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Mobilizing and transferring knowledge on post-2012 climate policy implications

D3.5: Climate Policy Database (updated version)

Project Coordinator: **JIN**

Work Package 3 Leader Organization: **Climate Strategies**

Task 3.5 Leader Organization: **UPRC**

Authors: **Charikleia Karakosta, Phaedra Dede, Eleni Trouva (UPRC)**

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Preface

POLIMP intends to facilitate a process to identify, for different policy and decision making levels, knowledge gaps about implications of possible directions of international and EU climate policies. The core objective is to cover these gaps with knowledge packages derived from a broad range of existing reports, research and climate policy decisions at, e.g., EU and UNFCCC levels. With these information packages, climate policy associated stakeholders will be better able to extract key policy conclusions. Through series of workshops these packages will be communicated with stakeholders and collect feedback. In addition, POLIMP will develop a knowledge platform for EU policy makers on climate policy implications.

Knowledge gaps will be identified for a range priority issues related to climate policy making in consultation with stakeholders, but as a starting point for discussion the following three (categories of) issues are suggested by the POLIMP partners:

- ▲ What would different possible international climate policy scenarios entail for EU society, business, Member States and EU as a whole, in the terms of economic, social, and environmental impacts looking especially at likely reactions and resulting political acceptability for different groups such as those impacted by job losses and reductions in welfare as well as potential gains?
- ▲ How can EU stakeholders deliberate in an evidence based manner about the advantages and disadvantages of these different scenarios?
- ▲ How can EU and EU stakeholders learn from design and implementation of climate policies worldwide as well as share the experience the EU has gained in designing and implementing climate friendly actions?

▲ Project Partners

N°	Participant name	Short Name	Country code
CO1	Joint Implementation Network	JIN	NL
CB2	Centre for European Policy Studies	CEPS	BE
CB3	University of Piraeus Research Center	UPRC	GR
CB4	Universitaet Graz	UNI GRAZ	AT
CB5	Ecologic Institut Gemeinnutzige GmbH	ECOLOGIC	DE
CB6	Climate Strategies	Climate Strategies	GB
CB7	Fundacja Naukowa Instytut Badan Strukturalnych	IBS	PL



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Executive Summary

This deliverable describes the implementation of the Climate Policy Database that is part of the work within the Task 3.5 of the POLIMP project. We first explain the ontology that was constructed to describe the knowledge collected within the project. This ontology is used to annotate the resources gathered within the tasks of WP3. Next, the implementation of the Climate Policy Database is presented, describing in detail the interface and the functionalities offered to its users.

1. Introduction

This document contains the Deliverable 3.5 "Climate Policy Database", which stems from the work within Task 3.5 - Organisation of data into a "climate policy database". The purpose of the task is to develop an ontology for annotating and structuring the knowledge related to climate policies and provide a platform that allows exploration, editing and extension of the concentrated knowledge. The developed platform facilitates the search of information related to climate policies based on specific keywords, which in turn lowers the barrier for data re-use and integration.

The Climate Policy Database is based on the information collected within tasks of WP3 and specifically T3.1, T3.2, T3.3 and T3.4. In particular, Tasks T3.1 and T3.3 have resulted in the collection of resources related to climate policies in various formats (web pages, documents and presentations in various formats, plain text, and others) that will be the initial contents of Climate Policy Database. Moreover, T3.2 "Key trends and drivers in climate policy" and T3.4 "Criteria to evaluate climate policy scenarios" provide valuable contributions for the definition of the hierarchical structure of tags that are used to annotate the database content.

This document starts by summarizing the objectives of the Climate Policy Database. Chapter 3 presents the climate policy resources collected within WP3 tasks that will be the contents of the database. Chapter 4 explains the vocabulary that we will use to annotate and describe the knowledge collected. Finally, chapter 5 describes the Climate Policy Database, its implementation, the user interface and the functionalities it offers to the user.

2. Objectives

This work aims to collect and cluster the existing knowledge on climate policy in an open input dataset, so that it will be possible to carry out the policy assessment in WP4, as well as to provide the structured content for disseminating this knowledge to support informed decisions and beliefs of the policy makers, researchers, market actors and general public. A hierarchical structure of tags will be created, where each tag will provide semantic content to the relevant scientific studies and reports that form the resources collected. Since there are a vast number of research studies – with different assumptions and approaches – regarding the dynamics and direction of the new climate regime, we will carry out a meta-analysis in order to decompose their results to the assumptions, factors and interactions considered. The outcomes of the decomposition will be annotated with the aforementioned structure of tags so that semantic search is possible through the project's web site.

We have defined the following steps to accomplish these objectives:

- Classify the resources under a hierarchical schema to facilitate search.
- Create a user centric database that users can use to search, view and extend the resources collected within the work of WP3 with emphasis to usability.
- Provide generic and custom views of the resources to the users of the database depending on selection criteria and tags.
- Support collaborative authoring of the available resources and their information, as well as versioning control over the changes performed in the data of the database.

The hierarchical tags of the climate policy database should have the following characteristics:

- Support different schemas: There is no generally accepted schema or ontology for representing tags. Instead, there are several ones, which provide a structuration of the tagging processes on different levels.
- Tags are the first step in creating rich semantic knowledge bases. The database should support the future evolution of tags into rich semantic annotations. The tags should be extensible with additional metadata. This facility includes labels in different languages, relations between tags and other resources as well as relations between tags.
- Users should be able to annotate resources with tags, comments, notes and all possible other attributes.
- Additional filtering support: Filter performing an equality restriction to a certain value should be supported to facilitate search. Moreover, other filter types should be allowed such as bound/unbound property of attributes, ranges of values on a facet as well as literal expressions.

The outcome will be a living database, which will be enhanced throughout the project's duration by relevant projects and discussion outcomes of climate negotiations and will serve as input for the work in WP4.

3. Climate Policy Resources

Data and knowledge collection refer to topics of interest, such as:

- Status quo of climate policy negotiations and the EU climate policy discussion (including the climate and energy package 2020 and longer term decarbonisation and energy roadmaps).
- Identification of key trends and drivers, such as key economic, energy and demographic trends in EU and Rest of World, and trends in global land use.
- Possible international climate policy developments and scenarios based, among others, on progress in negotiation processes, observers' opinions, papers, interviews, focusing especially on what the literature says about the social, economic and environmental impacts of climate policies and the resulting impact on their political acceptability by different stakeholders.
- Information about the way policies and measures proposed in international climate policy making might work in terms of direction, strength and expected effects in different EU stakeholder contexts.

The resources used come from a wide range of up-to-date sources. Publications of the IPCC and those of institutions like the UNFCCC secretariat, the OECD, IEA, IRENA, UNEP or those of renowned researchers and institutes are considered throughout the knowledge collection process. They are of great importance and value when addressing issues like the effectiveness of a new international regime in terms of delivering the required mitigation objectives, projected socio-economic impacts, the role of low carbon technology development and transfer, relationship between climate change and land-use trends, trends in energy prices, etc.

POLIMP partners' knowledge on climate policy issues is enhanced by relevant projects and discussion outcomes of climate negotiations. More in detail, POLIMP brings together findings from: climate policy analysis projects, legal studies, studies on existing and new market mechanisms, projects on international cooperation and technology transfer and financial aspects of climate policy. Knowledge from research papers, scientific reports, decisions, articles and organizations' websites is collected, combined and utilized.

4. Development of a Vocabulary for Representing Knowledge on Climate Policy

4.1 Information setup

Knowledge gaps were identified for a range of priority issues related to climate policy making, in consultation with stakeholders. We structure the gathered resources by tagging them under the main issues addressed by the corresponding knowledge package. At a second level, resources are further tagged under a selection of relevant keywords in order to enhance searchability. Each resource can be tagged under one or more issues and one or more keywords. Issues and keywords are shown in the following Table 1.

Main issues examined regarding climate change concern policy levels (European and International-within the UNFCCC), the issue of Adaptation to climate change, as well as three concepts that have inspired cornerstone policy instruments and targets of crucial importance, namely Emissions Trading, Renewable Energy and Energy Efficiency.

Keywords concern various aspects of climate policies including, among others, sectors to be affected, key drivers, stages of elaboration and aspects of impact measuring.

Table 1: Selected Keywords

KEYWORDS	
1	Targets
2	Policies
3	Industry
4	Transport
5	Households
6	Agriculture
7	Background
8	Scenarios
9	Mechanisms
10	Technology
11	Finance
12	Post 2020
13	Implementation
14	Costs & Benefits
15	Reform
16	Support systems/incentives
17	Renewable energy
18	Electricity market design

19	Increasing farm efficiency
20	Mainstreaming
21	Land use
22	International ETS

Table 2: Selected Issues

ISSUES	
1	EU Climate Policy
2	International Climate Policy
3	Renewable Energy
4	Energy Efficiency
5	Emissions Trading
6	Adaptation

We structure the gathered resources from WP3 tasks by tagging them under the selected keywords and issues (Figure 1).

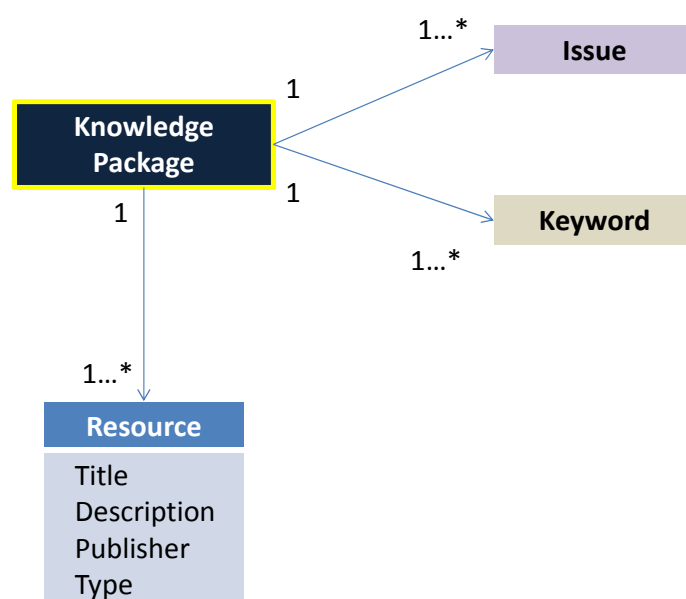


Figure 1: An ontology for representing the knowledge package resources

An example is illustrated below (Figure 2), showing the issues, keywords and resources used for the production of knowledge package 1.2.4.0.0: "Intro to industry emissions, treatment in EU climate policy (share of GDP)", prepared by the University of Piraeus.

Example: Intro to industry emissions, treatment in EU climate policy (share of GDP)

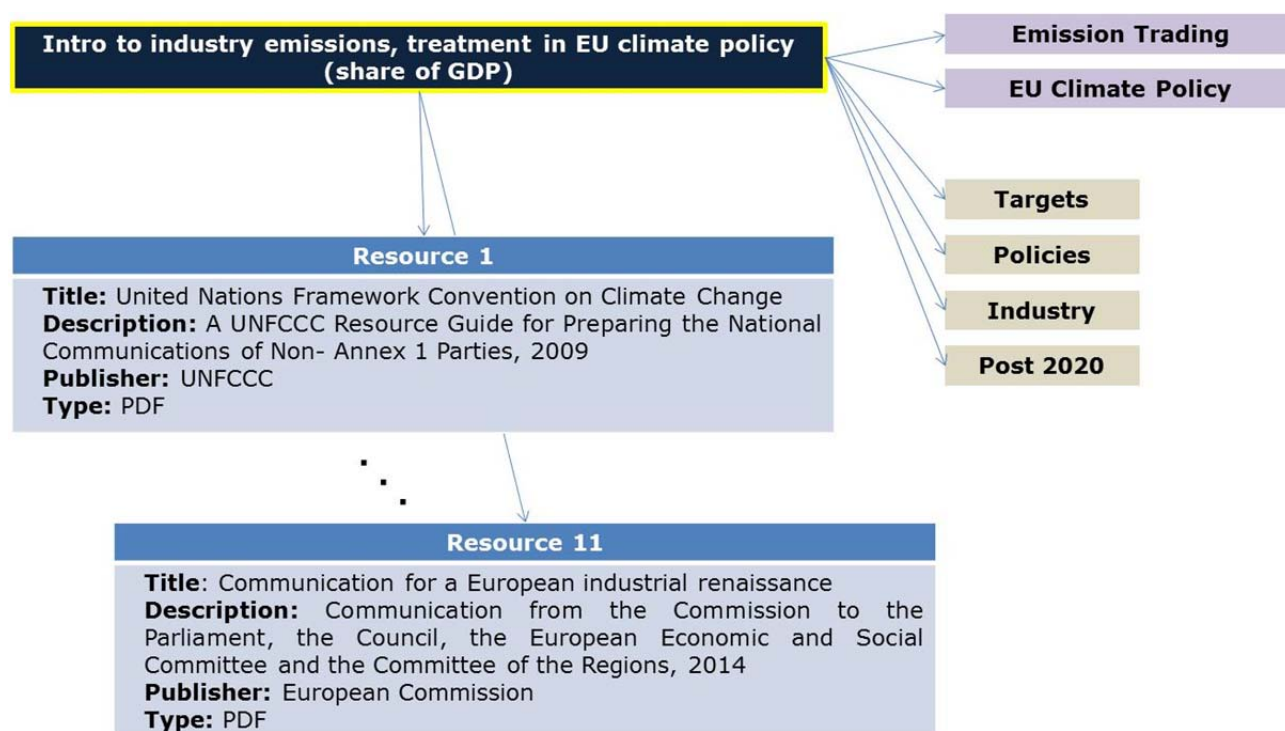


Figure 2: An ontology for representing the resources of knowledge package 1.2.4.0.0.

4.2 Tools and standards for describing knowledge

Several already developed tools exist for the modelling and the representation of available information. In the next subsections we introduce the tools and standards we have used for the creation of the Climate Policy database and the structuring of the gathered resources.

4.2.1 Ontologies

Ontologies are explicit conceptualizations of a domain of discourse [1], [2], [3]. In short, they are unambiguous representations of concepts, relationships between concepts (for example, but not limited to, a hierarchy), instances, and axioms. Unambiguous in this sense means two things: First, the representation should allow humans to precisely grasp the meaning of any element, so that humans have a well-defined vocabulary at hand when annotating data, expressing queries, or drawing conclusions. Second, the representation should have a formal semantics, so that it supports machine reasoning. However, it is important to note that ontologies are not just formal representations of a domain, but much more community contracts about such formal representations. Since a discourse is a dynamic social process, during which previous propositions are often modified, especially refined, or discarded, and new topics need to be added, such a community contract cannot be static, but must be able to reflect the community consensus at any point in time [1].

This semantic sharing of data becomes more and more important for web resources as more and more search engines are able to read this structured data and allow a more precise recall. Even more important, ontologies allow the structuring of knowledge and the creation and disambiguation of thesauri, definitions and the general alignment of knowledge. Ontologies or vocabularies have during the recent years developed from a tool for artificial intelligence researchers to a more and more widespread technology used by domain experts and in the World Wide Web. Ontologies are there used for creating a Web of Data, which allows computers to add semantics to data, so that machines can understand them. Many domain ontologies can be found and they are not only used by experts to better structure their data, but also to allow a meaningful sharing of that data [4]. For these reasons we choose to model the knowledge on climate policies gathered within the work of WP3 tasks under an ontology.

4.2.2 Resource Description Framework (RDF)

The Resource Definition Framework (RDF) [6] provides formalism for representing arbitrary, structured, semi-structured or ad hoc data about anything that can be identified with a uniform resource identifier (URI). RDF has been developed as a maximally flexible formalism for describing resources on the web but can be applied to any knowledge representation task. It has features that facilitate data merging even if the underlying schemas differ, and it specifically supports the evolution of schemas over time without requiring all the data consumers to be changed.

RDF represents nodes of a graph (subjects) by URIs. Anything described by RDF must have a URI, whether this is accessible on the web or not. Also all attributes of a URI (predicates) must also have URIs. The value of an attribute (object) can be a URI or a scalar value such as a string or a number [5]. RDF names the relationship between things, as well as the two ends of the link, which is usually referred to as a "triple" [6]. Using this simple model, it allows structured and semi-structured data to be mixed, exposed, and shared across different applications. This linking structure forms a directed, labelled graph, where the edges represent the named link between two resources, represented by the graph nodes [6]. This graph view is the easiest possible mental model for RDF and is often used in easy-to-understand visual explanations [6]. An RDF graph is a collection of triples each consisting of a subject URI, a predicate URI and of an object [7]. These form a directed graph where the arcs start with subject URIs, are labelled with predicate URIs and end up pointing to object URIs or scalar values [5]. We use RDF to represent and describe the resources of the climate policy database, their attributes and also their relationships.

4.2.3 Resource Description Framework Schema (RDFS)

The RDF Schema (RDFS) [8] provides the framework to describe application-specific classes and properties. RDFS is a semantic extension of RDF. It is a language used for declaring basic class and types when describing the terms used in RDF and are used to determine characteristics of other resources, such as the domains and ranges of properties [8]. Classes in RDFS are much like classes in object oriented programming languages [8]. This allows resources to be defined as instances of classes, and subclasses of classes [8]. RDFS is the most basic schema language commonly used in the Semantic Web technology stack. It is lightweight and very easy to use and get started with. In fact, many of the most popular RDF vocabularies are written in basic RDFS [9].

4.2.4 Web Ontology Language (OWL)

The W3C Web Ontology Language (OWL) [10] is a Semantic Web language designed to represent rich and complex knowledge about things, groups of things, and relations between things. OWL is a computational logic-based language such that computer programs, for instance, can exploit knowledge expressed in OWL to verify the consistency of that knowledge or to make implicit knowledge explicit. OWL documents, known as ontologies, can be published in the World Wide Web and may refer to or be referred from other OWL ontologies. OWL is part of the W3C's Semantic Web technology stack, which includes RDF, RDFS, SPARQL, etc.

