



## ENDURE

European Network for Durable Exploitation of crop protection strategies

Project number: 031499

Network of Excellence  
Sixth Framework Programme

Thematic Priority 5  
FOOD and Quality and Safety

### ***Deliverable DS4.2***

**A lay-out for the ICT structure for the EPC useful for different types of end-users and procedures to extract, validate and transfer knowledge as being collected by IA4 and a harmonized set of metadata to uniformly describe information**

**Due date of deliverable:** M6 and M12

**Actual submission date:** M12

**Start date of the project:** January 1<sup>st</sup>, 2007

**Duration:** 48 months

**Organisation name of lead contractor:** PPO & AU

**Revision:** V2.1

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)	
Dissemination Level	
PP Restricted to other programme participants (including the Commission Services)	PP



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## Table of contents

<b>Table of contents</b> .....	<b>3</b>
<b>1. Introduction</b> .....	<b>4</b>
<b>2. Status</b> .....	<b>4</b>
<b>3. The focus of the prototype</b> .....	<b>5</b>
<b>4. Selection procedure</b> .....	<b>6</b>
4.1. <i>Selection of 20 documents</i> .....	6
4.2. <i>Information types</i> .....	7
4.3. <i>Information providers</i> .....	7
4.4. <i>Collection procedure</i> .....	7
<b>5. Metadata</b> .....	<b>8</b>
5.1. <i>Metadata template to identify and describe each document</i> .....	8
5.2. <i>Instruction and example of the English summary</i> .....	8
5.3. <i>Key words</i> .....	9
<b>6. Process for describing and uploading documents</b> .....	<b>9</b>
6.1. <i>Design goals</i> .....	9
6.2. <i>Workflow</i> .....	9
6.2.1. <i>Tagging relevant documents</i> .....	9
6.2.2. <i>Validation by archivists</i> .....	11
6.2.3. <i>Uploading documents</i> .....	11
6.2.4. <i>Organisation</i> .....	12
<b>7. Presentation of documents</b> .....	<b>12</b>
7.1. <i>Find and present</i> .....	12
7.2. <i>Special services</i> .....	13
<b>8. Links with Endure-ALPS</b> .....	<b>14</b>
<b>Annex 1. Responsible contact persons for data collecting and tasks for contact persons</b> .....	<b>15</b>
<b>Annex 2. Examples of document types in Endure-IC</b> .....	<b>16</b>
<b>Annex 3. List of advisory bodies, technical institutes and crop protection companies that will be asked to provide information to Endure-IC</b> .....	<b>17</b>
<b>Annex 4. Planning M12-M18</b> .....	<b>18</b>

## 1. Introduction

This document is a blue print of the prototype for the ENDURE Information Centre with procedures to extract, validate and transfer knowledge. It is a result of the SA4 tasks TS4.2, TS4.3 and TS4.4. In the DOW the abbreviation EPC is used. This is renamed in Endure-IC. This blue print includes the original deliverable DS4.2 and DS4.4 of the DOW:

DS 4.2: A lay-out for the ICT structure for the EPC useful for different types of end-users.

DS 4.4: Procedures to extract, validate and transfer knowledge as being collected by ENDURE members and advisory bodies, technical research centres and plant protection companies.

Discussions during project group meetings in June and September 2007 form the basis of this blueprint. During the Annual meeting in Versailles (November 2007) final improvements were made.

The following six items are worked out in chapters 2 till 7:

- 1) What is the focus of the prototype;
- 2) What documents will be included in Endure-IC and what selection criteria will be used;
- 3) Required metadata to identify and describe data (vocabulary, keywords);
- 4) How to collect and validate data (who, process);
- 5) How to present/find the documents, special services (latest news, topics), target groups;
- 6) How to organize integration /coordination with IA4 (database), the Virtual lab and Endure-site.

