SEVENTH FRAMEWORK PROGRAMME
CAPACITIES - ERA.Net RUS: Linking Russia to the ERA

Contract for: **Innovation Project**

D.1.1
Project Management Plan

Project acronym: **GEOURBAN**

Project full title: Exploitin**G**
Earth **O**bservation in
s**U**stainable u**RB**an
pl**A**nning & ma**N**agement

Contract no.: ERA.Net-RUS-033

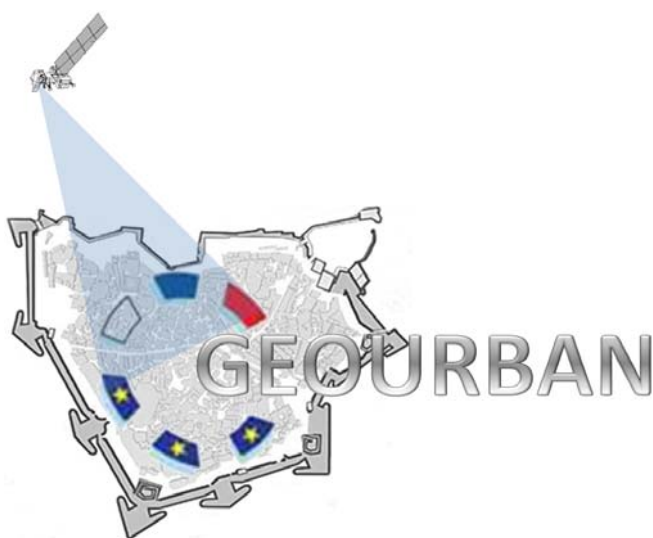Date: 30/3/2012

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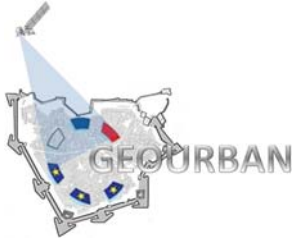
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Eberhard Parlow

Issue: 1.0

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Document Status Sheet

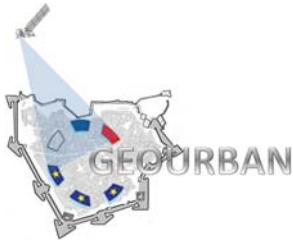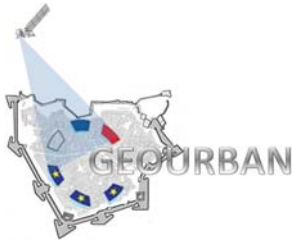| Issue	Date	Author	Comments
0.0	20/2/2012	N. Chrysoulakis	Draft for FORTH for internal review
0.1	5/3/2012	N. Chrysoulakis	Draft for Consortium for internal review
0.2	20/3/2012	I. Penyevskiy G. Fleishman A. Tal T. Esch S. Duzgun E. Parlow	Comments on the draft version
1.0	30/3/2012	N. Chrysoulakis	Version 1.0 delivered to JCS

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GEOURBAN

1. Introduction

1.1 Purpose of the document

This document is the Project Management Plan of the GEOURBAN (ExploitinG Earth Observation in sUstainable uRBan plAnning & maNagement) Project. It contains information required for the management of the project identifying and addressing essential technical and managerial processes necessary to satisfy the project requirements, quality and timely delivery.

1.2 Definitions and acronyms

Acronyms

CoP	Community of Practice
EO	Earth Observation
GEOURBAN	ExploitinG Earth Observation in sUstainable uRBan plAnning & maNagement
GIS	Geographical Information Systems
GMES	Global Monitoring for Environment and Security
IPR	Intellectual Property Right
IPRC	Intellectual Property Right Committee
JCS	Joint Call Secretariat
MB	Management Board
PC	Project Coordinator
PDCA	Plan Do Check Act
QA	Quality Assurance
RID	Review Item Discrepancy
SW	Software
WIS	Web-based Information System
WP	Work Package

1.3 Document references

[R1] GEOURBAN Umbrella Agreement Annex Ib (Description of Work), 15/04/2011
[R2] GEOURBAN Umbrella Agreement, ERANetRUS-033, 01/01/2012
[R3] GEOURBAN Consortium Agreement, Issue 2.0, 08/02/2012