4.2.5 Dublin Core (DC)

Dublin Core (DC) [11] is a generic metadata schema (i.e. intended to be able to describe any type of resource), which has been widely used and adapted. Developed from the mid-1990s through a process of international collaboration, it is maintained by the Dublin Core Metadata Initiative (DCMI). In its simple 15-element form, Dublin Core has achieved NISO and ISO standardisation. As the original fifteen elements set of the DC core were not sufficient, the metadata set was extended by the DC terms. Additionally to the core elements of DC, the DC terms consist of a set of classes, vocabulary encoding schemas and syntax encoding schemas. The DC core was designed in the way that it can be combined with other vocabularies.

In contrast to the DC elements, the DC terms have a formal description of domain and range of the properties. This was solved by adding 15 elements, which are subclasses of the original ones with the advantage that this change does not influence older applications. So, there is also a larger set of elements and sub-elements (DCMI Metadata Terms) and several 'application profiles' (versions of Dublin Core developed for particular purposes).

This vocabulary contains all metadata terms maintained by the Dublin Core Metadata Initiative (DCMI). These metadata terms (including properties, vocabulary encoding schemes, syntax encoding schemes and classes) are used to create metadata descriptions about documents and other resources. The usage of these terms is very popular and nearly standardized for metadata descriptions. Existing terms can be categorized as follows:

- Technical information about the document (like "format" and "language")
- Description about the content of the document (like "title" and "subject")
- Persons and rights (like "creator" and "provenance")
- Crosslinking (like "source" and "relation")
- Lifecycle (like "date")

An example for the appliance of Dublin Core terms is the usage of them inside HTML pages to define for instance the creator, the subject and the last modification date of the document.

4.2.6 Friend of a Friend (FOAF)

The Friend of a Friend (FOAF) [12] project began early in 2000 as an experimental linked information project, created by Dan Brickley and Libby Miller. FOAF is a simple technology that makes it easier to share and use information about people and their activities (eg. photos, calendars, weblogs), to transfer information between websites, and to extend, merge and re-use it online automatically. It is currently one of the most frequently used ontologies, as it is supported by some social networks and websites. The FOAF vocabulary is specialized for representing persons, activities and relations to other persons.

FOAF is not a standard in the form of an ISO norm or the W3C Process but is a very commonly used vocabulary in the Semantic Web community and can therefore be specified as a quasi standard. The FOAF standard covers a wide area of information, which describes relations between people, their organizations, as well as the projects they are working on. While other standards are adapted for the RDF binding, FOAF uses RDF/XML to encode the data since the beginning.

4.3 Creating the Climate Policy Ontology

There are a lot of different ways to create an ontology that describes the resources of the Climate Policy database and effectively categorize them using tags, such as the keywords and issues we described earlier. The focus of this work was to create an ontology with the use of existing standards and if and when required, to adopt new terminology to describe specific properties or concepts. For the ontology we present in the following paragraphs OWL, RDF, RDFS, DC and FOAF standards and vocabularies were used.

4.3.1 Main Classes and Sub-classes of the Climate Policy Ontology

The climate policies ontology consists of two main classes the Knowledge Package class and the Climate Policies Taxonomy class. The Knowledge Package class has no further sub-classes and its instances are the knowledge packages defined in the POLIMP project. The Climate Policies Taxonomy class and its sub-classes provide us with the desired taxonomy for the information gathered within the WP3 tasks. On the 1st level of sub-classes of the Climate Policies Taxonomy class we perform a first categorization on the selected issues and on the 2nd level of sub-classes we perform a further categorization on the selected keywords. The instances of the Climate Policies Taxonomy class are the collected resources. Table 3 presents the categorization we have just described.

Table 3: Sub-classes of the Climate Policy Taxonomy class. Each one of the main classes is sub-divided to lower-level classes. These sub-classes have been defined according to selected keywords that correspond to individual issues.

Main Classes	EU Climate Policy	International Climate Policy	Renewable Energy	Energy Efficiency	Emissions Trading	Adaptation
Subclasses	Background	Background	Background	Policies	Background	Background
	Targets	Scenarios	Support Systems/Incentives	Background	Implementation	Mainstreaming
	Policies	Targets	Costs and Benefits	Costs & Benefits	Costs & Benefits	
	Post 2020	Post 2020 Targets	Renewable Energy		Reform of the EU ETS	
	Industry	Land Use	Electricity market design			
	Transport	Mechanisms				
	Households	Technology				
	Agriculture	Finance				
	Costs & Benefits	International ETS				
	Increasing farm efficiency					

As maybe already guessed, the classes of the Climate Policy database are defined in OWL, while the hierarchical relationships described between the different classes are described using RDFS (rdfs:subClassOf).

4.3.2 Properties of the Knowledge Package and the Climate Policies Taxonomy classes

Figure 3 depicts the properties of the Knowledge Package and the Climate Policies Taxonomy classes. As we already explained, the instances of the Knowledge Package class are the different knowledge packages defined within the POLIMP project, while the instances of the Climate Policy Taxonomy class are the collected resources. While FOAF's main focus might be describing persons, groups of people and organizations, in the Climate Policies ontology we use FOAF to indicate the relationship between the knowledge packages defined in POLIMP with the resources. Each resource is associated with one or more knowledge packages, while each knowledge package contains a set of resources.

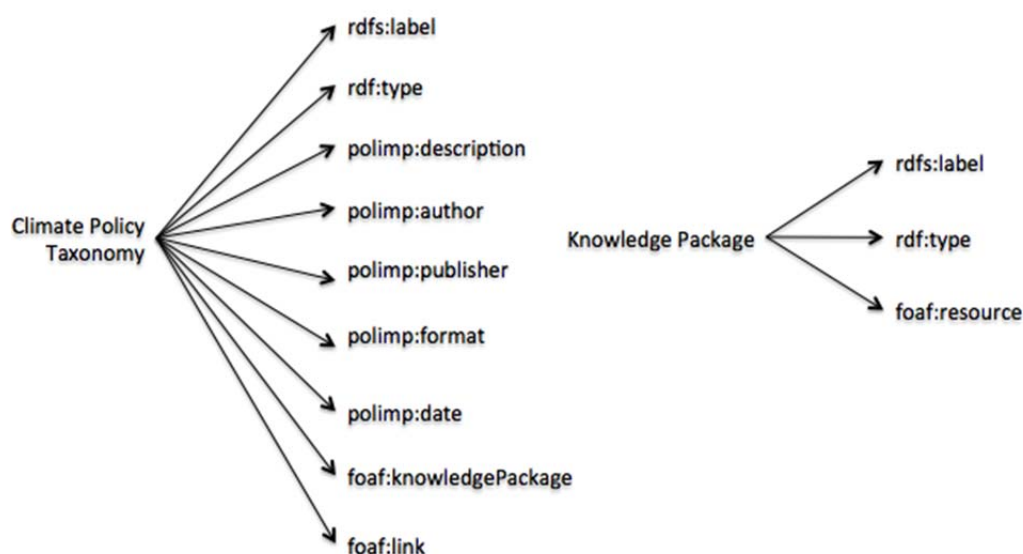


Figure 3: Properties of the Climate Policy Taxonomy and Knowledge Package classes.

Table 4 provides a description for each property of the Climate Policy Taxonomy class that is used to describe the resources of the Climate Policy database.

Table 4: Properties of the Climate Policy Taxonomy class.

Property	Description	Range/Type
rdfs:label	The human-readable label (name) of the resource's name.	Literal
rdf:type	The resource is an instance of a class.	polimp:ClimatePoliciesTaxonomy
polimp:description	The description of the resource.	Literal
polimp:author	The author of the resource.	Literal
polimp:publisher	The publisher of the resource.	Literal
polimp:format	The format of the resource.	Literal
polimp:date	The date the resource was published.	dateTime
foaf:knowledgePackage	The knowledge package that the resource was classified in.	polimp:knowledgePackage
foaf:link	The URL leading to the resource.	anyURI

Moreover, the elements presented in Table 5 have been chosen to describe the resources of the Knowledge Package class.

Table 5: Properties of the Knowledge Package class.

Property	Description	Range/Type
rdfs:label	The human-readable label (name) of the resource's name.	Literal
rdf:type	The resource is an instance of a class.	polimp:knowledgePackage
foaf:resource	The resources within the specific knowledge package.	polimp:ClimatePoliciesTaxonomy

5. Implementation of the Climate Policy Database

5.1 Technical choices and setup

For the implementation of the Climate Policy database we had to consider several available tools and review the features offered by existing software in order to decide the right tools for our purpose, both for the database and the user interface to the database of choice.

For the backend database that stores the resources collected, we had to decide between the available relational databases and Triple Stores. Since we decided to use RDF in order to describe the concepts of the Climate Policy ontology, a Triple Store would be the right tool to fit our purpose. "Triple Store" is the common name given to a database management system for RDF Data. These systems provide data management and data access via APIs and query languages to RDF Data. Much like a relational database, one stores information in a triplestore and retrieves it via a query language. Unlike a relational database, a triplestore is optimized for the storage and retrieval of triples. A triple is a unit of RDF Data (a graph) comprised of three pieces of information: Subject (S), Predicate (P), and Object (O), where S and O are nodes and P the node connector (also called edge or arc). Since RDF is based on a directed graph data model the edges always point from "Subject" to the "Object" (conceptual representation (Subject) -- Predicate -->(Object)). In addition to queries, triples can usually be imported/exported using Resource Description Framework (RDF) and other formats. Among the available Triple Stores, OpenLink Virtuoso [13] was the software of choice.

For the user interface to the stored information, an initial thought was to use standard Wiki technology as the platform for community-driven ontology building and maintenance. A wiki would provide the support for creating URIs plus human-readable definitions (using text and graphics) classes, instances, and relationships of the climate policy ontology in an easy and collaborative way. Moreover, this choice offers the opportunity for a large user community to establish unique identifiers for needed concepts, resulting in more current and more complete ontology. The basic idea was to use software that enables a community can create an URI for any needed concept, describe the concept using natural language, refine and modify the definition, and link this approach with the wealth of concepts and resources already existing. OntoWiki [14] was the wiki of choice as it provided the functionalities we were looking for our needs and even more.

In the following sections we briefly present OpenLink Virtuoso and OntoWiki and highlight the main functionalities they offer for the implementation of the Climate Policy Database.

5.1.1 OpenLink Virtuoso: A Framework for Storing and Querying Data

OpenLink Virtuoso Universal Server is a middleware and database engine hybrid that combines the functionality of a traditional RDBMS, ORDBMS, virtual database, RDF, XML, free-text, web application server and file server functionality in a single system. Rather than having dedicated servers for each of the aforementioned functionality realms, Virtuoso is a "universal server"; it enables a single multithreaded server process that implements multiple protocols [15]. The cross-platform Virtuoso application is available on 32 and 64-bit versions of Windows, Mac OS X, as well

as on a wide variety of Linux and UNIX distributions. OpenLink offers commercial as well as open source licenses for the product.

As noted by Paul Williams in his review of the Virtuoso Universal Server [16], according to OpenLink, the “unique hybrid server architecture of Virtuoso enables it to offer traditionally distinct server functionality within a single product offering.” The architecture allows for data persistence in the following formats: Relational, RDF, XML, text (with full text indexing), Documents, and Linked Data. It also can function as a web application server as well as a host for data-driven web services. The embedded unified storage engine of Virtuoso features a host of standard SQL capabilities, including SQL and SQLX query language support, user defined types, stored procedures, views, triggers, geospatial functions, and row level security. Data Integration scenarios are facilitated through the use of the Virtual Database Engine middleware for remote databases, which is combined with internal databases from the unified storage engine. A combination of SQL and SPARQL views using federated joins are then leveraged, providing data access to what appears to be a singular data source. A built-in query optimizer takes into account whether the data is local or remote before execution [16].

Virtuoso Universal Server’s feature set provides enough flexibility to design, develop, and deploy applications that take advantage of Linked Data Server architecture. It is able to function as a Linked Data Server, allowing data access to be abstracted from a traditional REST scenario into an abstract collection of data resources identified by a URI [16]. According to OpenLink Software, this new method of data access “delivers a new and significantly improved mechanism for conceptual model oriented data access middleware without the operating system and runtime specificity of alternatives”. The software supports the creation of Entity-Attribute-Value model views, in addition to HTTP-based Data Object Identifiers for data contained within content management systems, hypermedia sources, and finally, data accessed through SOAP-based web services [16].

In addition, Virtuoso comes with a web-based application called Virtuoso Conductor that provides an interface for the database management functionality typically performed by a DBA. This handles the administration of both internal databases and those accessed through the platform’s connection layer. Role security is also managed from this interface [16].

5.1.2 OntoWiki

OntoWiki is a free, open-source semantic wiki application, meant to serve as an ontology editor and a knowledge acquisition system [17]. It is a web-based application written in PHP and using either a MySQL database or a Virtuoso triple store. OntoWiki is form-based rather than syntax-based, and thus tries to hide as much of the complexity of knowledge representation formalisms from users as possible. OntoWiki is mainly being developed by the Agile Knowledge Engineering and Semantic Web (AKSW) research group [18] at the University of Leipzig in collaboration with volunteers around the world and has a large and active user base.

OntoWiki can be installed at any Web space and accessed by an ordinary Web browser. It facilitates the visual presentation of a knowledge base as an information map, with different views on instance

data. It enables intuitive authoring of semantic content, with an inline-editing mode for editing semantic content, similar to WYSIWIG for text documents [19].

As it is stated in [20], OntoWiki started as an RDF-based data wiki with emphasis on collaboration but has meanwhile evolved into a comprehensive framework for developing Semantic Web applications. This involved not only the development of a sophisticated extension interface allowing for a wide range of customizations but also the addition of several access and consumption interfaces allowing OntoWiki installations to play both a provider and a consumer role in the emerging Web of Data. OntoWiki is inspired by classical Wiki systems, its design, however, is independent and complementary to conventional Wiki technologies. In contrast to other semantic Wiki approaches, in OntoWiki text editing and knowledge engineering (i.e. working with structured knowledge bases) are not mixed. Instead, OntoWiki directly applies the Wiki paradigm of “making it easy to correct mistakes, rather than making it hard to make them” to collaborative management of structured knowledge. This paradigm is achieved by interpreting knowledge bases as information maps where every node is represented visually and interlinked to related resources. Furthermore, it is possible to enhance the knowledge schema gradually as well as the related instance data agreeing on it. As a result, the following features characterize OntoWiki [20]:

- Intuitive display and editing of instance data is provided in generic ways, yet enabling domain- specific presentation of knowledge.
- Semantic views allow the generation of different views and aggregations of the knowledge base.
- Versioning and evolution provides the opportunity to track, review and roll-back changes selectively.
- Semantic search facilitates easy-to-use full-text searches on all literal data, search results can be filtered and sorted (using semantic relations).
- Community support enables discussions about small information chunks. Users are encouraged to vote about distinct facts or prospective changes.
- Online statistics interactively measure the popularity of content and activity of users.
- Semantic syndication supports the distribution of in- formation and their integration into desktop applications [20].

OntoWiki is based solely on the RDF data model and consequently focuses on structured information instead of textual content with some added semantics. It enables the easy creation of highly structured content by distributed communities and can be used out-of-the-box as a generic tool for publication, exploration, authoring and maintenance of arbitrary RDF knowledge bases. For this purpose it provides generic methods and views, which do not require any tailoring to the domain concerned. We refer to it as a Wiki, because it adheres to the Wiki principles [20]:

1. Although access control is supported, by default everyone can contribute changes and participate in the development/evolution of a knowledge base.
2. Since RDF allows schema information and in- stance data to be mixed, content and structure of a knowledge base can be edited in tight relation.

3. All activities are tracked, such that it becomes easy to correct mistakes.
4. Changes can be discussed online on resource level [20].

The resource view and the list view are the two generic views that are included in the OntoWiki core. The resource view is generally used for displaying a description with all known information about a resource. The list view represents a set of resources, for example, instances of a certain concept. These two views are sufficient for browsing and editing all information contained in a knowledge base in a generic way [20].

5.1.3 Setup and Typical Workflow

Figure 4 depicts the schematic view of the Climate Policy database setup with OntoWiki as a generic tool for viewing and editing the resources of the database and with OpenLink Virtuoso as the backend storage database.



Figure 4: Setup

To add, update and delete information in OntoWiki pages, a special component of OntoWiki called RDFauthor [21] is used. RDF-Author receives RDFa [22] encoded information from the page's HTML content to create a form and a set of widgets representing this information. RDFa is the W3C Recommendation, which allows combining human and machine-readable representations within a single HTML document. The Climate Policy database makes use of RDFa-annotations in web views in order to make RDF model data available to the user. RDFauthor is based on extracting RDF triples from RDFa-annotated Web pages and transforming the RDFa-annotated HTML view into an editable form by using a set of authoring widgets. The RDFauthor completely hides syntax as well as RDF and ontology data model difficulties from end users and allows editing information on arbitrary RDFa-annotated web pages. Once the editing of all RDFa-annotated information on an OntoWiki page is completed, the changes are propagated to the Virtuoso triple store by means of the SPARQL/Update language [22].

5.2 User Interface and Functionalities of the Climate Policy Database

We plan to link the database to the POLIMP project website using the "Resources" section. According to the user group of the Database that will be confirmed later in the project, either the direct link will be provided, or users will be redirected to the Ontowiki page, after successfully logging in via a separate page. In the following paragraphs we present the main building blocks of the database as well as its functionalities.