In this report some professional language is used. The use of the word **document** needs some special explanation. The goal of the prototype of Endure-IC is to test a solution for dissemination of knowledge. This knowledge is presented in reports, videos, articles, newsletters etc. All these types of information are termed “**documents**”.

## 2. Status

The aim of the first phase of SA4.3 is to develop a protocol for the description of information and the procedure for collection of information regarding best practices of IPM in potato. The information will include fact sheets, reports, articles, databases, links to DSS systems etc. The information database (prototype) will be ready by M18 with information from potato.

The due date of deliverable DS4.4 was M6 but the process of defining and describing the protocol has been closely linked to the development of the prototype. The necessary steps taken in the development of protocols was dependent on discussions and decisions regarding the prototype. The deliverable was therefore in agreement with the Coordinator delayed to the M12 when the first lay-out of the prototype was ready and include in the DS 4.2 as these 2 deliverables are closely linked to each other.

A harmonized protocol for description of information using a set of metadata has now been made. The protocol includes 1) list of themes of IPM measures e.g. crop protection problems concerned and environmental or policy relevance 2) metadata template 3) information types 4) information providers, 5) procedure for selection, collection, validating and uploading of documents.

Procedures to collect information from the different countries have been made with contact persons that co-ordinate contact with data providers in the country. An agreement has been made on the selection of 20 documents from each country and first validation of quality. It may be necessary to make agreement with providers if information is not public.

A list of information providers will be made and the information will be collected and made available to the database by 1. March 2008. The information supplied will include fact sheets, reports, articles, databases, links to DSS systems etc.

The information prototype will be ready M18 with information from potato.

Agreements have been made with the potato case study to deliver information to the Endure Information Centre based on the harmonised protocols. Information from other crops will follow in the next period and in the first instance the wheat case study has been contacted to discuss organisation of information to ENDURE EIC.

### 3. The focus of the prototype

The following choices are made, based on the results of the questionnaire regarding user needs for Endure-IC. The approach and results of this questionnaire are described in DS4.1.

#### **About the target group: advisors**

The first target group for Endure-IC is advisors. On average (compared to farmers) this group has a greater ability to process varied information and therefore more possibilities to focus on crop protection, are open minded to new strategies and are expected to have less problems with the language gap, (the knowledge will be disseminated in English).

The second target group is the policy makers. Ideas for interaction with this target group will be worked out in a later stage (M13- M18).

#### **About the content: Ready to use IPM measures**

The prototype will deliver ready to use information about IPM measures, consistent with the definition and the general principles of IPM.

There are many definitions of sustainable crop protection. In the Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the placing of plant protection products on the market (COM (2006) 388 final) from 21-07-2006, IPM is defined:

*'Integrated pest management' careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep plant protection products and other forms of intervention to levels that are economically justified and reduce or minimise risks to human health and the environment.*

Integrated pest management emphasises the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms;

The IPM measures published at the Endure-IC will fulfil the following criteria:

- scientifically sound;
- tested in field;
- practical to adopt;
- cost-effective;
- aim to result in less input and less dependency on chemical inputs.

The aim is not to disseminate reports on progress in science, but to influence the practical application of crop protection towards a sustainable approach.

Endure-IC will not substitute national sites on crop protection but will be complementary.

The goal is not to have a complete database of all integrated measures, but to have a European quality selection (European Best Practices) with validated documents.

#### **About the presentation**

“Documents” with information about these IPM measures can be articles, leaflets, websites, videos, DSS, books etc. All documents will have a one-line abstract and a summary of 10-15 lines in English. The original document will not be translated completely.

Based on SA4.1 sub-activity (questionnaire) for the presentation, the following features are listed as most important for the Endure-IC:

- generally easy to use;

- clear interface;
- efficient search method;
- summaries in English of all documents.