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2. Project Overview

Sustainable urban planning and management increasingly demands innovative concepts and techniques to obtain up-to-date and **area-wide information** on the characteristics and development of the urban system. The increasing availability of **Earth Observation (EO)** technologies has provided new opportunitie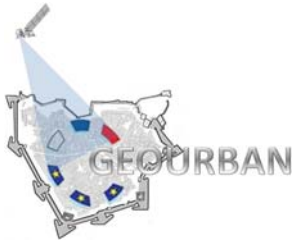s for a wide range of urban applications, such as mapping and monitoring of the urban environment, socio-economic estimations, characterization of urban climate, analysis of regional and global impacts and urban security and emergency preparedness. However, a **gap exists** between the research-focused results offered by the urban **EO community** and the application of these data and products by **urban planners** and **decision makers**. Recently, however, increasing attention is being directed to bridge this gap. To this end, the main **objective** of the **GEOURBAN (**Exploitin**G E**arth **O**bservation in s**U**stainable u**RB**an pl**A**nning & ma**N**agement**)** project is to bridge the gap between EO scientists and urban planners by demonstrating the ability of current and future EO systems to depict parameters of **urban structure** and **urban environmental quality** over large areas at detailed level. The **innovative potential** of the project lies in the development of a **web-based information system** which reflects the multidimensional nature of urban planning and management, as operationalized in intelligible and transferable indicators which are easily understood and applicable by a non-scientific public.

Three cities with different typologies and planning perspectives are included as case studies: **Tyumen** (Russia), **Tel-Aviv** (Israel) and **Basel** (Switzerland). In order to develop a method that will be welcomed by local governments, the project will use a Community of Practice (**CoP**) approach, which means that in the case studies, local stakeholders and scientists of the GEOURBAN project will meet on a regular basis in order to learn from each other. One of the main purposes of the CoP is to acknowledge the different stakeholders' perceptions into the indicator development. The EO data is the main input for GEOURBAN indicators. State-of-the-art EO analysis methods will be used to calculate products from raw data. The information system will be developed in an **iterative procedure**. User requirements will lead to EO-based indicators, as well as to specifications for the system design. The consortium will release several versions of the
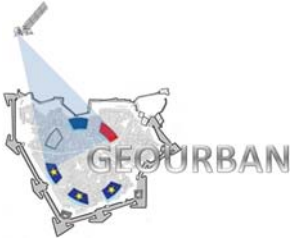
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system during its development exercise. Since it will be a web-based tool, the end-users will be able to **evaluate it online** and provide their feedback. The consortium will take into account the end-user suggestions to develop the next version of the system. The **final version** will be available during the demonstration event to be organized by the end of the project. The work to be carried out has been broken down into nine Work Packages (WPs) following the logical phases of the implementation of the project. There are two horizontal WPs (**WP1**: Management and **WP9**: Dissemination - Exploitation) and seven thematic WPs: **WP2** specifies the urban planning and management requirements, providing guidelines to the other WPs. The EO-based indicators will be developed in **WP3**, taking into account these guidelines. The EO data will be analysed in **WPs 4** and **5,** whereas the capabilities of future missions will be explored in **WP6**. **WPs 4, 5** and **6** will give inputs to **WP3**. The indicators that will be developed in WP3 will be integrated in the system to be developed in **WP7.** Finally, **WP8** is dedicated to information system demonstration.

Since the **adaptation** of the system to **future missions** will be addressed, it is expected that a fully operational tool can be developed in the future. However, **new services** based on the GEOURBAN pre-operational information system can be developed for the urban planning and management community, as soon as this system is available.

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3. Project Organization
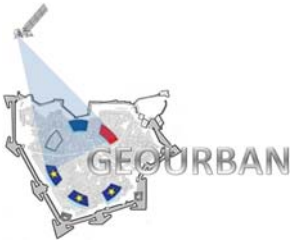
3.1 Organizational structure

Consortium organization

GEOURBAN is bringing together the critical mass of scientific leading institutions in the field of Earth Observation (EO), Geographical Information Systems (GIS), computer science, urban planning, urban climatology, environmental science and decision support systems. The consortium is formed by 6 Beneficiaries from 6 countries. Three stakeholders from three cities are also included. These three cities that have been selected as GEOURBAN application areas are: Basel (Switzerland), Tuymen (Rusia) and Tel-Aviv (Israel). The Beneficiaries cover the required expertise for carrying out a project in the addressed research field. The relevance and use of the envisaged research results will be guaranteed and increased by the integration of the three stakeholders. FORTH acts as Prime Contractor towards the Joint Call Secretariat with all the other Partners as Beneficiaries. The table below provides a list of the Beneficiaries.

