TECHNEAU
Knowledge Integrator

TKI - User Guidance Document
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Colofon

Title
TECHNEAU Knowledge Integrator
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PU = Public
Summary

The central focus for knowledge dissemination in TECHNEAU is the TECHNEAU Knowledge Integrator, referred to as the TKI. Information, data and knowledge derived from all work areas is available via the TKI and it is the interface between available technologies, practices, methodologies, etc., and end-users who need to make informed choices.

The TKI is a multi-criteria selection tool that enables end-users to match local conditions and requirements for water supply to appropriate and available technologies, practices, methodologies, etc. Users will be able to obtain information and support to making decisions across the water supply spectrum, including the design and operation of new-build, enhancement or optimisation of existing systems, and strategies that challenge conventional approaches to water supply. Users will also be able to access a range of tools such as process modelling, treatment simulation, risk analysis and cost-benefit models.

As well as TECHNEAU content, external content covering subject areas of specific and current interest is also available as ‘Key Knowledge Packages’ enabling end-users easy access to information. Key Knowledge Packages available include:

- Water-related legislation and guidelines
- Risk assessment and management/Water safety plans
- Microbiology
- Small water supplies
- Climate change

The TKI software has been tested continuously and evaluated throughout its development by end-users and TECHNEAU partners to ensure that the final version is fully functional, operational and meets the needs of end-users. Several changes have been made to the functionality of the TKI during its development, including:

- Extension of classifications and categorisations of Knowledge Packages to enable targeted advanced searching.
- Development of Key Knowledge Packages to enable end-users easy access to information and websites covering subject areas of specific and topical interest.
- Enhanced menu-based access to reports, tools and Key Knowledge Packages.
- User feedback facility to allow comment on the TKI and its content.

This User Guidance Document provides instruction in uploading documents to the TKI, searching the database and downloading the resultant ‘hits’.

The TKI can be accessed directly via the internet (http://tki.techneau.org) or via the link on the TECHNEAU website (www.techneau.eu).
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1 Introduction

1.1 Overview

TECHNEAU, an Integrated Project funded by the European Commission, challenges the ability of traditional drinking water supply systems to cope with present and future global threats and opportunities.

Under TECHNEAU, existing water supply systems have been reviewed from source-to-tap. New and improved technologies and procedures have been developed to meet present and future needs. These new developments have been fully documented in TECHNEAU outputs and many have been demonstrated in comprehensive, integrated case studies.

TECHNEAU outputs and case studies, together with a wide range of water-related information and data sources, can be accessed and downloaded directly from the TECHNEAU Knowledge Integrator (TKI).

The TKI is an intelligent decision-support tool that enables efficient and rapid searching for information.

The TKI covers all aspects of water supply from source-to-tap. Information is available for developed and developing countries on:

- water resources,
- water treatment,
- distribution,
- risk analysis, and
- consumer trust and acceptance.

The TKI includes the extensive output from the TECHNEAU project, together with water-related information and data from leading external sources, and links to relevant websites. Much of the information is available as reports, spreadsheets and databases that can be downloaded freely. The TKI also provides access to a range of models and tools that can be used in the development of end-user specific solutions.

The TKI will enable end-users to make informed decisions appropriate to their particular circumstances and constraints, to provide cost-effective and sustainable source-to-tap solutions for the provision of safe, high quality drinking water that has the trust of the consumer.
1.2 Using the TKI

1.2.1 TKI users

The TKI can be accessed via the internet and used by a number of different types of user:

- Casual Users who can search and download documents from the database;
- Registered Users who have the same access as the Casual User but have additional benefits including the creation of a personalised folder for creating or storing information, which can then be submitted to the Content Administrators (Reviewers) for inclusion in the TKI;
- Content Administrators (Reviewers) who can create content, but are also responsible for assessing submitted content for uploading to the TKI; and
- Chief Content Administrators (Managers) who can create, accept (or reject) uploaded content for public access and also manage user access, create new folders, etc.