## 4. Selection procedure

Integrated pest management in potato was chosen as the first example in EIC to be delivered M18. Based on discussions in the group and the results of the questionnaire a list of IPM themes have been made as priority for the EIC (table 1)

### 4.1. Selection of 20 documents

The prototype will start with dissemination of circa 100 documents about IPM measures in potato. This means that each partner will be asked to deliver 20 documents. For each partner one person will be responsible for this task in order to have efficient communication.

#### Who will select documents?

The documents with information about the IPM measures will be selected by the partners of the Endure-IC based on the 5 criteria described in chapter 3.

The ENDURE-partners have a good reputation and the ability to select the ‘best’ documents about these measures in their own country. This validation will be done by expert judgment. The contact person of each partner may organize a small group of national experts for this task.

#### Diversity in documents

To optimize the test of the prototype, diversity in content is necessary. For this, the 20 selected documents will be distributed across the following:

- type of pest, disease or problem
- information theme (type of IPM measure)
- type of document (DSS, leaflet, article, video etc.)
- type of information provider.

Ad a. Documents provided target the control of **at least 4** different types of pests or diseases, for example insects, weeds, nematodes and fungus.

Ad b. Each partner provides documents of **at least 4** different types of IPM measures from table 1.

**Table 1: themes of IPM Measures as priority of the EIC**

Theme	Sub theme
<b>ENVIRONMENT</b>	pesticide (biological) side effects
	environmental impact of pesticides
<b>AGRO-ECOSYSTEM APPROACH</b>	Information on how to think about the ecology of the whole system, e.g. field margin management, landscape ecology and manipulation of natural enemies
<b>PREVENTIVE MEASURES</b>	farm hygiene/sanitation
	variety choice
	crop rotation
<b>PEST MONITORING</b>	early warning and decision support tools
	pest monitoring and detection tools
	sampling plans for target organisms
<b>ALTERNATIVE/ NON-CHEMICAL MEASURES</b>	Green manures, trap crops, etc.
	pest/disease free planting materials
	biological pest/disease control measures
	Plant protection products for non-chemical/organic cropping
	mechanical weed control techniques

## ENDURE – Deliverable DS4.2

<b>PESTICIDES UTILIZATION</b>	Pesticides registered in different countries (dose rates, target pests etc.)
	Pesticide efficacy (dose-response relationships, reduced dosages etc.)
	Costs and benefits of pesticides
	pesticide application technology
	pesticide residue levels
	product stewardship in other countries
	Tracing and tracking of pesticide sales
	extrapolation of applications to minor crops
	Resistance management
<b>PESTICIDE POLICY</b>	pesticide reduction plans
	Pesticide Research Plan
<b>OTHERS</b>	legislation on no-entry periods in other countries
	descriptions of quality assurance schemes

Ad c. **At least 3** different types of documents (DSS, leaflet, article, video etc.) will be provided.

Ad d. **At least 2** different information providers (see attachment 3) will be concerned.

### **4.2. Information types**

“Documents” with information about IPM measures can be articles, leaflets, websites, videos, DSS, books etc. Examples of information types are listed in Annex 2. All documents will have a one-line abstract and a summary of 10-15 lines in English. The original document will not be translated completely.

### **4.3. Information providers**

A list of information providers have been made (Annex 3) and based on this list, information will be collected and made available to the database. Agreements have been made with the potato case study to deliver information to Endure Information Centre based on the harmonised protocols. Information from other crops will follow in the next period and in the first instance the wheat case study has been contacted to discuss organisation of information to ENDURE EIC.

An exact list will be provided after data have been collected and made available to the EIC. If certain information is not public and considered important to EPC, special agreements will be made in individual cases.

### **4.4. Collection procedure**

Collection of information from the different countries will be co-ordinated by the contact persons in the country. The following members of the SA4 group will co-ordinate data collecting and data description in the different countries:

- UK: Susannah Bolton
- DK: Bent J. Nielsen
- DE: Silke Dachbrodt-Saaydeh
- FR: Philippe Delval
- NL: Herman Schoorlemmer

Contact persons will act as a reference point for users of the database from language area other than the language of the original title that require more information than they can find in the English abstract. They will be authorized to tag items and upload documents.