#	Beneficiary name	Short name	Country
1	Foundation for Research and Technology - Hellas	FORTH	Greece
2	GRAD - Inform Ltd.	GRADI	Russia
3	GARD Ltd.	GARD	Israel
4	Deutsches Zentrum für Luft- und Raumfahrt	DLR	Germany
5	Kuzgun Bilisim	KUZGUN	Turkey
6	University of Basel	UNIBAS	Switzerland

Project organization

The structure and organization of project activities are presented in Figure 1. A matrix organization has been adopted in order to provide more flexibility and adaptability in changing conditions. The matrix organization takes advantage of the benefits of a pure-project organization while maintaining the advantages of the functional organizations. The GEOURBAN organizational structure is composed of eight WPs (WPs 2 to 9). An

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additional WP (WP1) is especially dedicated to the project management, thus ensuring that GEOURBAN has a solid management and flexible structure adapted to its context.
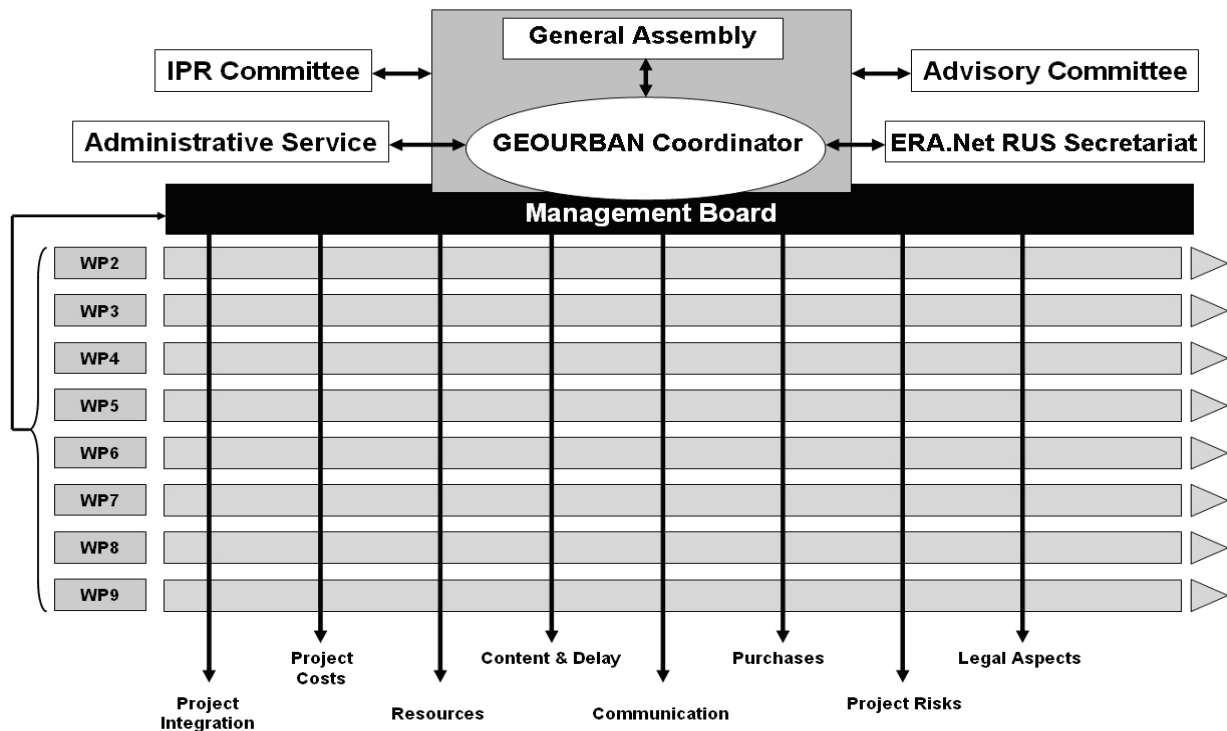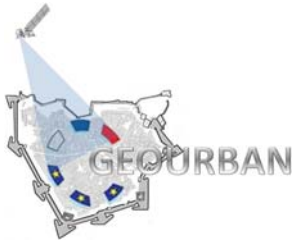