Further information is given in Section 2.2

1.2.2 Knowledge packages

The TKI introduces the idea of a Knowledge Package. A Knowledge Package is basically a grouping of items (for example documents, databases, Excel files, images, etc.) that all relate to a particular topic, project, output, etc.

A Knowledge Package might include a single item or a grouping of items, e.g. a project might include a literature review (MS Word, related websites), a description of a methodology (MS Word), a software package, data files (Excel, Access) and a final report (PDF).

Each Knowledge Package has information defining its content:

- Title (displayed in search results)
- Short Description (displayed in search results)
- Abstract
- Metadata – authors, organisations, etc.
- Categorisation

A Knowledge Package may also contain one or more of the following:

- Attachments (reports, excel files, PDFs, etc.)
- Links (hyperlinks to website, further information, on-line reports)
- Images

The TKI is capable of indexing a number of common formats (e.g. MS Word, PDF, Excel) so that text searches can be carried out on the textual content of the associated attachments as well as the Knowledge Package definition.

The benefit of the Knowledge Package approach is that all of the items are returned when a search is carried out. For example, a search term may be found in an Excel file. Rather than simply returning the Excel file in isolation.
like most other search engines, the TKI will return the full Knowledge Package so that the user is provided with the full context of the Excel file, with any other associated reports, files, links, etc.

1.2.3 Searching the TKI

There are two principal ways to access information on the TKI, using the Search or Advanced Search facilities.

- Search: The user can search for specific words that appear in the title, description, abstract or body of a document by typing the words in the ‘Search’ text box and clicking the ‘Search’ button.

- Advanced Search: The user can search for specific words and/or select specified categories to enable a more tailored search by typing the appropriate words in the ‘Search’ text box and/or checking the appropriate categories from a pre-populated list and clicking the ‘Search’ button.

In addition, publications and other information can be accessed directly from the Home Page by selecting the appropriate tabs on the ‘Navigation Panel’ or ‘Main Menu’:

- Navigation Panel: Related research, events, knowledge packages and TECHNEAU reports.
- Main Menu: Tools, key knowledge packages, all reports, TECHNEAU reports, AquaFit4Use reports, SWITCH reports.

Further information is given in Section 2.3.

1.2.4 Uploading Knowledge Packages to the TKI

Knowledge Packages to be uploaded to the TKI are prepared to strict guidelines which include quality assurance and categorisation. Publication of content is carried out principally by Content Administrators (Reviewers) and Chief Content Administrators (Managers).

Further information is given in Section 2.4.

1.2.5 Categorisation

The TKI has been developed to provide intuitive and effective searching of its database. In order to achieve this, Knowledge Packages are categorised according to their content.

The four main categories are:

- Contains
- Constraints
- Classification
- Metadata
Classification is the key category with respect to searching ‘source-to-tap’ water supply and this has been further sub-categorised with respect to:

- Supply chain
- Process chain
- Water quality
- Water quantity
- Risk management/ Consumer issues
- Data source

Further information is given in Section 3.
2 Using the TKI

2.1 Accessing the TKI
The TKI is installed on a server held at WRc in the UK.
End-users can access the TKI directly ([http://tki.techneau.org](http://tki.techneau.org)) or via the link on the TECHNEAU website ([www.techneau.eu](http://www.techneau.eu)).

2.2 TKI users
The TKI can be accessed by various categories of user as described below. In addition to these users, an IT administrator is responsible for maintaining the TKI software and hardware.

2.2.1 Casual User
The Casual User has full access to search the TKI, download documents and access external websites via links. The Casual User does not have to login.

2.2.2 Registered User
The Registered User creates a unique username and password that must be used to login to the TKI.

Click ‘New User?’ on the TKI Home Page to open the TKI Registration Form (Figure 1).

![TKI Registration Form](image)

**Figure 1** TKI Registration Form

The user enters his full name, user name and email address, and clicks the ‘Register’ button (Figure 2).
A URL is generated and emailed to the user. The user should click the link to be directed to a site where he can change his password and complete the registration process (Figure 3).