5.2.1 Main building blocks

Figure 5 depicts the Climate Policy Database user interface. We have separated the user interface in building blocks to facilitate their description. As shown in the figure, there are five main building blocks:

- **The knowledge bases** – The knowledge bases provides a list of the available knowledge bases. For the needs of the Climate Policy Database we have created one knowledge base named "POLIMP". However, more knowledge bases can be created if needed.
- **The navigation component** - The navigation component is a powerful OntoWiki extension that is able to extract the structure of knowledge bases and facilitate the navigability of datasets. The navigation box renders a class hierarchy by default. An arrow next to a class name indicates that the class has at least one subclass. Following this link will result in an updated list showing only those subclasses. When a class is selected from the list, all instances of this class will be presented to the user in the main window. Through the menu that is available in the navigation box the user can add new classes in the hierarchy, apply sorting on a specific feature and choose the number of classes displayed.
- **The main window** – In this area the resource list of chosen class is presented. Moreover, the main window serves as a form editing area when the user selects to edit a particular resource. In the main window the History, Community and Source are also displayed when the user selects the corresponding tabs.
- **The resource search field** – The resource search field enables the user to perform searches on the resources based on keywords.
- **Additional modules area** – In this area additional helpful modules are displayed. For example, when a list of resources are shown in the main window, the Show Properties module is displayed in this area, allowing the user to choose the specific properties of the resources he/she prefers to be visible. The Show Properties module and others are presented in the following sections of the document.

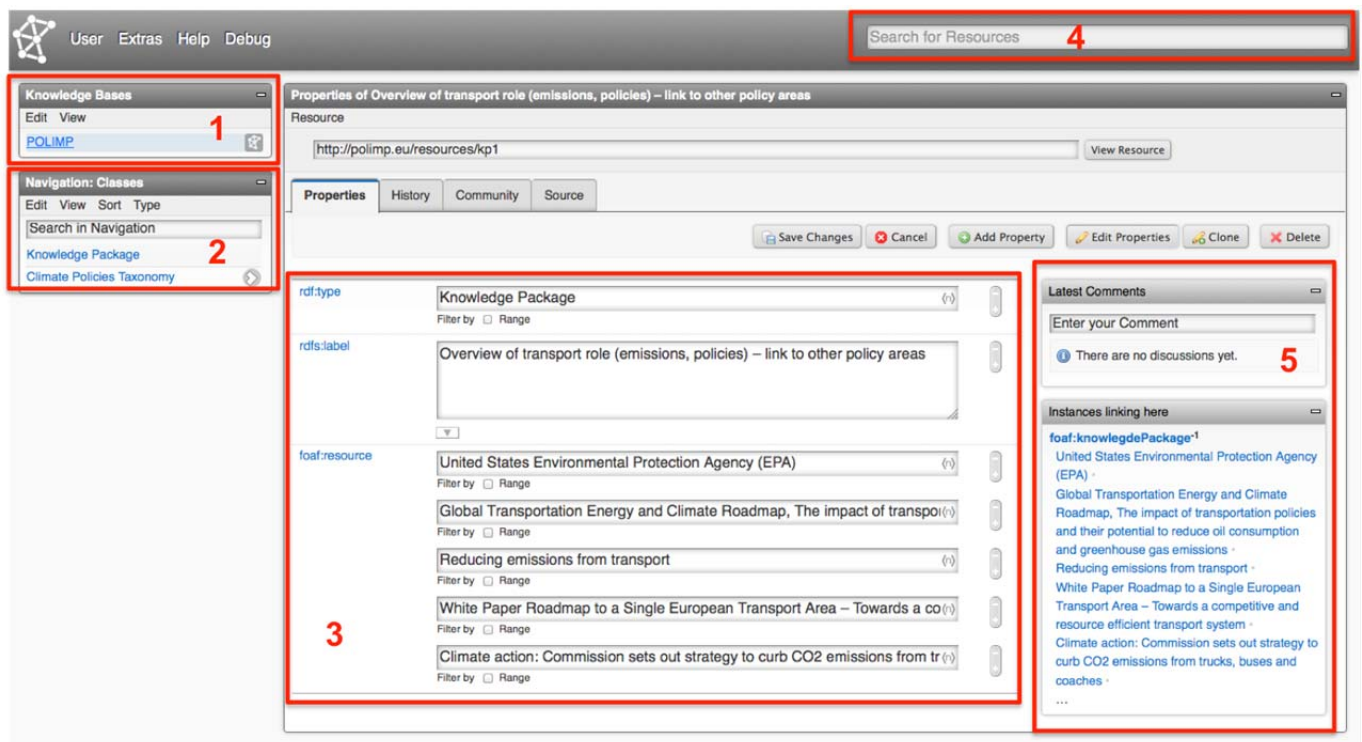


Figure 5: Screenshot of the Climate Policy Database user interface. There are five main building blocks: 1) The knowledge bases; 2) The navigation component; 3) The main window; 4) The resource search field and 5) The additional modules area.

5.2.2 Typical workflow

The typical workflow of the use of the Climate Policy database is depicted in Figure 6. When a user visits the homepage of the Climate Policy database he/she is presented with the list of the existing knowledge bases. As we already mentioned for the resources belonging to the Climate Policy database, we have created a single knowledge base named POLIMP. After selecting the POLIMP knowledge base (action 1 in Figure 6) he/she is then presented with a hierarchy (obtained from `rdfs:subClassOf` statements) of classes, which are themselves instances of `owl:Class` or `rdfs:Class`. By selecting one of these classes in the navigation component (action 2 in Figure 6), the user receives a list of resources that are instances of this class. In Figure 6 the class Climate Policies Taxonomy has been selected, which is the first level class that contains all the resources of the Climate Policy database. The selection yields a list of the resources being either a direct instance of the Climate Policies Taxonomy or one of its subclasses. Once a list of resources is retrieved it can be extended by selecting additional properties (action 3 in in Figure 6). The user has the option to refine the list of resources through restrictions' selection (action 4 in in Figure 6). The user interface elements for expanding and restricting the current view adapt both automatically according to the resources currently contained in the list (i.e. the properties offered to expand the tabular view and the facets are dynamically recomputed). In Figure 6 the list of instances of the class Climate Policies Taxonomy was further filtered, such that it only contains those resources, which belong to the Transport sub-class.

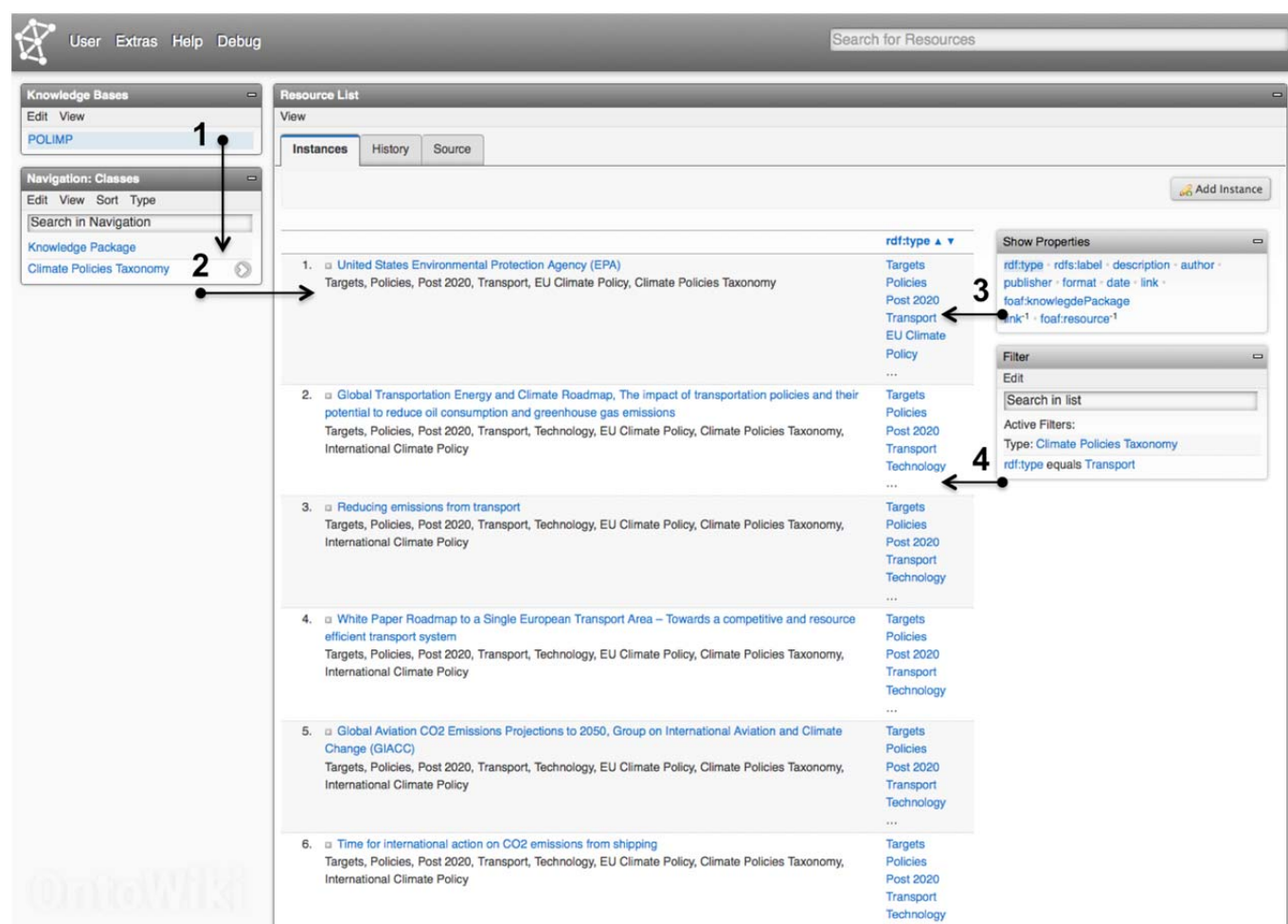


Figure 6: Typical workflow: 1) Selection of a knowledge base; 2) Selection of a class; 3) Selection of additional properties to be shown as columns in the list; 4) Further restriction of the resources in the list.

After selecting an instance from the list the user is directed to the generic resource view, which is depicted in Figure 7. Here it is possible to view all information available for the selected resource as well as to manage it (i.e. insert, edit, clone and delete the selected resource).

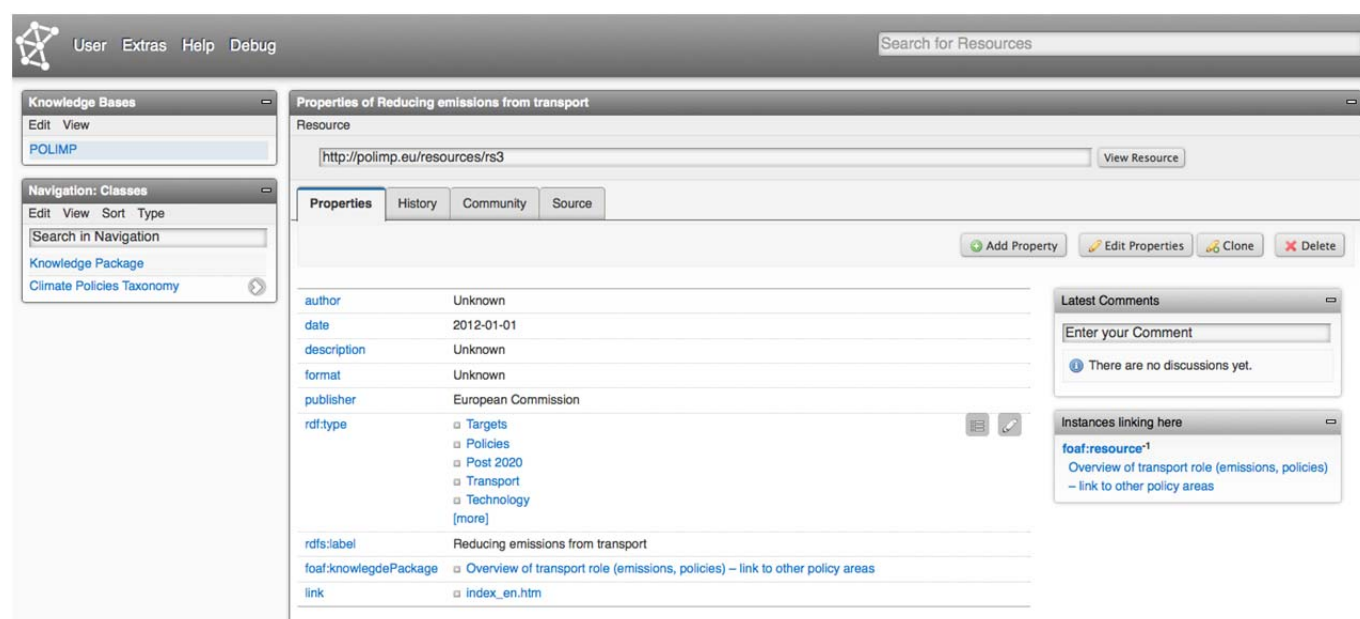


Figure 7: Generic resource view

5.2.3 Extending the Climate Policy database - Creating a new class and instances

By selecting *Edit* and then *Add Resource here* in the navigation component the user can create a new class in the Climate Policy ontology. A form as the one shown in Figure 8 pops up, that allows the user to define a new instance of the type class. A label for the new class has to be defined and optionally its properties (comment, classTemplate, subClassOf). The addition of further properties for the new class is allowed. By creating new classes we can extend the Climate Policy ontology and add new tags in the pre-defined hierarchy according to our needs.

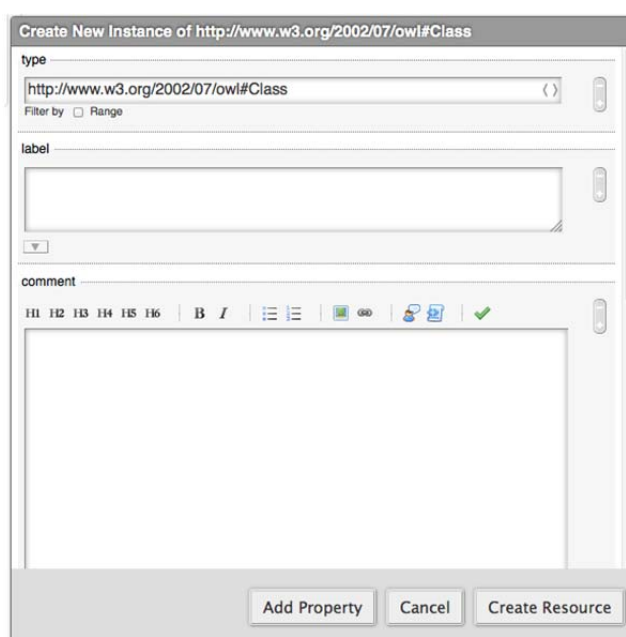


Figure 8: Creation of a new class

In addition, new instances of the available classes can be created. This enables the user to add new instances of the Climate Policies Taxonomy and Knowledge Package classes, enriching the Climate Policy Database. Pressing the Add Instance button, which is on the right side of the user interface, can create a new instance. Depending on which class is selected in the Navigation component, a list of existing templates for the new instance's creation is presented to the user (see Figure 9).

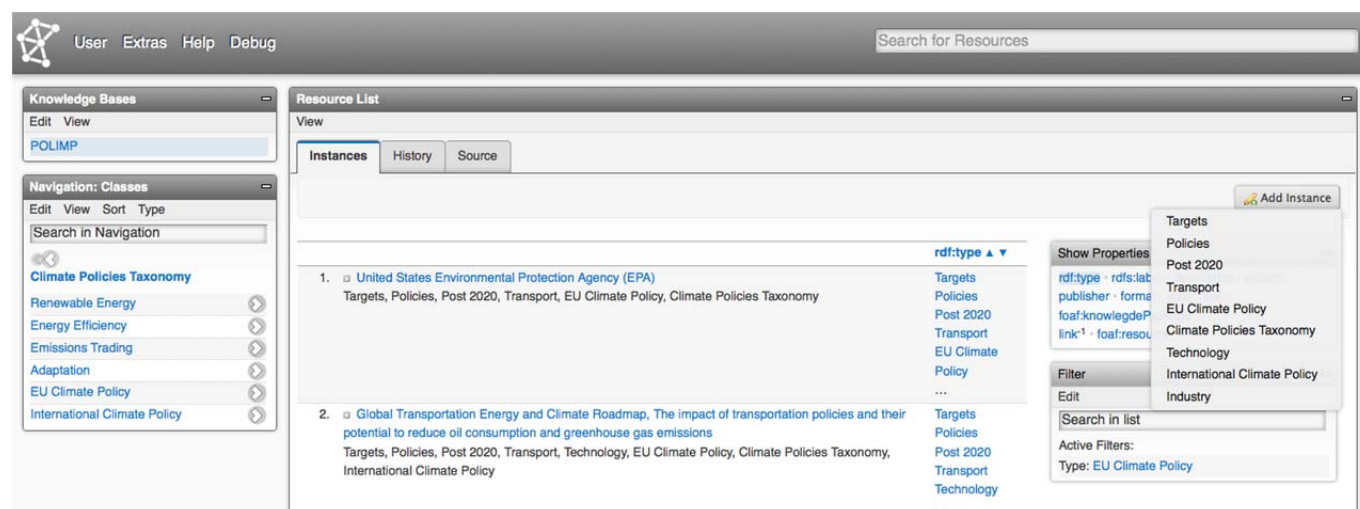
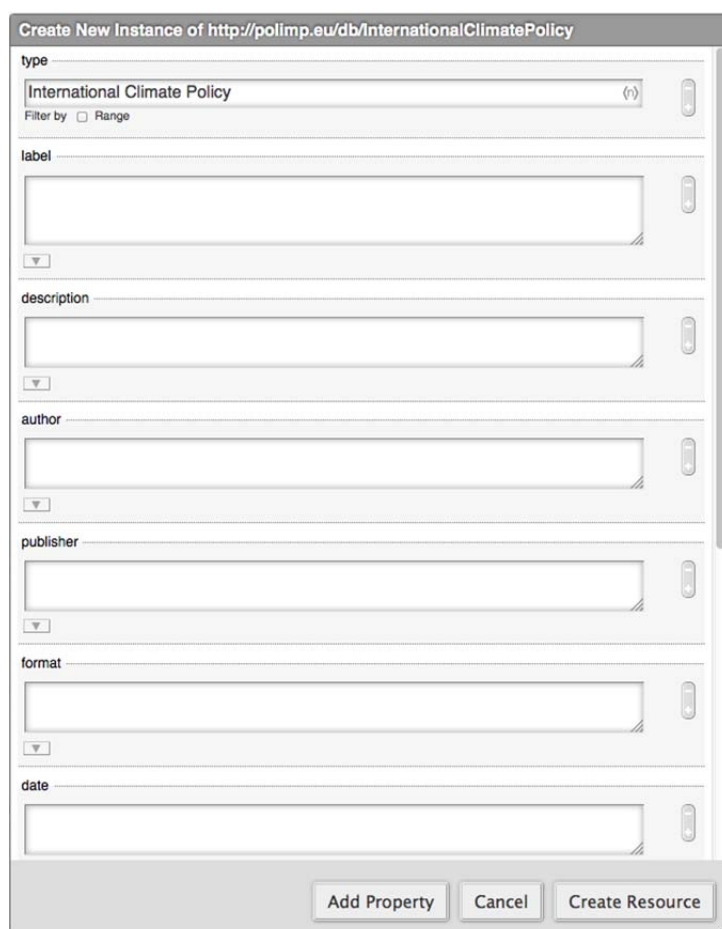


Figure 9: By pressing the Add Instance button, a list of the existing templates for new instance creation is shown.