Figure 1. *The Management structure and organization.*

The strategic management level includes the main decision-making role: The Steering Committee (SC), the Management Board (MB) and the Project Coordinator (PC). The PC will be assisted by the Advisory Committee (AC) and by Intellectual Property Right Committee (IPRC), as defined in the Consortium Agreement. The MB represents the operational decision level within the GEOURBAN management organisation. According to the strategy decided by the SC, the MB makes decisions regarding the management and the project's coordination. More precisely, the operational level within the GEOURBAN management organisation is performed by the PC and the WP Leaders. These persons make decisions regarding the technical and management issues including implementing the overall project strategy fixed by the SC (e.g. project re-organisation, contractual matters, IPR, dissemination and exploitation). The MB will meet at least once every six months or more often when required under the chairing of the PC. The MB will inform the SC on the progress of the GEOURBAN project. The MB is the structure through which the

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day-to-day operational management of the different management processes is implemented. The MB is responsible for deploying the necessary procedures and the planning, monitoring and controlling the necessary actions to make sure that the different WPs are well consolidated. The MB will monitor and manage the project according to all requirements given, including ethical, gender, and other social related issues.

3.2 Organizational boundaries and interfaces

In the following sections the point of contact of all the actors involved in the GEOURBAN project are defined.

Contracting Authority

All communications concerning contractual and legal matters will be addressed to:

Joint Call Secretariat of the FP7 Project ERA.Net RUS

International Bureau of the German Federal Ministry of Education and Research at the PT-DLR, Project Management Agency part of the German Aerospace Center
Heinrich-Konen-Str. 1, 53227 Bonn, Germany.

Dr. **Andreas Kahle**
Tel. +49 228-3821-1829
Fax: +49 228-3821-1444
E-mail: Andreas.Kahle@dlr.de

Beneficiary 1 - FORTH

Foundation for Research and Technology – Hellas
Institute of Applied and Computational Mathematics
100 N. Plastira Str., Vassilika Vouton, 70013, Heraklion, Crete, Greece.

Dr. **Nektarios Chrysoulakis** – Project Coordinator
Tel. +30 2810 391762
Fax +30 2810 391761
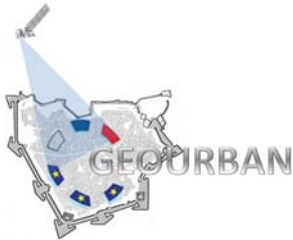E-mail: zedd2@iacm.forth.gr

Beneficiary 2 - GRADI

Division Socio-economic planning group, GRAD – Inform Ltd.
35 Scherbaneva Str., 644024,Omsk, Russia.

Mr. **Igor Penyevskiy**
Tel. +7 3812 470-219
Fax +7 3812 470-239
E-mail: vah-gogy@yandex.ru

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Beneficiary 3 - GARD

GARD Ltd.
Mifratz Shlomo 2, 58498, Holon, Israel.

Dr. **Abraham Tal**
Tel. +972 52 6402-520
Fax +972 3 6955-208
E-mail: atal@post.tau.ac.il

Beneficiary 4 - DLR

Deutsches Zentrum für Luft- und Raumfahrt (DLR)
Division Deutsches Fernerkundungsdatenzentrum, Landoberfläche
Oberpfaffenhofen, 82234, Wessling, Germany.

Dr. **Thomas Esch**
Tel. +49 81 53283-721
Fax +49 81 53281-458
E-mail: thomas.esch@dlr.de

Beneficiary 5 - KUZGUN

Kuzgun Bilisim Ltd.
ODTU Kosgeb Teknoloji Gelistirme Merkezi SEM-2 No: A6
06531, Ankara, Turkey.

Prof. **Sebnem Duzgun**
Tel. +90 31 22101-300
Fax +90 31 22105-822
E-mail: info@kuzgunbilisim.com

Beneficiary 6 - UNIBAS

University of Basel
Division Institute for Meteorology, Climatology and Remote Sensing
Klingelbergstr. 27, 4056, Basel, Switzerland

Prof. **Eberhard Parlow**
Tel. +41 61 2670-700
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4. Managerial Process

4.1 Management objectives and priorities

The objectives of the project management will be mainly addressed to the coordination aspects among all the actors involved in the project frame, and to the monitoring of the project objectives achievement during the overall project life cycle. The management structure is split into three levels: The strategic management, the integrative management and the WP management. All levels of decision and action, including management of WPs follow the continuous process improvement principle towards Excellence represented by the PDCA (Plan Do Check Act) wheel. The MB, consisting of the WP Leaders, will implement and deploy the necessary management procedures (costs, people, facilities, communication, knowledge, purchase, legal aspects and IPR, risks).