The user should enter (and confirm) a password and click the ‘Set My Password’ button. The password will be confirmed and the user may now login (Figure 4).
The Registered User has the same access to the TKI as the Casual User, but has additional benefits. The principal benefit being that the Registered User can create his own Home Page and has a personal folder.

The personal folder is accessed by clicking on the My Folder option and it is here that the Knowledge Packages can be created for submission or can be stored for future reference (Figure 5). All content created in the user’s personal folder is ‘private’, i.e. can be seen only by the user until submitted.
2.2.3 Content Administrator (Reviewer)

Content Administrators login to the TKI in the same way as Registered Users.

Content Administrators are able to create their own content in personal folders for submission to the TKI.

Content Administrators are also responsible for assessing any submitted content for publication to the TKI. Reviewers ensure that content is quality assured and categorised according to strict guidelines.

If content is accepted, the Content Administrator publishes the content making it available to all users for viewing and downloading. If content is rejected, the content is returned to the owner explaining the reasons for its rejection.

2.2.4 Chief Content Administrator (Manager)

Chief Content Administrators login to the TKI in the same way as Registered Users.

Chief Content Administrators (Managers) have the same functionality as Content Administrators (i.e. can create, accept or reject content) but also manage the various users and can create other content such as new menu items, folders, etc.

2.3 Searching the TKI

Irrespective of whether or not users login, all users search the TKI in the same way.

The user accesses the TKI Home Page from the TECHNEAU website (Figure 6).
Figure 6  TKI Home Page

At the Home Page, the user can search for specified words or phrases using the Search or Advanced Search facilities or can access information via the Navigation Panel or Main Menu.

2.3.1 Search

Type the required words or phrase into the ‘Search’ text box. The user clicks the ‘Search’ button and a list of matches (or ‘hits’) is displayed (Figure 7).

Figure 7  Search results for ‘membrane’

Each ‘hit’ is displayed with the search string highlighted. Any Knowledge Package can be accessed by simply clicking on its title.

Clicking on the title of a Knowledge Package will return a description of the Knowledge Package. The description includes:

- Knowledge Package title;
- a brief description of the Knowledge Package;
- an abstract providing an overview of the Knowledge Package;
- attachments including links to the Knowledge Package contents - typically a Knowledge Package may include information such as related reports, images, models, hyperlinks, etc.; and
- categorisation data: metadata, contains, constraints, classifications.

To access an attachment, click on the link and select Open or Save from the File Download Dialogue Box (Figure 8).
2.3.2 Advanced search

If the simple Search produces no ‘hits’ or too many, the user is given an option to use the Advanced Search. The Advanced Search can also be accessed directly from the Navigation Box.

An Advanced Search consists of the simple Search and/ or a guided selection of categories from a pre-populated list. An example of a search for ‘membrane literature reviews’ is shown in Figure 9.
When all search terms have been entered and the categories ‘checked’, click the ‘Search’ button at the bottom of the page and a list of hits is returned (Figure 10).

![Search Results](image_url)

**Figure 10**  Search results for ‘membrane’ and ‘literature review’

Logged in users receive extra search functionality depending on the user access level.

For all logged in users, the ‘New Items Since’ option has an extra option of ‘Last Login’. This enables users to see any new content since their last login.

For reviewers and managers, an extra option is provided which enables them to see content by state, i.e. all submitted, rejected and/or published items.

A list of ‘hits’ is displayed from which documents can be selected, opened and/or downloaded.

### 2.4 Uploading documents to the TKI

Documents to be uploaded to the TKI are prepared to strict guidelines which include quality assurance and categorisation (see Section 3).

Registered Users may create Knowledge Packages and submit these for publication. Reviewers and Managers authorise (or reject) the submitted Knowledge Packages for public access.

At the TKI Home Page, the user enters his Username and Password to login (Figure 11).
2.4.1 Content Creation

2.4.1.1 Preparation of a Knowledge Package

Click on the ‘My Folder’ tab. This displays a screen that permits adding, editing, etc., of Knowledge Packages (Figure 12).