Figure 10 depicts the form that appears to the user when creating a new instance of the class International Climate Policy. An existing resource of the International Climate Policy class is used as template. As shown, all properties found on the template resource are available on the new instance (label, description, author, publisher, format, etc.). Of course, further properties can be defined in the new instance if required by using the *Add Property* button.



Create New Instance of <http://polimp.eu/db/InternationalClimatePolicy>

type
International Climate Policy (v)

Filter by ☐ Range

label
(v)

description
(v)

author
(v)

publisher
(v)

format
(v)

date
(v)

Add Property Cancel Create Resource

Figure 10: Creating a new instance of the class International Climate Policy

5.2.4 Browsing the Climate Policy database - Viewing the instance list of a class

By selecting one of the available classes in the navigation component, the user receives a list of resources that are instances of the selected class in the main window area. An example is shown in Figure 11, where the Climate Policies Taxonomy class is selected in the navigation box. This action lists all the resources under the Climate Policies Taxonomy tag, which are in fact all the resources stored in the Climate Policy database.

The screenshot displays the OntoWiki web application. At the top, there is a navigation bar with 'User', 'Extras', 'Help', and 'Debug' links, and a search bar labeled 'Search for Resources'. On the left side, there is a sidebar with 'Knowledge Bases' (showing 'POLIMP') and 'Navigation: Classes' (showing 'Climate Policies Taxonomy'). The main area is titled 'Resource List' and has tabs for 'View', 'Instances', 'History', and 'Source'. The 'Instances' tab is active, showing a list of five resources. Each resource has a title and a list of associated properties (Targets, Policies, Post 2020, Transport, EU Climate Policy, Climate Policies Taxonomy, International Climate Policy). On the right side, there is a 'Show Properties' panel with a list of properties (rdf:type, rdfs:label, description, author, publisher, format, date, link, foaf:knowledgePackage, link¹, foaf:resource¹) and a 'Filter' panel with a search bar and active filters (Type: Climate Policies Taxonomy).

Instance	Properties
1. United States Environmental Protection Agency (EPA) Targets, Policies, Post 2020, Transport, EU Climate Policy, Climate Policies Taxonomy	Targets Policies Post 2020 Transport EU Climate Policy ...
2. Global Transportation Energy and Climate Roadmap, The impact of transportation policies and their potential to reduce oil consumption and greenhouse gas emissions Targets, Policies, Post 2020, Transport, Technology, EU Climate Policy, Climate Policies Taxonomy, International Climate Policy	Targets Policies Post 2020 Transport Technology ...
3. Reducing emissions from transport Targets, Policies, Post 2020, Transport, Technology, EU Climate Policy, Climate Policies Taxonomy, International Climate Policy	Targets Policies Post 2020 Transport Technology ...
4. White Paper Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system Targets, Policies, Post 2020, Transport, Technology, EU Climate Policy, Climate Policies Taxonomy, International Climate Policy	Targets Policies Post 2020 Transport Technology ...
5. Global Aviation CO2 Emissions Projections to 2050, Group on International Aviation and Climate Change (GIACC) Targets, Policies, Post 2020, Transport, Technology, EU Climate Policy, Climate Policies Taxonomy, International Climate Policy	Targets Policies Post 2020 Transport Technology ...

Figure 11: Viewing the Instance List of the Class Climate Policies Taxonomy

5.2.5 Browsing the Climate Policy database - Viewing a single instance

The selection of a resource redirects the user to a generic resource details view in which the representation of the selected RDF triples appears as resource attribute value notation in the user interface. Figure 12 presents an example of a single instance view for a resource in the Climate Policy database. A list of the properties of the instance and their values are shown (e.g. author, date, description, format, publisher, etc) in the main window area and the user has the ability to add new properties, edit the existing ones, clone or delete the selected instance.

Properties of UNFCCC Resource Guide for Preparing the National Communications of Non- Annex 1 Parties, Module 3: National Greenhouse Gas Inventories

Resource

<http://polimp.eu/resources/rs10> [View Resource](#)

Properties History Community Source

[+ Add Property](#) [Edit Properties](#) [Clone](#) [Delete](#)

author	Unknown
date	2009-01-01
description	Unknown
format	Unknown
publisher	United Nations Framework Convention on Climate Change
rdf:type	<ul style="list-style-type: none"> Targets Policies Post 2020 Industry EU Climate Policy [more]
rdfs:label	UNFCCC Resource Guide for Preparing the National Communications of Non- Annex 1 Parties, Module 3: National Greenhouse Gas Inventories
foaf:knowledgePackage	<ul style="list-style-type: none"> Intro to industry emissions, treatment in EU climate policy (Share of GDP)
link	<ul style="list-style-type: none"> UNFCCC Resource Guide for Preparing the National Communications of Non- Annex 1 Parties, Module 3: National Greenhouse Gas Inventories

Latest Comments

Enter your Comment

There are no discussions yet.

Instances linking here

[link¹](#)
UNFCCC Resource Guide for Preparing the National Communications of Non- Annex 1 Parties, Module 3: National Greenhouse Gas Inventories

[foaf:resource¹](#)
Intro to industry emissions, treatment in EU climate policy (Share of GDP)

Figure 12: Single Instance View

5.2.6 Making changes to the Climate Policy database - Modifying an instance or a class

By choosing the *Edit Properties* button in the single instance view, an editable form with the instance's properties appears in the main window (Figure 13). The user can edit the properties of the instance and also add new properties by selecting the *Add Property* button.

Properties of UNFCCC Resource Guide for Preparing the National Communications of Non-Annex 1 Parties, Module 3: National Greenhouse Gas Inventories

Resource

<http://polimp.eu/resources/rs10> [View Resource](#)

Properties History Community Source

[Save Changes](#) [Cancel](#) [Add Property](#) [Edit Properties](#) [Clone](#) [Delete](#)

author Unknown

date 2009-01-01

description Unknown

format Unknown

publisher United Nations Framework Convention on Climate Change

rdf:type

- Targets [Filter by](#) ☐ Range
- Policies [Filter by](#) ☐ Range
- Post 2020 [Filter by](#) ☐ Range
- Industry [Filter by](#) ☐ Range
- EU Climate Policy [Filter by](#) ☐ Range

Latest Comments

Enter your Comment

There are no discussions yet.

Instances linking here

[link⁻¹](#)
UNFCCC Resource Guide for Preparing the National Communications of Non-Annex 1 Parties, Module 3: National Greenhouse Gas Inventories

[foaf:resource⁻¹](#)
Intro to industry emissions, treatment in EU climate policy (Share of GDP)

Figure 13: Modifying an Instance

In a similar way as modifying instances of the Climate Policy database, the user is able to modify the existing classes of the Climate Policy ontology or in other words make changes to the pre-defined set of hierarchical tags. When the user hovers the mouse over a class in the navigation component, a button with the Ontowiki logo appears. Choosing this button makes a box with the available options to appear. By selecting the *Edit Resource* option an editable form pops up as the one depicted in Figure 14. From this form the user can modify the selected class.

The screenshot shows a web-based interface for editing a resource. The title bar reads "Edit Resource http://polimp.eu/db/RenewableEnergy". The form has three main sections: "type", "label", and "comment". The "type" section contains a text input field with the URI "http://www.w3.org/2002/07/owl#Class" and a "Filter by" checkbox with the label "Range". The "label" section contains a text input field with the text "Renewable Energy". The "comment" section contains a rich text editor with the text "Renewable Energy" and a toolbar with various icons. At the bottom of the form are three buttons: "Add Property", "Cancel", and "Save Changes".

Figure 14: Modifying a Class

5.2.7 Querying the Climate Policy database – Applying filters on the resources

Viewing the instance list of a class by selecting the class in the navigation component provides a way on querying the Climate Policy database based on the set of the pre-defined tags. In addition, the resource search field described earlier gives us a second option for querying the database. OntoWiki provides us with a third option for querying the database based on applying filters on an existing resource's list view through the Filter module. The Filter module is placed in the additional modules area when a resource list view is active in the main window. By choosing the *Edit* and then *Add* options in the Filter module a pop-up form appears as the one shown in Figure 15. The form enables the user to apply filters on the resource list of the main window. Filters perform an equality restriction to a certain value of a resource's property. OntoWiki also supports other filter types including bound/unbound property of attributes, ranges of values on a facet as well as literal expressions.

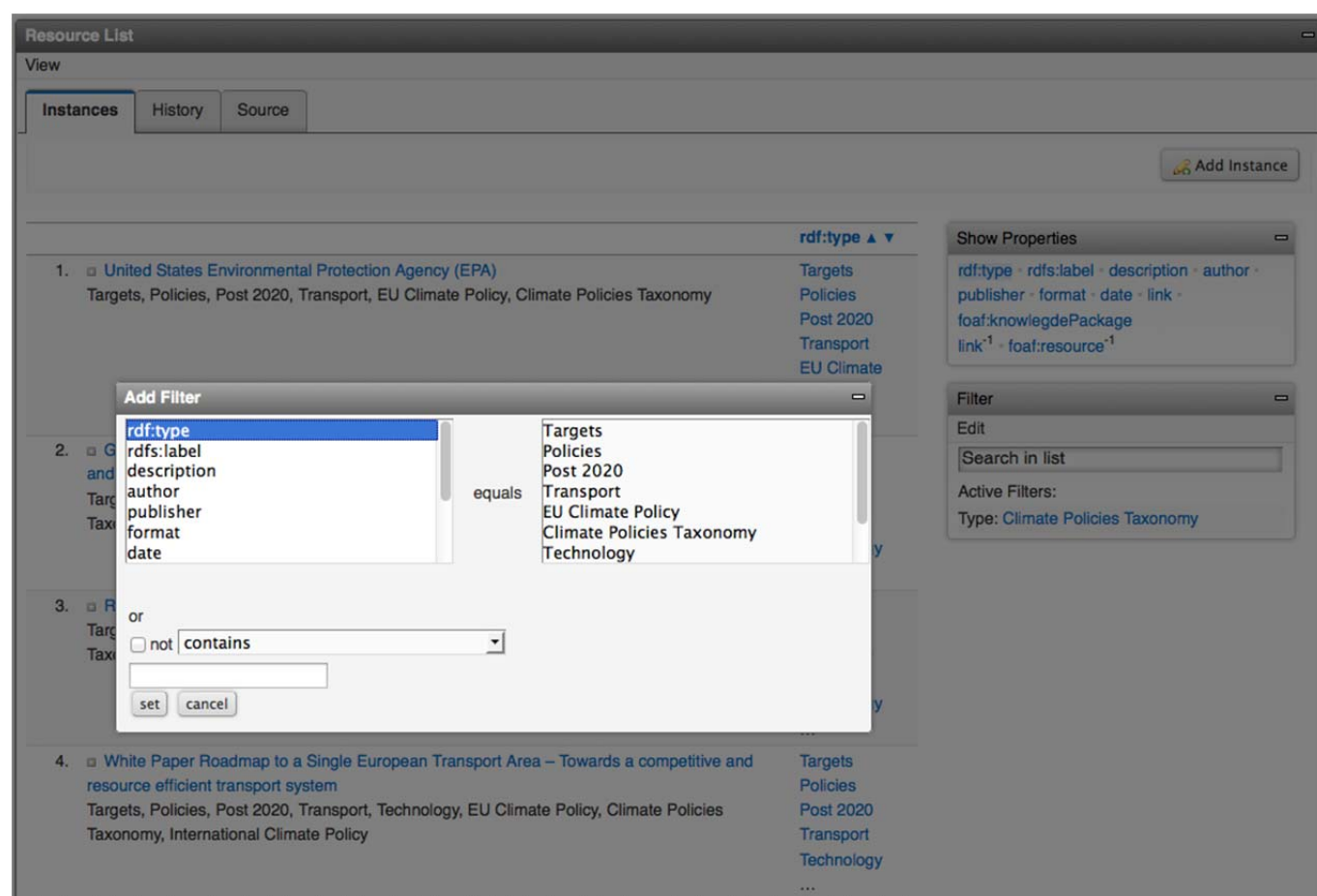


Figure 15: Applying a Filter on the Resource List

5.2.8 Community Features

The users of the database may comment the resources available. This enables community driven discussions, for example about the validity of certain statements or the proposal of certain changes. The discussions can be performed within the Community tab of the main window area. An example is shown in Figure 16.

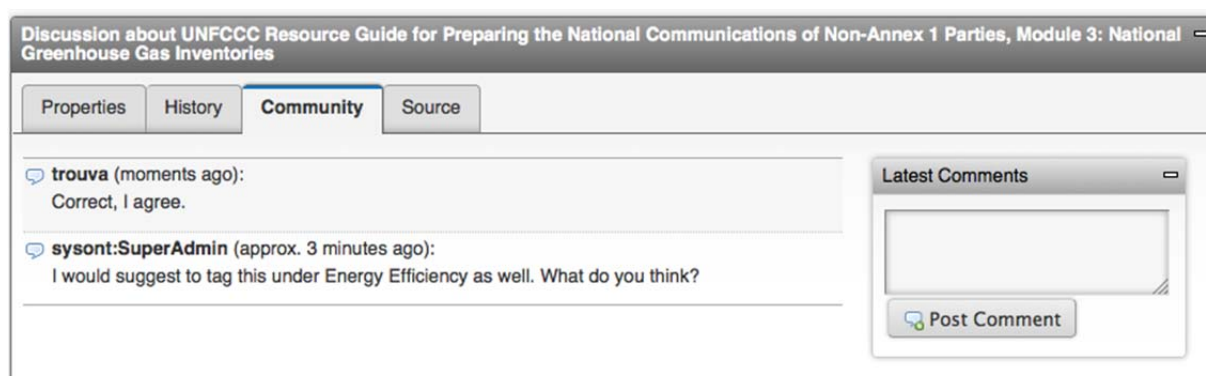


Figure 16: Commenting the Available Resources through the Community Tab

5.2.9 Change Tracking and Versioning

All changes applied to a knowledge base are tracked. OntoWiki enables the review of changes, such as adding new instances and classes, deleting instances and classes, modification of a specific instance, changes on instances of a class, or changes made by a distinct user. The tracked changes are shown in the History tab of the main window area. An example is depicted in Figure 17, where the changes made on a specific resource are shown. Each change committed to the database is associated with an ID. The user that performed the change, the timestamp of the change and the action type are also tracked. The user has the ability to rollback to a previous state of the resource by selecting the change and pressing the *Rollback changes* button.



Versions for UNFCCC Resource Guide for Preparing the National Communications of Non-Annex 1 Parties, Module 3: National Greenhouse Gas Inventories				
Properties History Community Source				
Rollback changes				
select	ID	user	timestamp	Action type
<input type="radio"/>	8162	SuperAdmin	moments ago (2014-10-20T05:22:21)	Statement deleted
<input type="radio"/>	8163	SuperAdmin	moments ago (2014-10-20T05:22:21)	Statement added

Figure 17: The History Tab Shows the Tracked Changes Made on a Resource and Allows to Rollback to a Previous State

5.3 Maintenance

The Climate Policy Database, as of the end of 2015, includes 345 resources and 25 knowledge packages. It will continue to be updated by adding new knowledge packages and resources, as they are created until the end of the project and also after its completion. However, the fact that the Database is structured in a wiki environment makes it vulnerable against malicious attacks, as any visitor cannot only view, but also edit and therefore, potentially, completely alter the content at any time. Even so, an open environment was the original intention, since it would also allow the implementation of a collaborative approach for the Database's use that would encourage communication. To this end, it was not considered appropriate to venture the introduction of a log in page to direct to Ontowiki, or control the users in any other way.

A simple strategy will be followed for the maintenance and insurance of the correct operation of the Climate Policy Database in the future. Every time the Database is expanded by adding or changing instances, the work will be backed-up by isolating and storing the new source code. When finishing an adding session, these 3 steps will be followed:

1. Go to the Knowledge Base home page and select "view all resources".

2. Select the **Knowledge Package Taxonomy** and write down the number of results returned. Then select the "Source" button and copy the whole code to an **.rtf** file.
3. **Repeat step 2** for the **Climate Policies Taxonomy** as well.

The code can now be stored and pasted in the same area any time the content is changed by an external source, in order to return the Ontology to its original state.