The procedure for collection of information is:

- Contact with data providers in the country and /or permanent review of relevant sources;
- First validation of quality based on expert judgement;
- Agreement with providers if necessary and if information is not public;
- Selection of 20 documents from each country;

The contact person of each partner can decide to organize a small group of national experts for this task.

## 5. Metadata

### 5.1. Metadata template to identify and describe each document

A harmonized set of metadata have been made to uniformly describe the different documents (Table 2). All types of information (e.g. reports, videos, articles, newsletters etc.) are in this report mentioned as “documents”.

**Table 2. Template of metadata to identify and describe each document**

1	Title	
2	<i>Latin name of target pathogen in article</i>	
3	Summary	1-line abstract+ short summary in English language. Indication of possible region specificity
4	Source	Name of publication, report, newsletter etc.
5	URL	
6	Auther(s)	
7	Date of publication	
8	Format	word file, html, pdf
9	Auther Adress	
10	Information provider (Level)	National/private extension, chemical company, research, producers
11	Type	Article, review article, book, newsletter, video etc.
12	Key words	Crop protection problem
13	Country	Regional specificity if necessary
14	Copyright	

Each contact person of a partner will be asked to:

- Describe the title;
- Make a summary in English and optional a summary in the national language;
- Describe keywords;
- Upload the document if it is not at the internet.

All other metadata will be described by archivists of Wageningen UR.

Pdf-copies to be made in case of invalid URLs (to be done by archivists at WUR).

### 5.2. Instruction and example of the English summary

The summary can be split up in two sections.

- 1) First line summary. Write in max 160 characters (including space) info about the type of document and give an indication of results. Keep in mind that during the search by an end-user he/she will make a decision on whether or not to look further based on the title and first line.
- 2) Rest of Summary: Write in max 160 words the message of this document for the target group (advisor). Give information/results (or an indication of these results) and keep in mind what the end-user can use in their daily practice.

**Table 3 Example of a summary of a Dutch newsletter named ‘Phytophthora Info 2007’**

<b>Title</b>	<b>Phytophthora Info 2007</b>
<b>First line summary</b>	This booklet for practitioners informs about results of the Dutch fungicide reduction program for late blight in potatoes with recommended measures for control.
<b>Rest summary</b>	This publication that was sent to each Dutch potato grower or advisor recommends a number of measures for an Integrated Pest Management strategy. The importance of the removal of early infection sources is stressed, such as waste from last year’s crop, infected seed potatoes and early infections in neighbouring crops. Meteorological data, data on disease occurrence and information about critical

	<p>weather conditions is provided to inform decisions about control measures. Additionally information is provided on options to adjust the dosage of Shirlan (fluazinam) to the level of resistance of a variety. For the most resistant varieties a reduction of 75% of the dosage is achievable.</p> <p>Efficacy characteristics of registered fungicides are rated. The booklet reports the results of a study to monitor the effect of fungicide reduction program on environmental side-effects. Especially the impact on water organisms has improved substantially.</p>
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### **5.3. Key words**

The list of keywords will be able to evolve over time. There will be a central point where the keyword collection is monitored and (re)organized (Library Wageningen UR).

The first entry points for many users are Search engines like Google. It is therefore important to make sure that documents from EIC are indexed by Google (using Google Sitemaps).

## **6. Process for describing and uploading documents**

### **6.1. Design goals**

There are a number of design goals for the workflow and the procedures that Library Wageningen UR is developing:

- The knowledge sharing community still has to develop, and therefore we do not know what will work in the community and what not. Procedures should therefore use existing tools and tools that can easily be developed as much as possible. We try to avoid developing sophisticated empty shells and invest in applications that will not be used.
- There should be some degree of vocabulary control, but especially the list of keywords should be able to evolve over time.