Figure 11  Content Creation: Home Page

Figure 12  Content creation: Adding a Knowledge Package
To add a Knowledge Package, click the ‘Add Item’ tab and select ‘Knowledge Package’ from the dropdown list. This displays the ‘Edit Knowledge Package’ screen (Figure 13).

Figure 13  
Content Creation: Editing a Knowledge Package

For each Knowledge Package, enter:

- Title (mandatory).
- Description - A short summary of the content.
- Body text (mandatory) - A full description of the content, typically the report summary or abstract.
- Metadata: Author(s), Organisation(s), Contact Name, Contact Email, Source, Quality Control Name, Quality Control Organisation.
- Categorisation data: Contains, Constraints, Classifications.

Note that the information can be typed directly or cut-and-pasted from the source document. If the latter, it is likely that at least some of the text will require reformatting. Particular care should be taken when pasting from MS Word as this can cause formatting problems.

When all information has been entered, click the ‘Save’ button (at the bottom of the page) (Figure 14).
Various options are available to the reviewer/manager that can be accessed via the tabs: view, edit, attachments, images, links, properties, sharing.

To add attachments to the Knowledge Package, click the ‘Attachments’ tab (Figure 15):

Figure 14  
Content Creation: Saving a Knowledge Package

Figure 15  
Content Creation: Attaching a document
In the ‘Upload File’ text box, enter the appropriate address and filename of the attachment.

In the ‘Title’ text box, enter a title for the attachment - this may be a shortened version of the full title but should be meaningful. If no title is given, the filename is used.

Click the ‘Add’ button to attach the attachment (Figure 16). Any number of attachments can be added in this way.

The TKI will attempt to index any text in the attachment. If the indexing process is successful, this is indicated by the icon. Click on this or the associated link to see the textual representation of the indexed terms. The TKI will be able to search any of this text.

![Figure 16](image-url)

Content Creation: Attaching a document

Similarly, to add a link to a website, click on the ‘Link’ tab (Figure 17).
Content Creation: Attaching a link

In the ‘Add Link’ text box, enter the appropriate website address, e.g. http://techneau.eu. Note that the full path should be given including the ‘http://’ prefix.

In the ‘Title’ text box, enter a short title for the link, e.g. TECHNEAU website.

Click the ‘Add’ button.

The example Knowledge Package now consists of two Knowledge Items: TECHNEAU Report D1.1.9 and the link to the TECHNEAU website.

At this stage, the state of the Knowledge Package is ‘Private’, as shown by the status indicator towards the top right of the screen.

If the Knowledge Package is ready to be submitted, click on the ‘State’ tab and select ‘Submit’ from the dropdown list. An email will be automatically generated and sent to all reviewers informing them that content has been submitted. A copy is also sent to the owner of the submitted package.

A number of advanced options are available when submitting a Knowledge Package. These enable the owner to provide a comment or to set ‘valid’ dates for the package. To access these, click on the ‘Advanced’ option in the ‘State’ tab. Any comments are included in the submit notification email.

The Knowledge Package cannot be seen or downloaded by Casual or Registered Users until accepted by the reviewers and the status has been upgraded to ‘Published’.
The Knowledge Package is still available through ‘My Folder’ but it cannot be edited by the owner once it has been submitted. To make any changes to the Knowledge Package following submission, it is necessary to ‘retract’ the package by clicking on the ‘State’ tab and selecting ‘Retract’.

Similarly, if a Knowledge Package is published, the owner can ‘make private’ the package in order to edit it. The package is no longer visible to Casual or Registered Users and must be resubmitted.

2.4.2 Content Administration

2.4.2.1 Accepting (or rejecting) a Knowledge Package

The reviewers and managers are responsible for accepting (or rejecting) Knowledge Packages submitted to the TKI for publication.