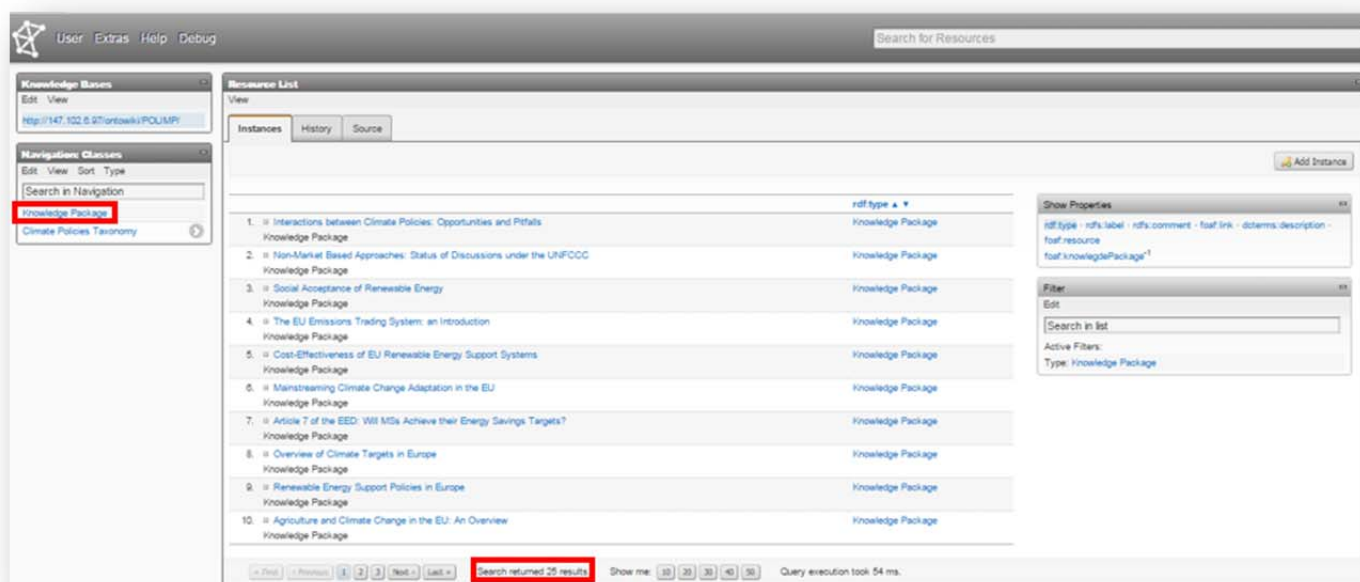


Figure 18a: Backing- up the Database

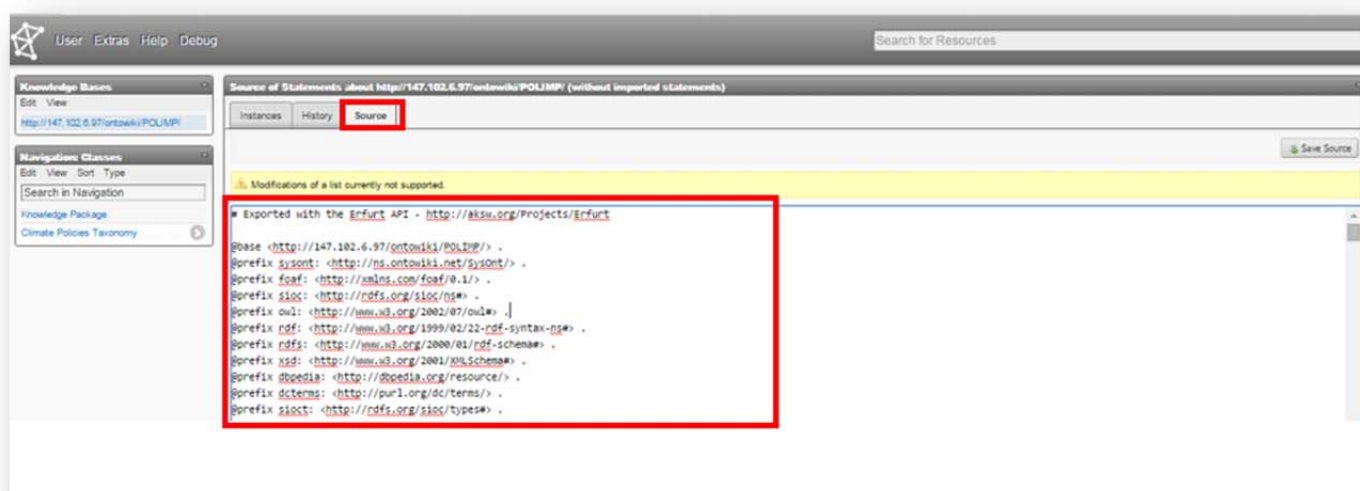


Figure 19b: Backing- up the Database

The current source code of the Knowledge Package Taxonomy, as of the end of 2015, is available in Annex II.

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Annex I

Source code of the climate policies ontology:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE rdf:RDF [
  <!ENTITY sysont "http://ns.ontowiki.net/SysOnt/">
  <!ENTITY polimp "http://polimp.eu/schema/">
  <!ENTITY foaf "http://xmlns.com/foaf/0.1/">
  <!ENTITY dcterms "http://purl.org/dc/terms/">
  <!ENTITY owl "http://www.w3.org/2002/07/owl#">
  <!ENTITY xsd "http://www.w3.org/2001/XMLSchema#">
  <!ENTITY dbpedia "http://dbpedia.org/resource/">
  <!ENTITY rdf "http://www.w3.org/1999/02/22-rdf-syntax-ns#">
  <!ENTITY resources "http://polimp.eu/schema/Resources/">
  <!ENTITY knowlegdepackages "http://polimp.eu/schema/KnowledgePackages/">
  <!ENTITY void "http://rdfs.org/ns/void#">
  <!ENTITY site "http://ns.ontowiki.net/SysOnt/Site/">
  <!ENTITY rdfs "http://www.w3.org/2000/01/rdf-schema#">
]>

<rdf:RDF xml:base="http://polimp.eu/db/"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xmlns:owl="http://www.w3.org/2002/07/owl#"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:polimp="&polimp;"
  xmlns:dbpedia="&dbpedia;"
  xmlns:foaf="&foaf;"
  xmlns:xsd="&xsd;"
```

```
xmlns:dcterms="&dcterms;"
xmlns:void="&void;"
xmlns:resources="&resources;"
xmlns:knowlegdepackages="&knowlegdepackages;"
xmlns:sysont="&sysont;"
xmlns:site="&sysont;Site/">

<!-- Ontology specific informations -->
<void:Dataset rdf:about="http://www.polimp.eu/db/"
  dcterms:title="POLIMP climate policy database resources"
  rdfs:label="">

  <dcterms:contributor rdf:resource="POLIMP EU Project" />

  <dcterms:description>This dataset contains resources of the climate policy
database of the POLIMP EU project.</dcterms:description>

  <dcterms:license rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/" />

  <dcterms:subject rdf:resource="&dbpedia;Semantic_Web" />

  <void:sparqlEndpoint rdf:resource="sparql" />

  <void:vocabulary rdf:resource="&dcterms;" />

  <void:vocabulary rdf:resource="&foaf;" />

  <rdf:type rdf:resource="&owl;Ontology" />

  <foaf:homepage rdf:resource="http://polimp.eu" />
</void:Dataset>

<owl:Class rdf:about="&void;Dataset" rdfs:label="Dataset">
  <sysont:hidden rdf:datatype="&xsd;integer">1</sysont:hidden>
</owl:Class>

<!-- OWL Class Definition - Knowledge Package -->
<owl:Class rdf:about="KnowledgePackage">
```



```
<site:classTemplate>knowledgepackage</site:classTemplate>

  <rdfs:label>Knowledge Package</rdfs:label>

  <rdfs:comment>Knowledge Package

</rdfs:comment>

</owl:Class>

<!-- OWL Class Definition - Climate Policies Taxonomy -->

<owl:Class rdf:about="ClimatePoliciesTaxonomy">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:label>Climate Policies Taxonomy</rdfs:label>

  <rdfs:comment>Climate Policies Taxonomy

</rdfs:comment>

</owl:Class>

<!-- OWL Class Definition - EU Climate Policy -->

<owl:Class rdf:about="EUClimatePolicy">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="ClimatePoliciesTaxonomy" />

  <rdfs:label>EU Climate Policy</rdfs:label>

  <rdfs:comment>EU Climate Policy

</rdfs:comment>

</owl:Class>

<!-- OWL Class Definition - International Climate Policy -->

<owl:Class rdf:about="InternationalClimatePolicy">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="ClimatePoliciesTaxonomy" />

  <rdfs:label>International Climate Policy</rdfs:label>

  <rdfs:comment>International Climate Policy
```

```
        </rdfs:comment>

    </owl:Class>

<!-- OWL Class Definition - Renewable Energy -->

    <owl:Class rdf:about="RenewableEnergy">

        <site:classTemplate>resource</site:classTemplate>

        <rdfs:subClassOf rdf:resource="ClimatePoliciesTaxonomy" />

        <rdfs:label>Renewable Energy</rdfs:label>

        <rdfs:comment>Renewable Energy

        </rdfs:comment>

    </owl:Class>

<!-- OWL Class Definition - Energy Efficiency -->

    <owl:Class rdf:about="EnergyEfficiency">

        <site:classTemplate>resource</site:classTemplate>

        <rdfs:subClassOf rdf:resource="ClimatePoliciesTaxonomy" />

        <rdfs:label>Energy Efficiency</rdfs:label>

        <rdfs:comment>Energy Efficiency

        </rdfs:comment>

    </owl:Class>

<!-- OWL Class Definition - Emissions Trading -->

    <owl:Class rdf:about="EmissionsTrading">

        <site:classTemplate>resource</site:classTemplate>

        <rdfs:subClassOf rdf:resource="ClimatePoliciesTaxonomy" />

        <rdfs:label>Emissions Trading</rdfs:label>

        <rdfs:comment>Emissions Trading

        </rdfs:comment>

    </owl:Class>

<!-- OWL Class Definition - Adaptation -->
```

```
<owl:Class rdf:about="Adaptation">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="ClimatePoliciesTaxonomy" />

  <rdfs:label>Adaptation</rdfs:label>

  <rdfs:comment>Adaptation

  </rdfs:comment>

</owl:Class>


<!-- OWL Subclass Definition - Background -->

<owl:Class rdf:about="EUClimatePolicyBackground">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EUClimatePolicy" />

  <rdfs:label>Background</rdfs:label>

  <rdfs:comment>Background

  </rdfs:comment>

</owl:Class>


<!-- OWL Subclass Definition - Targets -->

<owl:Class rdf:about="EUClimatePolicyTargets">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EUClimatePolicy" />

  <rdfs:label>Targets</rdfs:label>

  <rdfs:comment>Targets

  </rdfs:comment>

</owl:Class>


<!-- OWL Subclass Definition - Policies -->

<owl:Class rdf:about="EUClimatePolicyPolicies">

  <site:classTemplate>resource</site:classTemplate>
```

```
<rdfs:subClassOf rdf:resource="EUClimatePolicy" />

<rdfs:label>Policies</rdfs:label>

<rdfs:comment>Policies

</rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Post 2020 -->

<owl:Class rdf:about="EUClimatePolicyPost2020">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EUClimatePolicy" />

  <rdfs:label>Post 2020</rdfs:label>

  <rdfs:comment>Post 2020

  </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Industry -->

<owl:Class rdf:about="EUClimatePolicyIndustry">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EUClimatePolicy" />

  <rdfs:label>Industry</rdfs:label>

  <rdfs:comment>Industry

  </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Transport -->

<owl:Class rdf:about="EUClimatePolicyTransport">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EUClimatePolicy" />

  <rdfs:label>Transport</rdfs:label>
```

```
        <rdfs:comment>Transport
    </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Households -->
<owl:Class rdf:about="EUClimatePolicyHouseholds">
    <site:classTemplate>resource</site:classTemplate>
    <rdfs:subClassOf rdf:resource="EUClimatePolicy" />
    <rdfs:label>Households</rdfs:label>
    <rdfs:comment>Households
    </rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Agriculture -->
<owl:Class rdf:about="EUClimatePolicyAgriculture">
    <site:classTemplate>resource</site:classTemplate>
    <rdfs:subClassOf rdf:resource="EUClimatePolicy" />
    <rdfs:label>Agriculture</rdfs:label>
    <rdfs:comment>Agriculture
    </rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Costs and Benefits -->
<owl:Class rdf:about="EUClimatePolicyCostsAndBenefits">
    <site:classTemplate>resource</site:classTemplate>
    <rdfs:subClassOf rdf:resource="EUClimatePolicy" />
    <rdfs:label>Costs and Benefits</rdfs:label>
    <rdfs:comment>Costs and Benefits
    </rdfs:comment>
</owl:Class>
```

```
<!-- OWL Subclass Definition - Increasing Farm Efficiency -->
<owl:Class rdf:about="EUClimatePolicyIncreasingFarmEfficiency">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="EUClimatePolicy" />
  <rdfs:label>Increasing Farm Efficiency</rdfs:label>
  <rdfs:comment>Increasing Farm Efficiency
  </rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Background -->
<owl:Class rdf:about="InternationalClimatePolicyBackground">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />
  <rdfs:label>Background</rdfs:label>
  <rdfs:comment>Background
  </rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Scenarios -->
<owl:Class rdf:about="InternationalClimatePolicyScenarios">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />
  <rdfs:label>Scenarios</rdfs:label>
  <rdfs:comment>Scenarios
  </rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Targets -->
```

```
<owl:Class rdf:about="InternationalClimatePolicyTargets">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />
  <rdfs:label>Targets</rdfs:label>
  <rdfs:comment>Targets
</rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Post 2020 Targets -->
<owl:Class rdf:about="InternationalClimatePolicyPost2020Targets">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />
  <rdfs:label>Post 2020 Targets</rdfs:label>
  <rdfs:comment>Post-2020 targets
</rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Land Use -->
<owl:Class rdf:about="InternationalClimatePolicyLandUse">
  <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />
  <rdfs:label>Land Use</rdfs:label>
  <rdfs:comment>Land-use
</rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Mechanisms -->
<owl:Class rdf:about="InternationalClimatePolicyMechanisms">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />
```

```
        <rdfs:label>Mechanisms</rdfs:label>

        <rdfs:comment>Mechanisms

        </rdfs:comment>

    </owl:Class>

<!-- OWL Subclass Definition - Technology -->

<owl:Class rdf:about="InternationalClimatePolicyTechnology">

    <site:classTemplate>resource</site:classTemplate>

    <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />

    <rdfs:label>Technology</rdfs:label>

    <rdfs:comment>Technology

    </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Finance -->

<owl:Class rdf:about="InternationalClimatePolicyFinance">

    <site:classTemplate>resource</site:classTemplate>

    <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />

    <rdfs:label>Finance</rdfs:label>

    <rdfs:comment>Finance

    </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - International ETS -->

<owl:Class rdf:about="InternationalClimatePolicyETS">

    <site:classTemplate>resource</site:classTemplate>

    <rdfs:subClassOf rdf:resource="InternationalClimatePolicy" />

    <rdfs:label>International ETS</rdfs:label>

    <rdfs:comment>International ETS
```



```
        </rdfs:comment>

    </owl:Class>

    <!-- OWL Subclass Definition - Background -->
    <owl:Class rdf:about="RenewableEnergyBackground">
        <site:classTemplate>resource</site:classTemplate>
        <rdfs:subClassOf rdf:resource="RenewableEnergy" />
        <rdfs:label>Background</rdfs:label>
        <rdfs:comment>Background
        </rdfs:comment>
    </owl:Class>

    <!-- OWL Subclass Definition - Support Systems And Incentives -->
    <owl:Class rdf:about="RenewableEnergySupportSystemsAndIncentives">
        <site:classTemplate>resource</site:classTemplate>
        <rdfs:subClassOf rdf:resource="RenewableEnergy" />
        <rdfs:label>Support Systems And Incentives</rdfs:label>
        <rdfs:comment>Support Systems And Incentives
        </rdfs:comment>
    </owl:Class>

    <!-- OWL Subclass Definition - Costs And Benefits -->
    <owl:Class rdf:about="RenewableEnergyCostsAndBenefits">
        <site:classTemplate>resource</site:classTemplate>
        <rdfs:subClassOf rdf:resource="RenewableEnergy" />
        <rdfs:label>Costs And Benefits</rdfs:label>
        <rdfs:comment>Costs And Benefits
        </rdfs:comment>
    </owl:Class>
```

```
<!-- OWL Subclass Definition - Renewable Energy -->
<owl:Class rdf:about="RenewableEnergySub">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:label>Renewable Energy</rdfs:label>
  <rdfs:subClassOf rdf:resource="RenewableEnergy"/>
  <rdfs:comment>Renewable Energy
</rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Electricity Market Design -->
<owl:Class rdf:about="RenewableEnergyElectricityMarketDesign">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="RenewableEnergy" />
  <rdfs:label>Electricity Market Design</rdfs:label>
  <rdfs:comment>Electricity Market Design
</rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Policies -->
<owl:Class rdf:about="EnergyEfficiencyPolicies">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="EnergyEfficiency" />
  <rdfs:label>Policies</rdfs:label>
  <rdfs:comment>Policies
</rdfs:comment>
</owl:Class>

<!-- OWL Subclass Definition - Background -->
```

```
<owl:Class rdf:about="EnergyEfficiencyBackground">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="EnergyEfficiency" />
  <rdfs:label>Background</rdfs:label>
  <rdfs:comment>Background
  </rdfs:comment>
</owl:Class>
```

<!-- OWL Subclass Definition - Costs and Benefits -->

```
<owl:Class rdf:about="EnergyEfficiencyCostsAndBenefits">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="EnergyEfficiency" />
  <rdfs:label>Costs and Benefits</rdfs:label>
  <rdfs:comment>Costs and Benefits
  </rdfs:comment>
</owl:Class>
```

<!-- OWL Subclass Definition - Background -->

```
<owl:Class rdf:about="EmissionsTradingBackground">
  <site:classTemplate>resource</site:classTemplate>
  <rdfs:subClassOf rdf:resource="EmissionsTrading" />
  <rdfs:label>Background</rdfs:label>
  <rdfs:comment>Background
  </rdfs:comment>
</owl:Class>
```

<!-- OWL Subclass Definition - Implementation -->