The system should be a collaborative effort where different people do what they are best at. Subject matter specialists will select material, compile summaries and assign keywords. They should not be bothered filling in descriptive data elements. Instead they will alert the archivists (at the Library of Wageningen UR) who will complete the descriptions and check the consistency of the data.

### **6.2. Workflow**

The workflow consists of a number of steps:

- Contact persons (Subject matter specialists) will
  1. Select and tag relevant documents (§6.3.1)
  2. Compile summaries (§4)
  3. Assign keywords (§5)
- Archivist (at the Library of Wageningen UR) will
  4. Validate data (fill in descriptive data elements, complete the descriptions and check the consistency of the data; §6.3.2)
  5. Upload documents (§6.3.3)
  6. Organise documents (§6.3.4)

#### **6.2.1. Tagging relevant documents**

The subject matter specialists in contributing countries will submit 20 documents (see chapter 4) by “tagging” them using the social referencing system, del.icio.us. Tags are one-word descriptors (similar to keywords but non-hierarchical) that can be assigned to your bookmarks on del.icio.us.

This system is free of charge and a special account has been set up with a list of predefined keywords, building on the work that is described in chapter 5 of this report<sup>1</sup>.

- ▼ **Bacterial\_diseases**
  - Clavibacter\_michiganensis Erwinia\_carotovora
  - Erwinia\_chrysanthemi Pseudomonas\_fluorescens
  - Pseudomonas\_syringae Ralstonia\_solanacearum
- ▼ **Countries** Denmark France Germany  
Hungary Italy Netherlands Poland Spain  
Switzerland United\_Kingdom
- ▼ **Crop\_protection\_methods**
  - biological\_control chemical\_control
  - disease\_control integrated\_control pest\_control
  - post-harvest\_treatment weed\_control
- **Crops**
- ▼ **Fungal\_diseases** Alternaria\_solani
  - Botryotinia\_fuckeliana Colletotrichum\_coccodes
  - Geotrichum\_candidum Mycovelloosiella\_concors
  - Phoma\_exigua Phytium
  - Phytophthora\_erythroseptica
  - Phytophthora\_infestans Polyscytalam\_pustulans
  - Sclerotinia\_sclerotiorum
  - Spongospora\_subterranea Streptomyces\_scabiei
  - Synchytrium\_endobioticum
  - Thanatephorus\_cucumeris Verticillium\_albo-atrum
  - Verticillium\_dahliae
- ▼ **Insect\_pests** Agriotes
  - Agrotis\_exclamationis Agrotis\_ipsilon
  - Agrotis\_segetum Aphis\_fabae Aphis\_frangulae
  - Aphis\_nasturtii Aulacorthum\_solani
  - Autographa\_gamma Closterotomus\_norwegicus
  - Euxoa\_nigricans Hepialus\_humuli

They will bookmark relevant publications.

del.icio.us / epc\_input /

popular | recent

your bookmarks | your network | subscriptions | links for you | post

logged in as epc\_input | settings | logout | help

url

description  required

notes

tags  space separated

suggestions [Poland](#) [Polyscytalam\\_pustulans](#) [post-harvest\\_treatment](#) [Potatoes](#)

► your tags

▼ your network

[for:epc\\_library](#)

The system will come up with suggestions for keywords that will be assigned by subject matter specialists who will also provide summaries through this system. They can assign keywords that are not yet in the system. These will automatically appear as 'unbundled tags' that can be added to a bundle or replaced by another keyword if there is already a synonym in the system. They can tag an item for inclusion in the library.

So the subject matter specialists (1 contact person per country) only describe keywords and the English abstract (and optional national abstract).

<sup>1</sup> Another option is the system Furl. This is also a bookmarking system with some other options. Before starting the description of documents a choice will be made between these two systems.