If the content is acceptable, the reviewer clicks on ‘State’ and selects ‘Publish’ from the dropdown list. The Knowledge Package can now be seen and downloaded by all users.

If the content is unacceptable, the Reviewer clicks on ‘State’ and selects ‘Advanced’ from the dropdown list. The reasons for rejecting the content should be entered into the comments text area.

The owner of the Knowledge Package will be advised that it has been rejected by email.
3 Categorisation of Knowledge Packages

3.1 Concept of Knowledge Items, Packages and Groups
The prime requirement of the TKI is to provide access to knowledge. The knowledge that is to be made available comes in various guises, e.g. reports, models, databases, etc. In some instances, there might be more than one component to the knowledge being made available. For example, knowledge might consist of both a description of a methodology as well as a software package. Furthermore, knowledge can be grouped, e.g. various knowledge outputs from a Work Area.

In order to support the basic requirement to provide access to knowledge, a number of concepts have been devised:

- Knowledge Item - A single ‘unit’ of information, e.g. a report, database or model.
- Knowledge Package - A ‘holder’ for one or many Knowledge Items.
- Key Knowledge Package – A ‘holder’ for one or many Knowledge Items derived principally from external sources.
- Knowledge Group - A wider area of knowledge to which more than one Knowledge Package might be related.

3.2 Categorisation
The TKI must provide a means for easily searching for information contained in the Knowledge Packages. To ensure that this searching is both intuitive and efficient, it is necessary to categorise the content of each Knowledge Package in a consistent way.

Accordingly, to describe the content of each Knowledge Package, four main categories have been defined:

- Classification
- Contains
- Constraints
- Metadata

3.2.1 Classification
Each Knowledge Package is categorised in terms of how its content relates to ‘source-to-tap’ water supply. This categorisation has been termed
‘classification’. Classification is the key category with respect to advanced searching.

‘Source-to-tap’ water supply is a wide ranging subject area, thus the Classification category has been split into five sub-categories: the position in the physical supply chain, the position in the process supply chain, any water quality implications, any water quantity implications and risk management/consumer issues. A further sub-category included is data source which, as its name suggests, identifies the principal source of the data. Each of these sub-categories is further categorised as shown in Table 1.

Categorisation should be to a consistent level: hierarchies should not be so complex that they make classification of Knowledge Packages difficult or tedious.

- **Supply chain**
  Supply chain covers source-to-tap and has a hierarchical structure with three levels of classification (e.g. supply chain - source - brackish water).

- **Process chain**
  Process chain covers all stages of treatment from raw water storage to point-of-entry/ point-of-use treatment and has a hierarchical structure with three levels of classification (e.g. process chain - pretreatment - screening).

- **Water quality**
  The water quality classification covers legislation/ regulation, chemical, microbiological and aesthetic issues from source to tap and has a hierarchical structure with three levels of classification (e.g. water quality - microbiological - parasites).

- **Water quantity**
  The water quantity classification covers source and management issues from source to tap and has a hierarchical structure with three levels of classification (e.g. water quantity - management - leakage).

- **Risk management/ Consumer issues**
  The risk management/ consumers classification covers risk assessment/ management and consumer issues from source to tap and has a hierarchical structure with three levels of classification (e.g. risk management/ consumers - risk analysis - hazard identification).