Special emphasis will be given to the identification and handling of the potential problems that can occur during the execution of the project. In order to reach this objective well proven monitoring and control procedures as well as risk management techniques shall be applied.

4.2 Assumptions, dependencies and constraints

Further to the rules and procedures identified in this document, other aspects of the cooperation among the Beneficiaries during and beyond the project lifecycle is ruled by the GEOURBAN Consortium Agreement. The document deals with topics like responsibilities of the Beneficiaries, governance structure, financial provisions, access rights, IPR etc.

4.3 Risk Management

Risk management objectives

The Risk Management includes:

- the risk assessment for:
    - ✓ risk identification, in terms of list of risks;
    - ✓ risk analysis, in terms of evaluation of drawbacks and impacts;
    - ✓ risk classification, based on the probability of occurrence and impacts;

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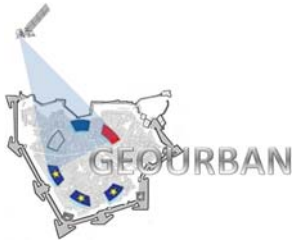Issue: 1.0
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- the risk control for:

  ✓ identification of actions for risk avoidance or reduction;

  ✓ planning and implementation of risk avoidance/reduction actions;

  ✓ risk monitoring with reporting and re-assessment of risks.

The risk identification activity is not bounded at the beginning of the project. Each time a new risk is detected it shall be managed. Nevertheless, the biggest effort has to be put at the beginning in order to anticipate, as far as possible, the monitoring of possible risk and plan, if the case, mitigation actions. The responsibility of managing project risks relies with the PC. Identified risks will be tackled by the PC and alerts will be raised in case any of the identified risks increases its priority.

Risk assessment and control

The risk identification process consists in imagining possible events that can jeopardize the planned project evolution. As an example, here below are listed typical risks of complex project:

- **Schedule slippage and slow progress in general.** This risk is handled by the periodic progress status assessments performed by the PC reported to all the Beneficiaries. Relevant indicators will be defined to cater for trends in progress achievement, showing the average actual schedule slippage of each task with respect to the original planning. Possible problems in indicators values and trends will be discusses with the Beneficiaries aiming at finding the best solution in the shortest time.

- **Underestimation of the required effort.** This risk is handled by monitoring the planned versus actual effort required by each task. Indicators and statistics will be identified and managed by the PC.

- **Turn over of key-personnel.** This risk is managed by standardizing the way of working across the various teams and by defining a backup policy, so that in case of unexpected leave, remaining personnel can temporarily compensate for the absent ones, while waiting for a permanent substitution. The backup policy will not be limited to the key-personnel only but will be applied as far as possible to all the resources.

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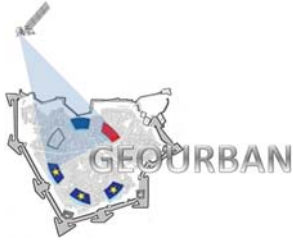Page number: 13/71

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4.4 Monitoring and project reporting

Every 6 months, each Beneficiary will submit to the PC a consolidated report on the progress of the different WP aspects. The reporting will include information about the technical progress, results obtained (e.g. Deliverables), the compliance with the work programme and all the relevant information at management level (resources, costs, delays...). The PC will synthesize the overall project status and planning. For the attention of the Joint Call Secretariat (JCS), the following reports will be prepared by the MB and officially supplied by the PC:

- **Semesterly Progress Reports**: These reports will contain a concise description of all activities undertaken with respect the objectives, action and work plan envisaged in the project.

- **Mid-term Report**: This report will be released in M12. It will contain a detailed account of the activities undertaken with respect the objectives, actions and work plan envisaged in the project during the first 12 months. For the mid-term assessment report preparation, a mid-term meeting will be organized with all Beneficiaries. The purpose of this meeting will be to report on the progress to date and to redefine if necessary the programme for the remaining part of the Umbrella Agreement.

- **Final Report**: This report will contain a summary of the main achievements and results of the project; a detailed account of the activities undertaken with respect the objectives, actions and work plan envisaged in the project. It will be released at the end of the project.

The ERA.Net RUS project Periodic Report and Final Report Reporting Templates will be used for the preparation of the above reports.

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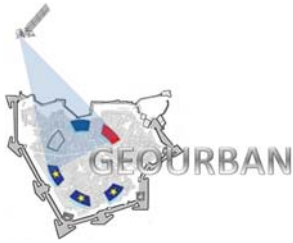Page number: 14/71

4.5 Action Item management

Action generation shall be traced into the relevant Minutes of Meeting. Each action should include the following information:

- action identifier;

- action responsible;

- action deadline.

