statement (June 2006) in connection to the current revision procedure of ISPM 15, FEFPEB stresses that harmonisation of the existing national wood marking schemes is of critical importance to establish an effective and controllable ISPM 15 worldwide.

Before the extension of ISPM 15 to all intra-EU flows of wood packaging is considered, and acknowledging the heterogeneity of its current applications across Member States, we propose to develop an audit among all EU Member States on the implementation of ISPM 15 in terms of system organisation, control measures, governmental responsibilities and commitment and industry participation. This audit will allow to establish the most efficient schemes existing within the EU which could then be used as benchmarks for other Member States.

We are most willing to assist in such a project.

2. Scientific evidence

It is the clear responsibility of the plant health experts and scientists to provide robust scientific evidence so that all relevant stakeholders can decide on the extension of ISPM 15 as an appropriate measure to avoid and control the spreading of pests by wood packaging.

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Considering the effects on the industry and society overall, it is imperative that the available scientific evidence be at the heart of the discussion on a possible extension of ISPM 15 to all intra-EU trade flows of wood packaging materials.

FEFPEB is willing to support and participate in research initiatives, aimed at obtaining scientific evidence that could support a well-informed and well-balanced decision about the extension of ISPM 15.

### 3. The principle of proportionality

Notwithstanding the overriding need for protection of our forest resources, the extension of ISPM 15 cannot be an isolated measure. Decision 2008/684/EC shows a broader scope of the EC as susceptible wood, bark and plants are regulated.

The extension of ISPM 15 cannot be implemented without significant economic and environmental implications: Need for big investments in heat treatment capacity, potential disruptions in the supply chain, increased energy usage and CO<sub>2</sub> emissions.

In this respect it is relevant to highlight that the timber pallet and packaging industry provides a very important outlet for the European sawmilling industry (22% of fresh sawn timber is allocated for the production of timber packaging).

Our industry is one of the few industries located in rural areas and has a vital socio-economic function for forestry areas as well.

This is to underline the importance of well-balanced decision making.

### 4. Extension ISPM 15: Other elements for consideration

#### a. Heat treatment capacity

Extension of ISPM 15 to intra-community movements will lead to heat treatment of virtually all wood packaging material.

Since the installed heat treatment capacity is insufficient to support the demands of an extension of ISPM 15, the wood packaging industry and the supplying machinery sectors as well need time to adapt to such a new situation.

Our estimation is that it will take several years to materialize such an adaptation.

#### b. Limitation to newly manufactured wood packaging material

As explicitly acknowledged in Decision 2008/790/EC, distinction should be made between used and new wood packaging material as the phytosanitary risk of old packaging material is small.

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c. Distinction between the types of wood packaging

The wood packaging industry is represented by Pallets (75%), Industrial Packaging (20%), Crates (5%) (by volume) and Dunnage.

Once more, scientific evidence needs to help assess the risk profile of different packaging types. Thus, policy makers will be able to devise appropriate restrictive measures in proportion to the risk associated to each wood packaging type.

Conclusion

FEFPEB is most willing to discuss this Position Statement with the European Commission and the EC Standing Committee on Plant Health.

FEFPEB believes that the industry view is of the utmost importance in this decision making process.

Paris, 17 November 2008

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