- **Data source**
  The data source classification identifies the principal source of the data included in a Knowledge Package. Three principal sources are included (although this list can be extended): TECHNEAU, AquaFit4Use and SWITCH. As well as classifying Knowledge Packages according to source, this classification simplifies - and should encourage - classification of non-TECHNEAU content.
<table>
<thead>
<tr>
<th>Supply Chain</th>
<th>Process Chain (cont’d)</th>
<th>Process Chain (cont’d)</th>
<th>Water Quality (cont’d)</th>
<th>Risk Management/Consumers (cont’d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Primary treatment</td>
<td>Chemical dosing (cont’d)</td>
<td>Aesthetic</td>
<td>Trust</td>
</tr>
<tr>
<td>- Catchment</td>
<td>- Sedimentation</td>
<td>- Coagulant</td>
<td>- Hardness/alkalinity</td>
<td>- In water safety/quality</td>
</tr>
<tr>
<td>- Groundwater</td>
<td>- Rapid filtration</td>
<td>- Polyelectrolyte</td>
<td>- pH</td>
<td>- In security of suppliers</td>
</tr>
<tr>
<td>- Surface water</td>
<td>- Slow sand filtration</td>
<td>- Disinfectant</td>
<td>- Turbidity</td>
<td>- In regulations and regulators</td>
</tr>
<tr>
<td>- Spring water</td>
<td>- Bank filtration</td>
<td>- Lead/ plumbosolvency</td>
<td>- Colour</td>
<td>- Source management</td>
</tr>
<tr>
<td>- Storm water</td>
<td>- Dune infiltration</td>
<td>- Control/instrumentation</td>
<td>- Taste</td>
<td>- For safety</td>
</tr>
<tr>
<td>- Brackish seawater</td>
<td>Secondary treatment</td>
<td>- Flow</td>
<td>- Odour</td>
<td>- Willingness-to-pay/Acceptance</td>
</tr>
<tr>
<td>- Wastewater</td>
<td>- Coagulation/flocculation</td>
<td>- Pressure</td>
<td>Water Quantity</td>
<td>Source</td>
</tr>
<tr>
<td>Raw water storage</td>
<td>- Sedimentation</td>
<td>- pH</td>
<td>Management</td>
<td>WA 1 Rethink the system</td>
</tr>
<tr>
<td>- Supply reservoir</td>
<td>- Filtration</td>
<td>- Chlorine</td>
<td>- Source management</td>
<td>WA 2 Treatment</td>
</tr>
<tr>
<td>- Bankside storage</td>
<td>- Dissolved air flotation (DAF)</td>
<td>- Dosing</td>
<td>- Alternative source(s)</td>
<td>WA 3 Monitoring &amp; control</td>
</tr>
<tr>
<td>Water treatment</td>
<td>- Ion exchange</td>
<td>- Telemetry</td>
<td>Analysis</td>
<td>WA 4 RA &amp; RM</td>
</tr>
<tr>
<td>- Pretreatment</td>
<td>- Membrane treatment</td>
<td>- Membrane treatment</td>
<td>- Water balance</td>
<td>WA 5 Operation &amp; maintenance</td>
</tr>
<tr>
<td>- Primary treatment</td>
<td>- Adsorption</td>
<td>- Chemical</td>
<td>- Demand/supply trend(s)</td>
<td>Risk reduction/ control</td>
</tr>
<tr>
<td>- Secondary treatment</td>
<td>- Disinfection</td>
<td>- Microbiological</td>
<td>- Demand reduction</td>
<td>Risk reduction options</td>
</tr>
<tr>
<td>- Sludge treatment</td>
<td>- Dechlorination</td>
<td>- Physical</td>
<td>- Leakage</td>
<td>Risk reduction options</td>
</tr>
<tr>
<td>- Service reservoir</td>
<td>- Service reservoir</td>
<td>- Treated water storage</td>
<td>- Recycle</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Distribution</td>
<td>- Distribution</td>
<td>Raw water storage</td>
<td>- Hazard identification</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Pumps</td>
<td>- Disinfection</td>
<td>- Raw water (source)</td>
<td>- Source management</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Supply pipe/main</td>
<td>- Lead/plumbosolvency</td>
<td>- Treated water</td>
<td>- Risk estimation</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Tap (Customer)</td>
<td>- Manganese control</td>
<td>Chemical</td>
<td>Risk evaluation</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Supply (service) pipe</td>
<td>- Biofilm control</td>
<td>- Organic compounds</td>
<td>Risk tolerability decision</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Internal plumbing</td>
<td>- Taph (Customer)</td>
<td>- Inorganic compounds</td>
<td>Analysis of options</td>
<td>Risk management</td>
</tr>
<tr>
<td>- Internal storage</td>
<td>- Point-of-entry (POE)</td>
<td>- Disinfection by-products</td>
<td>Risk reduction / control</td>
<td>Risk management</td>
</tr>
<tr>
<td>Raw water storage</td>
<td>- Sludge treatment</td>
<td>- Chlorine decay</td>
<td>Decision making</td>
<td>RT1 Urban water paradigm shift</td>
</tr>
<tr>
<td>- Supply reservoir</td>
<td>- Thickening</td>
<td>- Viruses</td>
<td>Monitoring</td>
<td>RT2 Stormwater management</td>
</tr>
<tr>
<td>- Bankside storage</td>
<td>- Dewatering</td>
<td>- Parasites</td>
<td>Communication strategies</td>
<td>RT4 Wastewater</td>
</tr>
<tr>
<td>- Pretreatment</td>
<td>- Disposal</td>
<td>- Bacteria</td>
<td>- Communication strategies</td>
<td>RT6 Governance &amp; institutions</td>
</tr>
<tr>
<td>- Screening</td>
<td>- Chemical dosing</td>
<td>- Fungi</td>
<td>- Potential pitfalls</td>
<td>RT7 Urban water planning</td>
</tr>
<tr>
<td>- Microtraining</td>
<td>- pH adjustment</td>
<td>- -</td>
<td>- Proven techniques</td>
<td>RT7 Urban water planning</td>
</tr>
</tbody>
</table>