## 6.2.2. Validation by archivists

The archivists can automatically pick up the data that has been submitted by subject matter specialists and will be presented with an input form for the database where the existing data (URL, title, keywords and summary) has been filled in.<sup>2</sup>

WAGENINGEN UR  
For quality of life

LIBRARY WAGENINGEN UR ENDURE INPUT

**endure**  
diversifying crop protection

Current document type  
Web document

**Titel:** Phytophthora info

**Latin name:**

**Source:**

**Authors**

**Author's address**

**Year of publication (YYYY)** 2008

**Location / URL: (http://.....)** http://dlg2.verdis.nl/pls/dlg/docs/folder/kennisakker\_new/kenniscentrum/thema\_s/sch

**Upload file:**

**Keywords** brary Potatoes Phytophthora\_infestans integrated\_control pesticide\_reduction\_plans

**Summary**  
This booklet for practitioners informs about results of the Dutch fungicide reduction program for late blight in potatoes with recommended measures for control. This publication, that was sent to each Dutch potato grower or advisor, recommends a number of measures for an Integrated Pest Management strategy. The importance of the removal of early infection sources is stressed, such as waste from last year's crop, infected seed potatoes and early infections

**format**

**Information type** ARTICLE (FARMERS, ADVISORS)

**Endure Country:**

**Status:** OK

They will complete the description and check the consistency of the data.

## 6.2.3. Uploading documents

If a relevant document is not yet available online, the subject matter specialists can upload it to a server of Library Wageningen UR.

<sup>2</sup> Technically: a del.icio.us RSS feed is picked up and transformed by XSLT into an HTML database input form.

WAGENINGEN UR  
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LIBRARY WAGENINGEN UR ENDURE UPLOAD

**endure**  
diversifying crop protection

Current document type  
Web document

**Title:**

**Authors**

**Year of publication (YYYY)**

**Upload file:**

**Endure Country:**

**Copyright:**

**Status:**

File Upload

Look in: endure\_trial

cogem2\_files wur\_logo.gif

COGEM documentatiebestand\_files

1.jpg

cogem2.htm

COGEM documentatiebestand.htm

del.icio.us.bmp

delicious2.bmp

endure\_local.htm

A URL will be assigned automatically and the document can then be bookmarked with del.icio.us.

## 6.2.4. Organisation

For this pilot a number of organizational issues are identified:

- Each partner (country) nominates a person who will select the 20 most relevant documents and who will act as a reference point for users of the database from language areas other than the language of the original title to require more information than they can find in the English abstract. They will be authorized to tag items and upload documents.
- During the pilot there will be a central point where the keyword collection is monitored and (re)organized. Library Wageningen UR will perform this task.
- Because the approach is new for many participants, some reflection will be organised to build up experiences and share the lessons learned.

## 7. Presentation of documents

### 7.1. Find and present

The database (i.e. the “metadata”) will be searchable through a simple search screen. The basic index (words from title and summary, keywords) and keywords will be searchable as free text. Crop, Latin name of pest organism, year of publication, country and language will be searchable through look-up tables.

Grouping of Latin names is suggested to avoid long lists.

SEARCH EPC



Basic index (words from title, summary, keywords)

Keywords

Latin name

Country:

Language

Agriotes

Agriotes

Agrotis\_exclamationis

Agrotis\_ipsilon

Agrotis\_segetum

Altemaria\_solani

Aphis\_fabae

Aphis\_frangulae

Aphis\_nasturtii

Aulacorthum\_solani

Autographa\_gamma

Botryotinia\_fuckeliana

Results will be listed in a short presentation (title, country, year, one-line summary) from which the full presentation of all metadata will be linked. From the full presentation there is a link to the full text of the document.

## 7.2. Special services

Especially in the start-up phase the amount of data in the Endure-IC will be limited, but the system will remain a limited data set even when it is mature. The purpose is to create a very selective collection of the most relevant information resources within the subject scope of Endure-IC. Therefore it is important to ensure that the information is not just accessible on the server where Endure-IC is hosted, but that it will also be featured on other sites and information systems that the target group uses.