Actions can have three different states which depend on the current level of accomplishment:

- an action is **OPEN** if it is not yet managed;

- an action is **CLOSED** if there is evidence that somebody accomplished the action;

- an action is **MODIFIED** if it is rescheduled;

- an action is **DELETED** if not yet closed and no longer valid.

The PC is in charge of managing the project action item list. This list shall be produced and presented during MB meetings where delays in action closure shall be discussed.

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5. Technical Process

5.1 Methods, Tools and Techniques

This section gives an overview of the tools used for supporting the various project activities.

Documentation and other support activities

The standard Microsoft Office^{TM} package shall be used:

- Word (text processing)

- PowerPoint (drawing tool)

- Excel (spread sheet)

- Access (database)

Planning

The tool used by PC for monitoring the progress of the project is Microsoft Project^{TM}.

Specification/Design

Several tools have been considered as candidates for supporting the specification and design activities. Decisions for which tools shall be used will be taken in the early stages of the project.

Configuration Management

The configuration control of all the SW developed shall be under the FORTH responsibility.

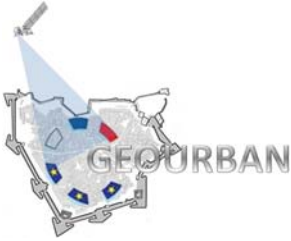## 5.2 Documentation

Document identification

All documents issued in the framework of GEOURBAN will be identified by a reference identifier, an issue number and a description.

The reference identifier will be defined as follows:

GEOURBAN _<Number>_< DocType >_<BeneficiaryCode>

where:

- **GEOURBAN** identifies the project;
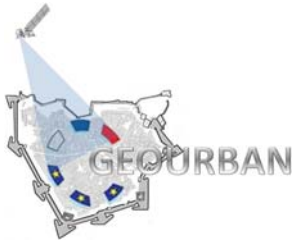
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- **\<Number\>** is a progressive number identifying each document inside its \<DocType\>. It is a two digit number filled with zero (e.g. the first document is 01) and is maintained by FORTH for all the documents produced within the project.

- **\<DocType\>** is one of the following:

\<DocType\>	Explanation
PL	Plan: i.e. Project Management Plan.
CD	Consortium Document: i.e. Consortium Agreement.
DD	Design Document: i.e. WIS Design.
DM	Dissemination Material: i.e. Newsletter.
MM	Minutes of Meeting.
PR	Project Report: Mid-term Report, Final Report.
TR	Technical Report: i.e. Indicators Definition Report.
PT	Protocol: i.e. EO Data Analysis Protocol.
TN	Technical Note.
MN	Management Note.
OT	Other documents.

- **\<BeneficiaryCode\>** identify the project Beneficiary responsible of the document issue. It can have one of the following values:

\<BeneficiaryCode\>
FORTH
GRADI
GARD
DLR
KUZGUN
UNIBAS

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The <u>issue number</u> applies only to documents that undergo an evolution process. In fact, it makes the traceability of the document evolution possible. The issue number has the following format:

<edition>.<revision>

where:

- **<edition>** is a progressive number starting from 0. The edition 0 identify a document in draft status. The edition 1 identify the first issue of the document.

- **<revision>** is a progressive number starting from 0. It can be applied also to documents with edition 0.

The names of the files containing the project documents shall follow the convention:

   GEOURBAN_<Number>_<DocType>_<BeneficiaryCode>_<edition>.<revision>_<description>.pdf

where **<description>** is:

- the deliverable number and a short description for all the deliverable documents;

- a short description (max 20 characters) for all the other documents.