**Table 1**

**Classification categorisation**
3.2.2 Contains

‘Contains’ is a ‘high level’ categorisation used by the end-user to refine or filter a search so that only appropriate Knowledge Packages are returned.

This categorisation identifies what is ‘contained’ in a Knowledge Package, e.g. a Knowledge Item might be a report, database, model, etc. The user will be able to search for specific ‘Contains’ items.

The Contains items are shown in Table 2.

3.2.3 Constraints

‘Constraints’ is a ‘high level’ categorisation used by the end-user to refine or filter a search so that only appropriate Knowledge Packages are returned.

Some users will have constraints applicable to their specific circumstances. For example, in developing countries, perhaps only low-cost treatment options might be relevant or options requiring only low-skilled labour. Knowledge Items can be categorised accordingly.

The Constraints items are shown in Table 2.

3.2.4 Metadata

A ‘high level’ categorisation used by the end-user to refine or filter a search so that only appropriate Knowledge Packages are returned.

Metadata is contextual data associated with each Knowledge Item and Knowledge Package, such as author(s), organisation(s), etc.

The Metadata items are shown in Table 2.
## Table 2  Contains, Constraints and Metadata categorisations

<table>
<thead>
<tr>
<th>Contains</th>
<th>Constraints</th>
<th>Metadata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report</td>
<td>Low cost</td>
<td>Author(s)</td>
</tr>
<tr>
<td>Database</td>
<td>Simple technology</td>
<td>Organisation(s)</td>
</tr>
<tr>
<td>Spreadsheet</td>
<td>No/ low skill requirement</td>
<td>Contact name</td>
</tr>
<tr>
<td>Model</td>
<td>No/ low energy requirement</td>
<td>Contact email</td>
</tr>
<tr>
<td>Research</td>
<td>No/ low chemical requirement</td>
<td>Quality controller name</td>
</tr>
<tr>
<td>Literature review</td>
<td>No/ low sludge production</td>
<td>Quality controller organisation</td>
</tr>
<tr>
<td>Trend analysis</td>
<td>Rural location</td>
<td>Source</td>
</tr>
<tr>
<td>Case study / demonstration</td>
<td>Developing world location</td>
<td>Date prepared</td>
</tr>
<tr>
<td>Financial / organisational</td>
<td>Date submitted (TKI)</td>
<td></td>
</tr>
<tr>
<td>Methodology</td>
<td></td>
<td>Date revised (TKI)</td>
</tr>
<tr>
<td>Legislation / regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benchmarking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key knowledge package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>