In cooperation with the technical taskforce of package IA4.2 technical options will be explored to ensure that Endure-IC can be featured on other information systems. The following options can be realised quite easy.

- RSS (Rich Site Summaries) feeds can be provided from the del.icio.us system. These feeds can be used to feature dynamically lists with “the latest from Endure-IC” on other websites. The Endure-IC site can link to information how to do it and customize the display of the feeds to the look and feel of another website<sup>3</sup>
- The first entry points for many users are search engines like Google. It is therefore important to make sure that documents from Endure-IC are indexed by Google. There are options to submit from the database lists with documents to be indexed to for example using Google Sitemaps<sup>4</sup>.
- Google provides another mechanism, Google CSE (= Custom Search Engine) to integrate search boxes in websites to search for example the full text of all documents in Endure-IC (provided that they are indexed by Google, see point above). We cannot demonstrate this yet with searches on documents in the Endure-IC (as there are none) but a search on <http://www.google.com/cse?cx=016531827411377971864%3Ajoql9vueamm&cof=FORID%3A0> will bring you to a search box where you can search the full text on European sites for pesticide regulations.

<sup>3</sup> Using for example <http://feed2js.org/>

<sup>4</sup> See <https://www.google.com/webmasters/tools/docs/en/protocol.html>

- Specific queries can be stored as a URL and these “canned searches” can be integrated in other websites. The output of the searches can be customized for the “look and feel” of a site using style sheets.

These methods – and new ones may emerge over time – offer opportunities to integrate Endure-IC information with other sites and can potentially be used to integrate Endure-IC content with other Endure systems.

A suggested action after M18: if the system contains a certain number of documents and the SA4 working group is satisfied with the performance, all partners can contact webmasters of national sites to organise the connection of their site with the Endure-IC.

## 8. Links with Endure-ALPS

Complete integration with Endure-ALPS (IA4) or Virtual Lab will be quite difficult. In fact Endure-ALPS is under development and even the platform where it will run (or platforms, if it will be based on distributed databases) is under discussion. The techniques mentioned in §7.2 can be used to provide the user with links between different Endure information systems.

The metadata for the single documents have to be identical in the Endure-IC and ENDURE-ALPS. ENDURE-ALPS will adopt:

- *Basic index (title words, words from abstract, keywords)*
- *Latin name (limited list)*
- *Year of publication,*
- *Country*
- *Language*
- *Keywords*

The keywords will be identical or supplementary, and about a certain identical main set of keywords should be agreed upon. Also the structure of the summary (one-line summary + complete summary) will be used in Endure-ALPS.

The linking between both systems (ENDURE ALPS and Endure-IC) has to be solved by the technical task force which has undertaken to find solutions for connecting different data bases. A link (or as suggested double clicking on keywords) to search for knowledge inside ENDURE ALPS or the Virtual Lab should be created in order to facilitate a comprehensive information source for the Endure-IC user going beyond ready to use best practices.

## **Annex 1. Responsible contact persons for data collecting and tasks for contact persons**

The following members of the SA4 group will co-ordinate data collecting and data description in the different countries

UK: Susannah Bolton  
DK: Bent J. Nielsen  
DE: Silke Dachbrodt-Saaydeh  
FR: Philippe Delval  
NL: Herman Schoorlemmer





## **Annex 4. Planning M12-M18**

- 1 December: start with collection and description of 20 documents per country
- 10 December: instruction of contact persons regarding tagging and uploading documents by Library of WUR. Instruction will be done by e-mail
- 10 December: last revisions on document deliverable.
- 20 December: deliverable about lay-out ENDURE-IC ready and sent to Endure program committee
- Jan 20 group telephone feedback session on collected documents
- 1 March: all documents collected, described and presented at ENDURE-IC, first example of prototype is available for discussion
- 15 March: internal test realized by all SA4 partners
- 15 May: external test and discussions realized by all partners
- 15 June: last improvements and final description of the prototype ready