```
<owl:Class rdf:about="EmissionsTradingImplementation">
  <site:classTemplate>resource</site:classTemplate>
```

```
<rdfs:subClassOf rdf:resource="EmissionsTrading" />

<rdfs:label>Implementation</rdfs:label>

<rdfs:comment>Implementation

</rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Costs and Benefits -->

<owl:Class rdf:about="EmissionsTradingCostsAndBenefits">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EmissionsTrading" />

  <rdfs:label>Costs and Benefits</rdfs:label>

  <rdfs:comment>Costs and Benefits

  </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Reform of the EU ETS -->

<owl:Class rdf:about="EmissionsTradingReformOfTheEUETS">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="EmissionsTrading" />

  <rdfs:label>Reform of the EU ETS</rdfs:label>

  <rdfs:comment>Reform of the EU ETS

  </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Background -->

<owl:Class rdf:about="AdaptationBackground">

  <site:classTemplate>resource</site:classTemplate>

  <rdfs:subClassOf rdf:resource="Adaptation" />

  <rdfs:label>Background</rdfs:label>
```

```
        <rdfs:comment>Background
    </rdfs:comment>

</owl:Class>

<!-- OWL Subclass Definition - Mainstreaming -->
<owl:Class rdf:about="AdaptationMainstreaming">
    <site:classTemplate>resource</site:classTemplate>

    <rdfs:subClassOf rdf:resource="Adaptation" />

    <rdfs:label>Mainstreaming</rdfs:label>

    <rdfs:comment>Mainstreaming
    </rdfs:comment>

</owl:Class>

<!-- Datatype properties -->

<owl:DatatypeProperty rdf:about="&sysont;Site/classTemplate" rdfs:label="class
template">

    <rdf:type rdf:resource="&owl;FunctionalProperty" />

    <rdfs:comment>identifies the template which is used to render the HTML
representation of the resources of this class</rdfs:comment>

    <rdfs:domain rdf:resource="&owl;Class" />

    <rdfs:range rdf:resource="&xsd:string" />

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:about="&polimp;description">

    <rdfs:label>description</rdfs:label>

    <rdfs:comment>Description of the resource</rdfs:comment>

    <rdfs:domain rdf:resource="Resource" />

    <rdfs:range rdf:resource="&rdfs;Literal"/>

</owl:DatatypeProperty>
```

```
<owl:DatatypeProperty rdf:about="&polimp;author"
  rdfs:label="author">
  <rdfs:comment>Author of the resource</rdfs:comment>
  <rdfs:domain rdf:resource="Resource" />
  <rdfs:range rdf:resource="&rdfs:Literal"/>
</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:about="&polimp;publisher"
  rdfs:label="publisher">
  <rdfs:comment>Publisher of the resource</rdfs:comment>
  <rdfs:domain rdf:resource="Resource" />
  <rdfs:range rdf:resource="&rdfs:Literal"/>
</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:about="&polimp;format"
  rdfs:label="format">
  <rdfs:comment>Format of the resource</rdfs:comment>
  <rdfs:domain rdf:resource="Resource" />
  <rdfs:range rdf:resource="&rdfs:Literal"/>
</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:about="&polimp;date"
  rdfs:label="date">
  <rdfs:comment>Date of the resource</rdfs:comment>
  <rdfs:domain rdf:resource="Resource" />
  <rdfs:range rdf:resource="&xsd:dateTime"/>
</owl:DatatypeProperty>

<owl:ObjectProperty rdf:about="&polimp;knowledgePackage"
```

```
    rdfs:label="knowlegde package">

    <rdfs:comment>Knowlegde package of the resource</rdfs:comment>

    <rdfs:domain rdf:resource="Resource" />

    <rdfs:range rdf:resource="&rdfs:Literal"/>

  </owl:ObjectProperty>

  <owl:ObjectProperty      rdf:about="&foaf;link"      polimp:buttonLabel="URL"
rdfs:label="link" />
</rdf:RDF>
```

Annex II

Source Code for Knowledge Package Taxonomy:

```
@base <http://147.102.6.97/ontowiki/POLIMP/> .

@prefix sysont: <http://ns.ontowiki.net/SysOnt/> .

@prefix foaf: <http://xmlns.com/foaf/0.1/> .

@prefix sioc: <http://rdfs.org/sioc/ns#> .

@prefix owl: <http://www.w3.org/2002/07/owl#> .

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

@prefix dbpedia: <http://dbpedia.org/resource/> .

@prefix dcterms: <http://purl.org/dc/terms/> .

@prefix sioc: <http://rdfs.org/sioc/types#> .

@prefix site: <http://ns.ontowiki.net/SysOnt/Site/> .

@prefix void: <http://rdfs.org/ns/void#> .

@prefix dc: <http://purl.org/dc/elements/1.1/> .

@prefix polimp: <http://polimp.eu/schema/> .

@prefix resources: <http://polimp.eu/schema/Resources/> .

@prefix knowlegdepackages: <http://polimp.eu/schema/KnowledgePackages/> .

@prefix ns0: <http://polimp.eu/db/> .

@prefix ns1: <http://147.102.6.97/ontowiki/POLIMP/owl_Class/> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Interactions_between_Climate_P
olicies__Opportunities_and_Pitfalls> a ns1:test ;

rdfs:label "Interactions between Climate Policies: Opportunities and Pitfalls" ;
```



```
rdfs:comment ""**Knowledge Package Citation:**
```

```
Castro, Paula (2015): \"Interactions between Climate Policies: Opportunities and Pitfalls\", Climate Policy Info Hub, 18 February 2015. Online available at: http://climatepolicyinfohub.eu/interactions-between-climate-policies-opportunities-and-pitfalls ""^^sysont:Markdown ;
```

```
foaf:link <http://climatepolicyinfohub.eu/interactions-between-climate-policies-opportunities-and-pitfalls>, "http://climatepolicyinfohub.eu/interactions-between-climate-policies-opportunities-and-pitfalls" ;
```

```
dcterms:description "Policies to address climate change mitigation that have been deployed in parallel may interact with each other, with positive or negative effects for emission reductions and for cost-effectiveness. This Knowledge Package explains the economic theory behind such policy interactions and discusses why even with a carbon price (such as that generated by the EU Emissions Trading Scheme) the introduction of supplementary policies may be necessary."^^sysont:Markdown ;
```

```
foaf:resource
```

```
<http://147.102.6.97/ontowiki/POLIMP/Policies/National_and_Subnational_Policies_and_Institutions_in_Climate_Change_2014_Mitigation_of_Climate_Change_Contribution_of_Working_Group_III_to_the_Fifth_Assessment_Report_of_the_Intergovernmental_Panel_on_Climate_Change>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Interactions_of_Policies_for_Renewable_Energy_and_Climate>,  
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Factors_Underpinning_Future_Action_III_Evaluation_of_the_2020_Climate_Targets_for_EU_Member_States>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Environmental_and_Technology_Policies_for_Climate_Mitigation>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Policy_Interactions_Risk_and_Price_Formation_in_Carbon_Markets>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Energy_Technology_Perspectives_2010_Scenarios_Strategies_to_2050>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Power_Choices_Pathways_to_CarbonNeutral_Electricity_in_Europe_by_2050>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Energy_Efficiency_Policy_and_Carbon_Pricing>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Regulation_by_Prices_Quantities_or_Both_A_Review_of_Instrument_Choice>,  
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Summing_up_the_Parts_Combining_Policy_Instruments_for_Leastcost_Climate_Mitigation_Strategies> .
```

```
<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/NonMarket_Based_Approaches_Status_of_Discussions_under_the_UNFCCC> a ns1:test ;
```

```
rdfs:label "Non-Market Based Approaches: Status of Discussions under the UNFCCC" ;

rdfs:comment ""***Knowledge Package Citation:**

Chandreyee Bagchi (2015): \"Non-Market Based Approaches: Status of Discussions under
the UNFCCC\". Climate Policy Info Hub, 08 December 2015. Online available at:
http://climatepolicyinfohub.eu/non-market-based-approaches-status-discussions-under-
unfccc""^^sysont:Markdown ;

foaf:link          <http://climatepolicyinfohub.eu/non-market-based-approaches-status-
discussions-under-unfccc>,          "http://climatepolicyinfohub.eu/non-market-based-
approaches-status-discussions-under-unfccc" ;

dct:terms:description "The opposition of few countries to market mechanisms coupled
with limitations for involving developing countries, parties under the United Nations
Framework Convention on Climate Change are considering measures known as non-market-
based approaches, like policies and regulations. This knowledge package shows the
involvement of definition of non-market-based approach, ensuring environmental
integrity and ensuring sustainable development."^^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/Households/Report_on_the_Workshop_on_NonMarketBa
sed_Approaches_>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Experience_and_good_practice_relevant
_to_the_design_and_operation_of_nonmarketbased_approaches_NMA>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Submission_by_Nepal_on_behalf_of_the
Least_Developed_Countries_Group_with_respect_to_NonMarketBased_Approaches>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Market_and_nonmarket_mechanisms_under
_the_Convention__Nonmarketbased_approaches_>,
<http://147.102.6.97/ontowiki/POLIMP/Post_2020/Decision_1CP16_The_Cancun_Agreements__
Outcome_of_the_work_of_the_Ad_Hoc_Working_Group_on_Longterm_Cooperative_Action_under
_the_Convention_>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Technical_paper_on_Nonmarketbased_app
roaches>,
<http://147.102.6.97/ontowiki/POLIMP/Households/FVA_NMA_and_NMM_technical_papers> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Social_Acceptance_of_Renewable
_Energy> a ns1:test ;

rdfs:label "Social Acceptance of Renewable Energy" ;
```

```
rdfs:comment ""**Knowledge Package Citation:**
```

```
Hofman, Erwin (2015): \"Social Acceptance of Renewable Energy\". Climate Policy Info Hub, 18 February 2015. Online available at: http://climatepolicyinfohub.eu/social-acceptance-renewable-energy""^^sysont:Markdown ;
```

```
foaf:link <http://climatepolicyinfohub.eu/social-acceptance-renewable-energy>,  
"http://climatepolicyinfohub.eu/social-acceptance-renewable-energy" ;
```

```
dcterms:description "It is essential to consider the social aspects that influence the acceptance of climate-friendly technologies, such as renewable energy. Five elements are thought to determine the level of acceptance: awareness of climate change; fairness of the decision-making process; the overall evaluation of costs, risks and benefits; the local context; and trust in decision-makers."^^sysont:Markdown ;
```

```
foaf:resource  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Acceleration_of_clean_technology_deployment_within_the_EU_The_role_of_social_acceptance>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Does_green_consumerism_increase_the_acceptance_of_wind_power>,  
<http://147.102.6.97/ontowiki/POLIMP/Households/A_Roadmap_for_moving_to_a_lowcarbon_economy_in_2050>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Combining_choice_experiments_with_psychometric_scales_to_assess_the_social_acceptability_of_wind_energy_projects_A_latent_class_approach>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Social_acceptance_of_low_carbon_energy_and_associated_infrastructures_A_critical_discussion>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Psychological_factors_influencing_sustainable_energy_technology_acceptance_A_reviewbased_comprehensive_framework>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/WindAcceptance__A_User_Guide_for_Developers_and_Municipalities>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/The_Psychological_Distance_of_Climate_Change>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Handbook_for_Conducting_Technology_Needs_Assessment_for_Climate_Change>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Towards_an_integrated_energy_landscape>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Going_beyond_the_properties_of_CO2_capture_and_storage_CCS_technology_How_trust_in_stakeholders_affects_public_acceptance_of_CCS>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Renewable_Energy_Projects__Acceptance_Risks_and_Their_Management>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Strong_Feelings__Emotional_Landscape_of_Wind_Turbines>,
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<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Local_acceptance_of_renewable_e
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rdfs:comment ""***Knowledge Package Citation:**

Chandreyee, Bagchi and Velten, Eike (2014): \"The EU Emissions Trading System:
Regulating the Environment in the EU\". Climate Policy Info Hub, 13.05.2014. Online
available at: http://climatepolicyinfohub.eu/eu-emissions-trading-system-
introduction""^^sysont:Markdown ;

foaf:link <http://climatepolicyinfohub.eu/eu-emissions-trading-system-introduction>,
"http://climatepolicyinfohub.eu/eu-emissions-trading-system-introduction" ;

dcterms:description "The EU Emissions Trading Scheme is a key pillar of European
climate policy. It contributes to the EU's greenhouse gas reduction targets by
setting a cap on the maximum level of emissions for the sectors covered and
establishing an installation-level market for emission permits, which generates a
price for them. This knowledge package traces the history and discusses the main
features of EU ETS."^^sysont:Markdown ;

foaf:resource
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Structural_reform_of_the_Europ
ean_carbon_market_Policy_Documentation>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_200387EC_establishing_a_sch
eme_for_greenhouse_gas_emission_allowance_trading_within_the_Community_>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Auctioning_Policy_Documentati
on_FAQ>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/CarbonEnergy_Taxation_Lessons
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rdfs:comment ""**Knowledge Package Citation:**

Fruhmann, Claudia (2015): "Cost-effectiveness of EU Renewable Energy Support Systems". Climate Policy Info Hub, 6 February 2015. Online available at: http://climatepolicyinfohub.eu/cost-effectiveness-eu-renewable-energy-support-systems ""^^sysont:Markdown ;

foaf:link      <http://climatepolicyinfohub.eu/cost-effectiveness-eu-renewable-energy-support-systems>,      "http://climatepolicyinfohub.eu/cost-effectiveness-eu-renewable-energy-support-systems" ;

dcterms:description "Renewable energy support schemes need to be well designed in order to bring forth the desired outcome, not only regarding the achievement of targets (effectiveness) but also regarding the achievement at lowest costs possible (cost-effectiveness). This knowledge package focuses on the cost-effectiveness of renewable energy support schemes within the EU and highlights design features indispensable in creating cost-effective renewable support."^^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/State_aid__Commission_adopts_new_rules_on_public_support_for_environmental_protection_and_energy>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Design_features_of_support_schemes_for_renewable_electricity__Task_2_report>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Different_Interpretations_of_the_costeffectiveness_of_renewable_electricity_support__some_analytical_results>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/EU_Tracking_Roadmap_2013__Keeping_track_of_renewable_energy_targets_toward_2020>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Delivering_the_internal_electricity_market_and_making_the_most_of_public_intervention_>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/European_Commission_guidance_for_the_design_of_renewables_support_schemes_> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Mainstreaming_Climate_Change_Adaptation_in_the_EU> a ns1:test ;
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rdfs:comment ""**Knowledge Package Citation:**

Erwin Hofman (2015): \"Mainstreaming climate change adaptation in the EU\". Climate
Policy Info Hub, 23 November 2015. Online available at:
http://climatepolicyinfohub.eu/mainstreaming-climate-change-adaptation-
eu""^^sysont:Markdown ;

foaf:link <http://climatepolicyinfohub.eu/mainstreaming-climate-change-adaptation-
eu>, "http://climatepolicyinfohub.eu/mainstreaming-climate-change-adaptation-eu" ;

dct:terms:description "Mainstreaming climate adaptation concerns into other policies
can increase the effectiveness of reducing climate change impacts. The critical
aspect of it is sufficient awareness of decision-makers on all levels that climate
change impacts should be minimised. Therefore, information on potential impacts needs
to be available,so that decision-makers are aware of them and a wide range of
stakeholders is involved in designing policy instruments."^^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/An_EU_Strategy_on_Adaptation_t
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<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Welcome_letter_to_the_new_Commission
er_for_Climate_Action>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Climate_Change_2007___Impacts_
Adaptation_and_Vulnerability_Contribution_of_Working_Group_II_to_the_Fourth_Assessmen
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ransport_network_and_repealing_Decision_No_6612010EU>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Integrating_mitigation_and_adaptatio
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<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Overcoming_the_barriers__Mainstreami
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<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Mainstreaming_Climate_Change_Adaptat
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<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Recommendations_on_priority_measures
_for_EU_policy_mainstreaming_on_adaptation__task_3_report>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Overview_of_CAP_Reform_20142020>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Mainstreaming_Adaptation_to_Climate
_Change_into_National_Policy__An_overview_for_adaptation_practitioners>,
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<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Mainstreaming_Climate_Change_Adaptat
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rdfs:comment """"**Knowledge Package Citation:**

Dukan, Mak (2015): \"Article 7 of the EED: Will MSs achieve their energy savings
targets?\". Climate Policy Info Hub, 21 July 2015. Online available at:
http://climatepolicyinfohub.eu/article-7-eed-will-mss-achieve-their-energy-savings-
targets

""""^sysont:Markdown ;

foaf:link      <http://climatepolicyinfohub.eu/article-7-eed-will-mss-achieve-their-
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achieve-their-energy-savings-targets" ;

dcterms:description "Article 7 of the Energy Efficiency Directive obliges Member
States to develop an Energy Efficiency Obligation scheme or/and use alternative
measures like energy certificates, minimum energy performance requirements etc. After
2012, Member States were obliged to report their planned measures through National
Energy Efficiency Action Plans. This knowledge package provides an overview of how
Member States have implemented the Article 7."^sysont:Markdown ;

foaf:resource
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_EEOs_in_the_EU_Part_I_Evaluation_of_existing_schemes>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_Savings_2020__How_to_triple_th
e_impact_of_energy_saving_policies_in_Europe>,
<http://147.102.6.97/ontowiki/POLIMP/Energy_Efficiency/Implementing_the_EU_Energy_Eff
iciency_Directive__Latest_analysis_of_Member_State_plans_for_enduse_energy_savings_ta
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measures_and_methodologies_to_implement_Article_7_of_the_Energy_Efficiency_Directive>
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<http://147.102.6.97/ontowiki/POLIMP/Households/Pathways_to_a_low_carbon_economy__Ver
sion_2_of_the_Global_Greenhouse_Gas_Abatement_Cost_Curve>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Best_Practices_in_Designing_and_Imple
menting_Energy_Efficiency_Obligation_Schemes> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Overview_of_Climate_Targets_in
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rdfs:label "Overview of Climate Targets in Europe" ;

rdfs:comment ""**Knowledge Package Citation:**

Prahl, Andreas (2014): "Climate and Energy Policy Targets in Europe". Climate Policy
Info Hub, 14 November 2014. Online available at:
http://climatepolicyinfohub.eu/overview-climate-targets-europe