Document Production

All the documents shall be produced according to the standards defined in Section 4. Each Beneficiary will be in charge of defining its own production environment. FORTH will archive and maintain the configuration of all the project official documents. In order to allow an easy way for document exchanging between Beneficiaries, FORTH has developed a ftp server. To provide a secure and user friendly environment a password protected graphical user interface was installed in FORTH ftp server (http://iacm.forth.gr/egroupware), as shown in Figure 2. All the Partners shall be allowed to connect to this server for reading, uploading and downloading files. Uploading shall be allowed only on specific directories. Documents reading and downloading shall be allowed on a documentation tree structure. Documents produced within the project shall be stored under directories whose name is the name of the WP they pertain to. There are also dedicated directories for all Deliverables. Each of such directories will be internally structured in sub-directories to facilitate the access to the information contained. The initial
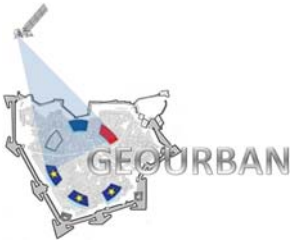
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organisation is shown in Figure 2. For each event/meeting a directory will be created named as the meeting itself, where all the documentation related to it shall be stored. The position of this directory in the documentation tree structure will depend on the nature of the correspondent event/meeting. Monthly back-up of this tree will be made.
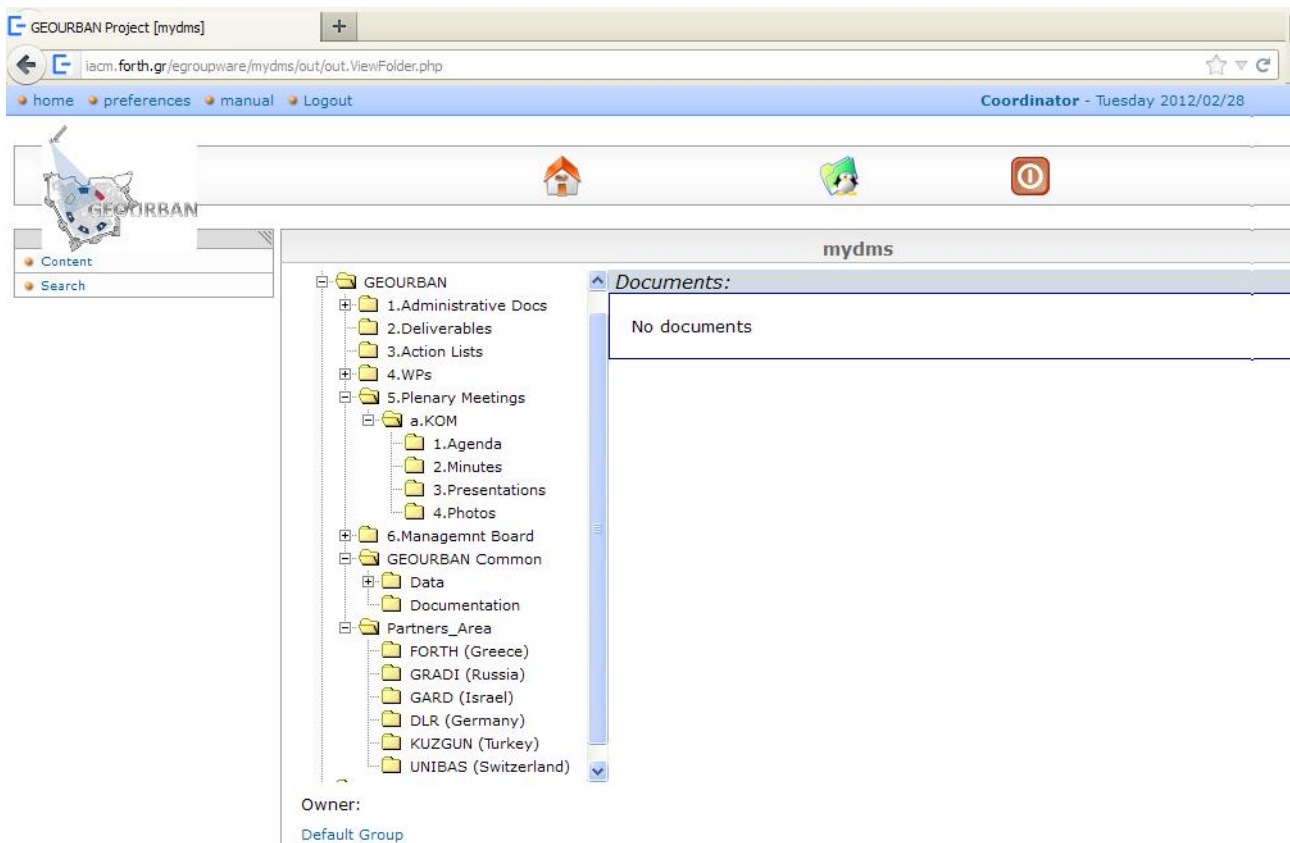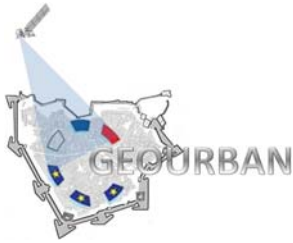