""^^sysont:Markdown ;

foaf:link <http://climatepolicyinfohub.eu/overview-climate-targets-europe>,
"http://climatepolicyinfohub.eu/overview-climate-targets-europe" ;

dcterms:description "Since the 1990s the EU has been pursuing climate change
mitigation targets. Following the international commitment to the legally binding
greenhouse gas reduction under the Kyoto Protocol, the approach was broadened and
deepened with the 20-20-20% targets for 2020. The greenhouse gas target looks set to
be overachieved. In 2014, new objectives for 2030 were agreed, but criticised harshly
by environmental groups for lack of ambition."^^sysont:Markdown ;

foaf:resource
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ntergovernmental_Panel_on_Climate_Change>,  
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Climate_Policies__an_Historical_Overview>,  
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<http://147.102.6.97/ontowiki/POLIMP/Households/Answer_to_Parliamentary_Question_E012  
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/The_New_Climate_Policies_of_th  
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Fruhmann, Claudia and Tuerk, Andreas (2014): "Renewable Energy Support Policies in  
Europe". Climate Policy Info Hub, 3 November 2014. Online available at:  
http://climatepolicyinfohub.eu/renewable-energy-support-policies-  
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dct:terms:description "There are numerous policy instruments available to support the  
deployment of renewable energy. Within the EU, Member States are subject to renewable  
energy targets until 2020, but national governments can decide individually on which  
support policies to implement. This has led to a wide range of different  
policies."^^sysont:Markdown ;  
  
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_Status_Report>,  
<http://147.102.6.97/ontowiki/POLIMP/Support_SystemsIncentives/Experience_with_renewa  
ble_electricity_RESE_support_schemes_in_Europe__Current_status_and_recent_trends>,  
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<http://147.102.6.97/ontowiki/POLIMP/Support_SystemsIncentives/Adapting_Renewable_Ene  
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Conclusions_on_2030_Climate_an  
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Dooley, Elizabeth and Frelih-Larsen, Ana. (2015): "Agriculture and Climate Change in  
the EU: An Overview". Climate Policy Info Hub, 27 October 2015, Online available at:  
http://climatepolicyinfohub.eu/agriculture-and-climate-change-eu-  
overview""^^sysont:Markdown ;  
  
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"http://climatepolicyinfohub.eu/agriculture-and-climate-change-eu-  
overview" ;
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dcterms:description "Agriculture is an important source of greenhouse gas emissions in the EU, while also being heavily affected by climate change. Mitigation and adaptation have to be prioritised by both farmers and policy makers in order to coordinate efforts to reduce emissions from the sector and meet demands for food. Balancing these sometimes competing interests presents a significant policy challenge."^^sysont:Markdown ;

foaf:resource

<http://147.102.6.97/ontowiki/POLIMP/International_ETS/United_Nations_Framework_Convention_on_Climate_Change>,
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<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Annual_greenhouse_gas_inventory_19902012_and_inventory_report_2014>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Reforming_the_EU_approach_to_LULUCF_and_the_climate_policy_framework>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Global_Climate_Change_Impacts_in_the_United_States>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Thematic_Strategy_for_Soil_Protection>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Mainstreaming_climate_change_into_rural_development_policy_post_2013>,
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<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Updated_UNFCCC_reporting_guidelines_on_annual_inventories_following_incorporation_of_the_provisions_of_decision_14CP11>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/EEA_greenhouse_gas_data_viewer>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/World_agriculture_towards_20302050_the_2012_revision>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Options_for_sustainable_food_and_agriculture_in_the_EU>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Summary_for_Policymakers_In_Climate_Change_2014_Impacts_Adaptation_and_Vulnerability_Part_A_Global_and_Sectoral_Aspects_Contribution_of_Working_Group_II_to_the_Fifth_Assessment_Report_of_the_Intergovernmental_Panel_on_Climate_Change> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/History_of_the_UN_Climate_Negotiations_Part_1_from_the_1980s_to_2010> a ns1:test ;

rdfs:label "History of the UN Climate Negotiations - Part 1 - from the 1980's to 2010" ;

rdfs:comment ""**Knowledge Package Citation:**"

Van der Gaast, Wytze P. and Alessi, Monica (2015): \"History of the UN Climate Negotiations - Part 1 - from the 1980's to 2010\". Climate Policy Info Hub, 10 March 2015. Online available at: <http://climatepolicyinfohub.eu/history-un-climate-negotiations-part-1-1980s-2010>\"^sysont:Markdown ;

foaf:link <<http://climatepolicyinfohub.eu/history-un-climate-negotiations-part-1-1980s-2010>>, \"<http://climatepolicyinfohub.eu/history-un-climate-negotiations-part-1-1980s-2010>\" ;

dcterms:description \"Based on first scientific insights on climate change, policy makers agreed in 1992 on a UN Framework Convention on Climate Change (UNFCCC). Since then, the UNFCCC has been the basis for climate negotiations with the Kyoto Protocol (1997), the Marrakech Accords (2001) and the Cancun Agreements (2010) as major milestones. This Knowledge Package explains how climate policy making has increasingly become part of socio-economic development planning.\"^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/United_Nations_Framework_Convention_on_Climate_Change>,
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<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Global_Climate_Change_Treaty_Summary_of_the_Kyoto_Protocol>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Green_Investment_Schemes_A_Successful_Carbon_Finance_Mechanism>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Report_of_the_Conference_of_the_Parties_on_its_Sixteenth_Session_Held_in_Cancun_from_29_November_to_10_December_2010_Addendum_Part_Two_Action_taken_by_the_Conference_of_the_Parties>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Report_of_the_Conference_of_the_Parties_on_its_Seventh_Session_Held_at_Marrakesh_from_29_October_to_10_November_2001>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/President_Bush_Discusses_Global_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Quantitative_Analysis_of_Patterns_of_Vulnerability_to_Global_Environmental_Change>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/The_Greenhouse_Effect_Negotiating_Targets>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Decision1CMP1_Consideration_of_commitments_for_subsequent_periods_for_Parties_included_in_Annex_I_to_the_Convention_under_Article_3_paragraph_9_of_the_Kyoto_Protocol>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Protection_of_global_climate_for_present_and_future_generations_of_mankind>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/The_International_Politics_of_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Proceedings_of_the_World_Climate_Conference_A_Conference_of_Experts_on_Climate>,

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<http://147.102.6.97/ontowiki/POLIMP/International_ETS/The_Political_Influence_of_Global_NGOs__Case_Studies_on_the_Climate_and_Biodiversity_Conventions>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Kyoto_Protocol_to_the_United_Nations_Framework_Convention_on_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Decision_1CP13_Bali_Action_Plan_>,
<http://147.102.6.97/ontowiki/POLIMP/International_Climate_Policy/Challenges_and_Solutions_for_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/International_Climate_Negotiation_Commitments__past_and_future> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/The_Diverse_and_Extensive_Global_Landscape_of_Climate_Finance_Flows/1> a ns1:test ;

rdfs:label "The Diverse and Extensive Global Landscape of Climate Finance Flows" ;

rdfs:comment """"Knowledge Package Citation:**

Hofman, Erwin (2015): "The Diverse and Extensive Global Landscape of Climate Finance Flows". Climate Policy Info Hub, 04 August 2015. Online available at: http://climatepolicyinfohub.eu/diverse-and-extensive-global-landscape-climate-finance-flows

""""^sysont:Markdown ;

foaf:link      <http://climatepolicyinfohub.eu/diverse-and-extensive-global-landscape-climate-finance-flows>, "http://climatepolicyinfohub.eu/diverse-and-extensive-global-landscape-climate-finance-flows" ;

dcterms:description "The landscape of climate finance is diverse and extensive. Public and private actors in projects for greenhouse gas emission reductions and climate resilience invest more than USD 300 billion per year. Scaled-up investments and leveraging of private finance are needed to stabilise global temperatures. This knowledge package gives an overview of the global climate finance landscape, with its sources, instruments, recipients and geographical flows."^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/Households/Record_Funding_for_the_Global_Environment>,
<http://147.102.6.97/ontowiki/POLIMP/Households/2014_Biennial_Assessment_and_Overview_of_Climate_Finance_Flows_Report>,
<http://147.102.6.97/ontowiki/POLIMP/Households/The_Global_Landscape_of_Climate_Finance_2014> ,
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<http://147.102.6.97/ontowiki/POLIMP/Households/The_Role_of_National_Development_Banks_in_Intermediating_International_Climate_Finance_to_Scale_Up_Private_Sector_Investments>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Private_Donations_to_Adaptation_Fund_Now_Possible_Through_UN_Foundation_Partnership>,
<http://147.102.6.97/ontowiki/POLIMP/Households/GEF6_Programming_Directions_GEFR620Rev04>,
<http://147.102.6.97/ontowiki/POLIMP/Households/The_Role_of_National_Development_Banks_in_Catalyzing_International_Climate_Finance>,
<http://147.102.6.97/ontowiki/POLIMP/Adaptation/The_Global_Landscape_of_Climate_Finance_2013>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Climate_Finance__Engaging_the_Private_Sector>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Mobilizing_Public_and_Private_Funds_for_Inclusive_Green_Growth_Investments_in_Developing_Countries__A_Stocktaking_Report_Prepared_for_the_G20_Development_Working_Group>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/The_Landscape_of_Climate_Finance>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Accessing_International_Financing_for_Climate_Change_Mitigation__A_Guidebook_for_Developing_Countries> .
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<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Adaptation_Policy_in_the_EU__An_Overview> a ns1:test ;
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rdfs:label "Adaptation Policy in the EU - An Overview" ;
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rdfs:comment ""**Knowledge Package Citation:**
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Erwin Hofman (2015): \"Adaptation Policy in the EU - an Overview\". Climate Policy Info Hub, 18 February 2015. Online available at: http://climatepolicyinfohub.eu/adaptation-policy-eu---overview""^^sysont:Markdown ;
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foaf:link <http://climatepolicyinfohub.eu/adaptation-policy-eu-%E2%80%93-overview>,
"http://climatepolicyinfohub.eu/adaptation-policy-eu-%E2%80%93-overview" ;
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dcterms:description "The European Commission introduced the EU Adaptation Strategy in 2013. The strategy sets out a framework and mechanisms for preparing the EU for current and future climate impacts. The strategy has three main objectives: promoting action by Member States; promoting better-informed decision-making; and promoting adaptation in key vulnerable sectors. On a national level, many Member States have adopted National Adaptation Strategies."^^sysont:Markdown ;
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foaf:resource
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Adaptation_in_Europe__Addressi
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ng_risks_and_opportunities_from_climate_change_in_the_context_of_socioeconomic_developments>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/The_emergence_of_climate_change_adaptation_as_a_policy_field_the_case_of_England>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Centre_for_Climate_Adaptation>
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/An_EU_Strategy_on_Adaptation_to_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Convenant_of_Mayors>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Guidelines_on_developing_adaptation_strategies>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Green_Paper_on_the_insurance_of_natural_and_manmade_disasters>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Climate_change_impacts_and_vulnerability_in_Europe_2012_An_indicatorbased_report>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/ClimateADAPT>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/The_Common_Fisheries_Policy_CFP>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Adapting_to_a_changing_climate_an_emerging_European_Union_policy>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/The_Common_Agricultural_Policy_after_2013>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Climate_ADAPT_Countries>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Mayors_Adapt>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Regional_Policy_Cohesion_policy_Frequently_Asked_Questions>,
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Mainstreaming_climate_change_into_rural_development_policy_post_2013>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Climate_Change_and_Territorial_Effects_on_Regions_and_Local_Economies>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Europe_adapts_to_climate_change_Comparing_National_Adaptation_Strategies>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/LIFE_programme>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/The_challenge_of_climate_change_partnering_with_nature_Naturebased_approaches_for_climate_change_mitigation_and_adaptation>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Copernicus_Europes_eyes_on_Earth>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Climate_adaptation_strategies_in_the_EU_Processes_for_design_implementation_and_review>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Adapting_to_climate_change_Towards_a_European_framework_for_action>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Methodologies_for_Climate_Proofing_Investments_and_Measures_under_Cohesion_and_Regional_Policy_and_the_Common_Agricultural_Policy>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Summary_for_Policymakers_In_Climate_Change_2014_Impacts_Adaptation_and_Vulnerability_Part_A_Global_and_Sectoral_Aspects_Contribution_of_Working_Group_II_to_the_Fifth_Assessment_Report_of_the_Intergovernmental_Panel_on_Climate_Change> .

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rdfs:label "Interactions between Climate Policies: Examples from Europe" ;

rdfs:comment ""**Knowledge Package Citation:**

Paula Castro (2015): \"Interactions between Climate Policies: Examples from Europe\",
Climate Policy Info Hub, 18 February 2015. Online available at:
http://climatepolicyinfohub.eu/interactions-between-climate-policy-examples-europe""^^sysont:Markdown ;

foaf:link      <http://climatepolicyinfohub.eu/interactions-between-climate-policies-examples-europe>,
               "http://climatepolicyinfohub.eu/interactions-between-climate-policies-examples-europe" ;

dcterms:description "Policies to address climate change mitigation that have been
deployed in parallel may interact with each other, with positive or negative effects
for emission reductions and for cost-effectiveness. This Knowledge Package presents
examples from European Union climate policy, renewable energy policy and energy
efficiency policy."^^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Relative_Importance_of_Different_Climate_Policy_Elements_for_Corporate_Climate_Innovation_Activities__Findings_for_the_Power_Sector>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Green_Serves_the_Dirtiest__On_the_Interaction_Between_Black_and_Green_Quotas>,
<http://147.102.6.97/ontowiki/POLIMP/Households/A_Roadmap_for_moving_to_a_lowcarbon_economy_in_2050>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Interactions_of_Policies_for_Renewable_Energy_and_Climate>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/UK_Market_Instruments__Country_Update>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Factors_Underpinning_Future_Action_III__Evaluation_of_the_2020_Climate_Targets_for_EU_Member_States>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Consistency_of_Policy_Instruments__How_the_EU_Could_Move_to_a_30_Greenhouse_Gas_Reduction_Target>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Hard_to_Credit__ETS_Offset_Use_Again_in_the_Spotlight>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Energy_Efficiency_Policy_and_Carbon_Pricing>,
<http://147.102.6.97/ontowiki/POLIMP/International_ETS/Summing_up_the_Parts__Combining
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g_Policy_Instruments_for_Leastcost_Climate_Mitigation_Strategies>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Mind_the_Gap__Quantifying_Princip  
alagent_Problems_in_Energy_Efficiency>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Gadgets_and_Gigawatts__Policies  
_for_Energy_Efficient_Electronics> .  
  
<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Progress_towards_the_2020_Gree  
nhouse_Gas_Target_in_Europe> a ns1:test ;  
  
rdfs:label "Progress towards the 2020 Greenhouse Gas Target in Europe" ;  
  
rdfs:comment ""***Knowledge Package Citation:**  
  
Prahl, Andreas (2014): "Progress on the 2020 Climate Target in Europe". Climate  
Policy Info Hub, 14 November 2014. Online available at:  
http://climatepolicyinfohub.eu/progress-towards-2020-greenhouse-gas-target-  
europe""^^sysont:Markdown ;  
  
foaf:link <http://climatepolicyinfohub.eu/progress-towards-2020-greenhouse-gas-  
target-europe>, "http://climatepolicyinfohub.eu/progress-towards-2020-greenhouse-gas-  
target-europe" ;  
  
dcterms:description "There has been considerable progress until 2013 towards the EU's  
2020 climate objective of a 20% reduction. Both, the Emission Trading Scheme (ETS)  
and non-ETS sectors have contributed to the development, especially renewable energy  
deployment. Part of the progress has to be attributed to the emissions reductions  
triggered by the economic crisis. Member States have also introduced climate policies  
that affect emission levels."^^sysont:Markdown ;  
  
foaf:resource  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Greenhouse_gas_emissions_base_y  
ear_1990>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Trends_and_Projections_in_Europ  
e_2013>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Climate_Change__Driving_Forces>  
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<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Annual_greenhouse_gas_inventory  
_19902011_and_inventory_report_2013>,  
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Trends_and_Projections_in_Euro  
pe_2014>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Annual_greenhouse_gas_inventory  
_19902012_and_inventory_report_2014>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Driving_forces_behind_EU27_gree
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house_gas_emissions_over_the_decade_19992008>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Impact_of_the_current_economic_instruments_on_economic_activity_Understanding_the_Existing_Climate_Policy_Mix>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/EEA_greenhouse_gas_data_viewer>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Smarter_greener_more_inclusive_Indicators_to_support_the_Europe_2020_strategy>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Why_did_GHG_emissions_decrease_in_the_EU_between_1990_and_2012>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/EU_Energy_Transport_and_GHG_Emissions_Trends_to_2050_Reference_Scenario_2013> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/Energy_Efficiency_Policy_Instruments_in_the_European_Union> a ns1:test ;

rdfs:label "Energy Efficiency Policy Instruments in the European Union" ;

rdfs:comment "****Knowledge Package Citation:**

Dukan, Mak (2015): \"Energy Efficiency Policy Instruments in the European Union\". Climate Policy Info Hub, 20 July 2015. Online available at: http://climatepolicyinfohub.eu/energy-efficiency-policy-instruments-european-union

\"^^sysont:Markdown ;

foaf:link      <http://climatepolicyinfohub.eu/energy-efficiency-policy-instruments-european-union>,
               "http://climatepolicyinfohub.eu/energy-efficiency-policy-instruments-european-union" ;

dcterms:description "Energy Efficiency Obligations are the cornerstone of the Energy Efficiency Directive from 2012. Under such obligations energy companies are responsible for generating energy savings. This policy was already successfully implemented in 6 EU Member States. Other policies like nearly zero energy buildings and energy certification are also planned. This knowledge package investigates the range of energy efficiency policies that are used in the EU."^^sysont:Markdown ;

foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/Households/The_2020_Climate_and_Energy_Package>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_Efficiency_Directive/1>,
<http://147.102.6.97/ontowiki/POLIMP/Households/2030_Energy_Strategy>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_201227EU_on_energy_efficiency>,
<http://147.102.6.97/ontowiki/POLIMP/Energy_Efficiency/Implementing_the_EU_Energy_Eff
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iciency_Directive__Latest_analysis_of_Member_State_plans_for_enduse_energy_savings_targets_Article_7>,
<http://147.102.6.97/ontowiki/POLIMP/Households/White_Certificates_in_Italy>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_200291EC_of_the_European_Parliament_and_of_the_Council>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_efficiency_obligations__the_EU_Experience>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_efficiency_policies_in_buildings__the_use_of_financial_instruments_at_member_state_level>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Study_evaluating_the_national_policy_measures_and_methodologies_to_implement_Article_7_of_the_Energy_Efficiency_Directive>
,
<http://147.102.6.97/ontowiki/POLIMP/Households/Best_Practices_in_Designing_and_Implementing_Energy_Efficiency_Obligation_Schemes>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Assessment_and_Experience_of_White_Certificate_Schemes_in_the_European_Union>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_performance_requirements_for_buildings_in_Europe>,
<http://147.102.6.97/ontowiki/POLIMP/Households/What_is_Energy_Contracting_ESCo_services_Concept_Definition_Two_Basic_Business_Models>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Europes_buildings_under_the_microscope__A_countrybycountry_review_of_the_energy_performance_of_buildings>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_201031EU_on_the_energy_performance_of_buildings>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_Efficiency_Buildings> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/The_European_Climate_Policy_Mix> a ns1:test ;

rdfs:label "The European Climate Policy Mix" ;

rdfs:comment """"Knowledge Package Citation:**

Prahl, Andreas (2014): "The European Climate Policy Mix". Climate Policy Info Hub, 30 November 2014. Online available at: http://climatepolicyinfohub.eu/european-climate-policy-mix""""^^sysont:Markdown ;

foaf:link <http://climatepolicyinfohub.eu/european-climate-policy-mix>,
"http://climatepolicyinfohub.eu/european-climate-policy-mix" ;

dcterms:description "To realise the savings aimed at with the 20-20-20% targets for 2020, the European Union has introduced a mix of climate policies, using a variety of policy instruments and targeting all economic sectors. The different policies have fulfilled their purpose with varying success and different performances regarding
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environmental and cost effectiveness, as well as additional impacts on society."^^sysont:Markdown ;

foaf:resource

<http://147.102.6.97/ontowiki/POLIMP/Households/Interactions_between_climate_and_Energy_policies__The_case_Of_Spain>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Impact_Assessment__Energy_Efficiency_Plan_2011_>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Directive_200929EC>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Assessing_Interaction_between_instruments_and_the_optimality_of_the_current_instrument_mix>,
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Indicators_assessing_the_performance_of_renewable_energy_support_policies_in_27_Member_States>,
<http://147.102.6.97/ontowiki/POLIMP/Households/How_crisisresistant_and_competitive_are_Europes_EcoIndustries>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_200928EC>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Renewable_energy_policies_and_technological_innovation__evidence_based_on_patent_counts>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Climate_Change_Policy_in_the_European_Union__an_Introduction>,
<http://147.102.6.97/ontowiki/POLIMP/Households/The_EU_Emissions_Trading_System_and_Climate_Policy_towards_2050__Real_incentives_to_reduce_emissions_and_drive_innovation>
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<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Presidency_Conclusions__Brussels_89_March_2007>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Carbon_taxes_path_dependency_and_directed_technical_change__evidence_from_the_auto_industry>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_Efficiency_Directive>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Improving_the_energy_efficiency_of_buildings__The_impact_of_environmental_policy_on_technological_innovation>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_201031EU_on_the_energy_performance_of_buildings>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Answer_to_Parliamentary_Question_E0126162013> .

<http://147.102.6.97/ontowiki/POLIMP/Knowledge_Package/European_Climate_Policy__History_and_State_of_Play> a ns1:test ;

rdfs:label "European Climate Policy - History and State of Play" ;

rdfs:comment ""**Knowledge Package Citation:**"

Prahl, Andreas and Hofmann, Elena (2014): "European Climate Policy - History and State of Play". Climate Policy Info Hub, 14 November 2014. Online available at: <http://climatepolicyinfohub.eu/european-climate-policy-history-and-state-play>

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""^sysont:Markdown ;
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foaf:link <http://climatepolicyinfohub.eu/european-climate-policy-history-and-state-play>, "http://climatepolicyinfohub.eu/european-climate-policy-history-and-state-play" ;
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dcterms:description "Climate policies in the EU have been developing since 1990, introducing common measures in the areas of greenhouse gas emissions, renewable energies and energy efficiency. An EU-wide climate policy framework has been developed, implemented, and revised over time. With the 2030 goals set in 2014, specific changes for the post 2020 period are under discussion."^sysont:Markdown ;
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<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Council_Decision_93500EEC>,  
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<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Council_Decision_93389EEC>,  
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<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_200928EC>,  
<http://147.102.6.97/ontowiki/POLIMP/Households/The_evolution_of_climate_policy_in_the_European_Union_an_historical_overview>,  
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_201227EU_on_energy_efficiency>,  
<http://147.102.6.97/ontowiki/POLIMP/Renewable_Energy/Presidency_Conclusions__Brussels_89_March_2007>,  
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Decision_4062009EC_of_the_European_Parliament_and_of_the_Council>,  
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Conclusions_on_2030_Climate_and_Energy_Policy_Framework>,  
<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_200387EC_establishing_a_scheme_for_greenhouse_gas_emission_allowance_trading_within_the_Community>,  
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/The_EUs_Internal_and_External_
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Climate_Policies__an_Historical_Overview>,  
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ars_in_the_EU_Regulation_EC_No_4432009>,  
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Directive_200177EC_of_the_Euro  
pean_Parliament_and_of_the_Council> .  
  
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rdfs:label "" "Technical Options for Climate Change Mitigation in EU Agriculture  
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Frelih-Larsen, Ana and Dooley, Elizabeth (2015): \"Technical options for climate  
change mitigation in EU agriculture\". Climate Policy Info Hub, 27 October 2015,  
Online available at: http://climatepolicyinfohub.eu/technical-options-climate-change-  
mitigation-eu-agriculture"" ""^sysont:Markdown ;  
  
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change mitigation in the EU. The potential of greenhouse gas mitigation measures  
differs according to regional characteristics and farming systems. Since there is  
great diversity in natural conditions and farming systems, selection of the most  
appropriate practices will vary according to context and depend on specific  
agronomic, environmental and climatic conditions."" ""^sysont:Markdown ;  
  
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ral_development_policy_post_2013>,  
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ural_soils_of_Europe>,  
<http://147.102.6.97/ontowiki/POLIMP/Agriculture/Das_Potenzial_von_Waeldern_und_Moore  
n_fuer_den_Klimaschutz_in_Deutschland_und_auf_globaler_Ebene_The_potential_of_forests  
_and_peatlands_to_contribute_to_climate_change_mitigation_in_Germany_and_worldwide>,  
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Hofman, Erwin (2015): "Climate finance for reductions of emissions and vulnerability". Climate Policy Info Hub, 04 August 2015. Online available at: http://climatepolicyinfohub.eu/climate-finance-reduction-emissions-and-vulnerability

""^^sysont:Markdown ;

foaf:link <http://climatepolicyinfohub.eu/climate-finance-reduction-emissions-and-vulnerability>, "http://climatepolicyinfohub.eu/climate-finance-reduction-emissions-and-vulnerability" ;

dcterms:description "Climate finance is defined as the financial resources paid to support climate change mitigation and adaptation activities. International climate finance as part of the United Nations Framework Convention on Climate Change framework refers to the financial flows from developed to developing countries. This knowledge package provides an introduction to climate finance, including definitions and an overview of principles for climate change funding."^^sysont:Markdown ;

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<http://147.102.6.97/ontowiki/POLIMP/Households/2014_Biennial_Assessment_and_Overview_of_Climate_Finance_Flows_Report>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/A_Human_Rightsbased_Approach_to_Climate_Finance>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/IPCC_5th_Assessment_Report_Working_Group_III_Mitigation_of_Climate_Change_Chapter_16_Crosscutting_Investment_and_Finance_Issues>,
<http://147.102.6.97/ontowiki/POLIMP/Households/The_Global_Landscape_of_Climate_Finance_2014>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/The_Principles_and_Criteria_of_Public_Climate_Finance__A_Normative_Framework>,
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mate_Finance_Interventions>,  
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<http://147.102.6.97/ontowiki/POLIMP/Finance/The_Landscape_of_Climate_Finance>,  
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ce__Developing_Priorities_and_Principles>,  
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<http://147.102.6.97/ontowiki/POLIMP/Finance/Catalyzing_Climate_Finance__A_Guidebook_  
on_Policy_and_Financing_Options_to_Support_Green_LowEmission_and_ClimateResilient_Dev  
elopment>,  
<http://147.102.6.97/ontowiki/POLIMP/Finance/Exploring_Climate_Finance_Effectiveness>  
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      <http://147.102.6.97/ontowiki/POLIMP/Finance/Copenhagen_Accord>,  
<http://147.102.6.97/ontowiki/POLIMP/Finance/Principles_for_Climate_Finance_under_the  
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rdfs:comment ""***Knowledge Package Citation:**  
  
Michaelowa, Axel (2015): \"Overview and Assessment of International Climate Policy  
Architectures and Scenarios\". Climate Policy Info Hub, 18 February 2015. Online  
available      at:      http://climatepolicyinfohub.eu/international-climate-policy-  
architectures---top-down-and-bottom""^^sysont:Markdown ;  
  
foaf:link <http://climatepolicyinfohub.eu/international-climate-policy-architectures-  
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climate-policy-architectures-%E2%80%93-top-down-and-bottom" ;  
  
dcterms:description "International climate policy currently seems to be undergoing a  
transition from a centralized model of governance to a \"hybrid\" decentralized
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approach that combines country-level mitigation pledges with common principles for accounting and monitoring. Pledges for 2020 are likely to lead to a warming of at least 3°C. Unless a more stringent approach can be agreed for 2030, the international regime will not be able to deliver the agreed 2°C target."

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foaf:resource
<http://147.102.6.97/ontowiki/POLIMP/Finance/The_Emissions_Gap_Report_2013>,
<http://147.102.6.97/ontowiki/POLIMP/International_Climate_Policy/International_Cooperation_Agreements_and_Instruments>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/Possible_Elements_of_a_2015_Legal_Agreement_on_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/Technical_Summary_in_Climate_Change_2014__Mitigation_of_Climate_Change__Contribution_of_Working_Group_III_to_the_Fifth_Assessment_Report_of_the_Intergovernmental_Panel_on_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/Climate_Change_2014__Mitigation_of_Climate_Change__Contribution_of_Working_Group_III_to_the_Fifth_Assessment_Report_of_the_Intergovernmental_Panel_on_Climate_Change>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/Voluntary_approaches_in_climate_policy>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/Criteria_for_evaluating_Climate_Policy_scenarios>,
<http://147.102.6.97/ontowiki/POLIMP/Finance/Identifying_Options_for_a_New_International_Climate_Regime_Arising_from_the_Durban_Platform_for_Enhanced_Action> .
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rdfs:label "History of the UN Climate Negotiations - Part 2 - from 2011 to 2015" ;
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Monica Alessi (2015): \"History of the UN Climate Negotiations - Part 2 - from 2011 to the Present\". Climate Policy Info Hub, 10 March 2015. Online available at: http://climatepolicyinfohub.eu/history-un-climate-negotiations-part-2-2011-2015"
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foaf:link      <http://climatepolicyinfohub.eu/history-un-climate-negotiations-part-2-2011-2015>, "http://climatepolicyinfohub.eu/history-un-climate-negotiations-part-2-2011-2015" ;
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dcterms:description "Several factors led to uncertainty and complexity as well as scepticism on the likelihood of reaching an effective agreement in the post-Copenhagen process, including the shift in the UNFCCC negotiation process from a top-down approach to a more flexible system of country-led individual targets and a
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growing realisation among developing countries about the need to take an active role in mitigation."^^sysont:Markdown ;

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<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Lima_Climate_Call_for_Action>,
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<http://147.102.6.97/ontowiki/POLIMP/Finance/The_Emissions_Gap_Report_2013>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Mexicos_Intended_Nationally_Determined_Contribution>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Intended_Nationally_Determined_Contributions_under_the_UNFCCC>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Switzerlands_intended_nationally_determined_contribution_INDC_and_clarifying_information>,
<http://147.102.6.97/ontowiki/POLIMP/Targets/Ad_Hoc_Working_Group_on_the_Durban_Platform_for_Enhanced_Action_ADP>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Submission_by_Latvia_and_the_European_Commission_on_behalf_of_the_European_Union_and_its_Member_States__Intended_Nationally_Determined_Contribution_of_the_EU_and_its_Member_States>,
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<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Reflections_on_COP_18_in_Doha__Negotiators_Made_Only_Incremental_Progress>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Carbon_Emissions_divide_can_be_bridged>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Work_of_the_contact_group_on_item_3>,
<http://147.102.6.97/ontowiki/POLIMP/Scenarios/Report_of_the_Conference_of_the_Parties_on_its_nineteenth_session_held_in_Warsaw_from_11_to_23_November_2013_Addendum_Part_two__Action_taken_by_the_Conference_of_the_Parties_at_its_nineteenth_session>,
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rdfs:comment "\"**Knowledge Package Citation:**"

Karakosta, Charikleia (2015): \"Are Transport Emissions 'Mobilizing' an EU Policy Response?\". Climate Policy Info Hub, 25 February 2015. Online available at:

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dcterms:description "Within the EU-28, transport is responsible for around 20% of  
greenhouse gas emissions, rendering it the second largest emitting sector after the  
energy industry. Emissions from transport have also grown by 19% from 1990 to 2011.  
In order to turn this trend around and accomplish the corresponding emission targets,  
the EU has designed and implemented a series of measures, including the defining of  
manufacturing standards."^^sysont:Markdown ;
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_proposals_for_a_Regulation_of_the_European_Parliament_and_of_the_Council_on_Advanced  
_Safety_Features_and_Tyres>,  
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ipping_sector>,  
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he_Proposal_for_a_Regulation_of_the_European_Parliament_and_of_the_Council_on_the_mon  
itoring_reporting_and_verification_of_carbon_dioxide_emissions_from_maritime_transpor  
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<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/A_policy_framework_for_climate_and_energy_in_the_period_from_2020_to_2030>,
<http://147.102.6.97/ontowiki/POLIMP/EU_Climate_Policy/Global_Transportation_Energy_and_Climate_Roadmap_The_impact_of_transportation_policies_and_their_potential_to_reduce_oil_consumption_and_greenhouse_gas_emissions>,
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Chandreyee Bagchi (2015): \"New Market Mechanisms: Status of Discussions under the UNFCCC\". Climate Policy Info Hub, 08 December 2015. Online available at: http://climatepolicyinfohub.eu/new-market-mechanisms-status-discussions-under-unfccc""^^sysont:Markdown ;

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dcterms:description "Due to the limitations of existing market mechanism, parties to the United Nations Framework Convention on Climate Change have been prompted to look for new tools to improve cost effectiveness of climate change mitigation. Parties have agreed to consider the implementation of new market mechanisms and non-market based approaches. This knowledge package analyses the elements of new market mechanisms being discussed for a post-2012 and -2020 regime."^^sysont:Markdown ;

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<http://147.102.6.97/ontowiki/POLIMP/Post_2020/Report_of_the_Conference_of_the_Parties_on_its_Thirteenth_Session_Held_in_Bali_from_3_December_to_15_December_2007>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Report_of_the_Conference_of_the_Parties_on_its_seventeenth_session_held_in_Durban_from_28_November_to_11_December_2011>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Views_on_the_new_marketbased_mechanism_Submissions_from_Parties_> .
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rdfs:comment "*****Knowledge Package Citation:**
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Karakosta, Charikleia (2015): \"Households' Contribution in the Buildings' Carbon Footprint\". Climate Policy Info Hub, 25 March 2015. Online available at:
http://climatepolicyinfohub.eu/household-contribution-buildings-carbon-footprint-curtailment-progress
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""^sysont:Markdown ;
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dcterms:description "Households remain one of the most significant contributors to greenhouse gas emissions from the building sector, due to their energy consumptions, with certain Member States having thrice or more the household emission footprint than others. The efforts carried out to minimize their emissions have brought certain results, but more actions are considered necessary. Improvement of households' energy efficiency is a key parameter in this respect."^sysont:Markdown ;
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<http://147.102.6.97/ontowiki/POLIMP/Households/Impact_of_energy_policy_instruments_on_the_estimated_level_of_underlying_energy_efficiency_in_the_EU_residential_sector>,
<http://147.102.6.97/ontowiki/POLIMP/Households/Statistical_Pocketbook_2013__EU_Energ
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y_in_Figures>,  
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<http://147.102.6.97/ontowiki/POLIMP/Households/Energy_Efficiency_Status_Report_2012>  
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<http://147.102.6.97/ontowiki/POLIMP/Households/Electricity_consumption_by_households  
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<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_201030EU_on_the_indication_  
by_labelling_and_standard_product_information_of_the_consumption_of_energy_and_other_  
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<http://147.102.6.97/ontowiki/POLIMP/Households/Directive_201031EU_on_the_energy_perf  
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