Figure 2. *The ftp-based graphical user interface of GEOURBAN.*

Document Evaluation

All deliverable documents will undergo a review process before the formal delivery to the JCS, according to the procedure described below. For each review a Review Team will be appointed. The review purpose and rules shall be notified to the Review Team members at least a week before the document issuing for review. Each member will be provided with a copy of the document to be reviewed, and will produce a RID (see the template in Annex) for each problem found. The RIDs produced shall be sent to the Book Captain and to the PC. All the RIDs produced shall be taken into account by the author in producing the final version of the document. If the document author disagrees with a RID or the solution

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proposed, he will provide a clear explanation of the reasons to the RID author and to the PC. Depending on the importance of the deliverable, a meeting can be called at the end of the review process to discuss the results and decide about possible open items.

Document Modification

The document modification involves the activities due to approved RIDs. The document author shall trace within the Document Status Sheet (see page 2 of the present document) all the modifications applied and shall properly update the issue and revision number. All parts of the document modified with respect to the previous issue will be being indicated.

Document issuing

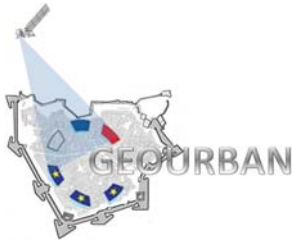The following rules will be applied on the documentation issuing process:

- All the documents will be issued to JCS directly by FORTH.

- The Book Captain will send the document to FORTH for review and approval.

- The documents sent to FORTH will be complete in every part.

- The deadline for issuing the document to FORTH will vary from one week up to four-five weeks depending on the document importance and complexity.

- One or more drafts are foreseen also with incremental approach.

Documentation Standards

The standard Word Processor used within GEOURBAN is Microsoft Word. To increase the level of standardization in the documentation editing and review, the following templates have been defined up to now:

- GEOURBAN_doc.dot: Word template for documents;

- GEOURBAN_min.dot: Word template for Minutes of Meeting;

- GEOURBAN_RID.dot: Word template for RIDs.

These templates will be stored in a dedicated directory in the FTP server described before in order to allow all the Partners to easily download them, if necessary. The templates for Minutes and RIDs are also attached to the present document in Annex. The template for documents is not attached because the present document itself represents an application of it.

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6. Quality Assurance & Control

6.1 Quality assurance tasks and responsibilities

The PC is responsible for the project quality and is supported by the MB in the definition of the Quality Assurance (QA) items applied to the project, and in the execution of the control activities planned or considered useful during the project, according to what is defined in the following paragraphs.

6.2 Standards and practices

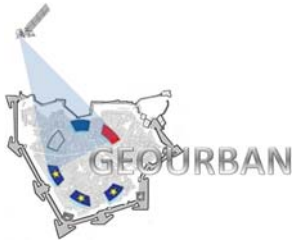### *Documentation standards*

Documentation shall be produced according to the guidelines provided in §5.2.

Coding standards

Specific rules to be applied during code design and development shall be specified into a technical note issued, in advance with their application, by the Lead Beneficiary to all the Beneficiaries involved in the development activity. The usage of coding standards shall be respected to assure uniform and coherent software (SW) production from different developers. As general statement, the rules provided shall be as general as possible and shall deal mainly with design methodology selection, naming conventions and layout aspects. The Lead Beneficiary will be in charge of verifying the correct application of the rules defined.

Testing standards and practices

Web-based Information System (WIS) testing standards and practices shall be defined within the test plans foreseen by the project deliverables (D.7 GEOURBAN Information System, D.8 Demonstration Proceedings). The Lead Beneficiary will be in charge of checking the compliance of the testing approach with what defined in the applicable documents.

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6.3 Review and audit

Review

Reviews mainly deal with the evaluation and approval of Management and Technical documents to be delivered to the JCS the frame of the GEOURBAN project. In the scope of the review process, the PC is in charge of organizing the reading cycles, the review team and the final verification of the copies to be issued. He is also in charge of collecting all the RIDs produced in each review in order to trace their application in the final document.
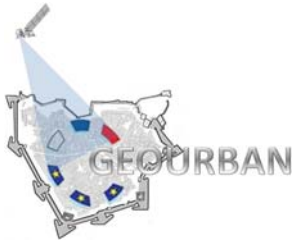
Audit

An internal audit may be requested by the PC in order to check project activity versus project development standards. The PC will organize and conduct the internal audit according to an Audit Organization Note that will be delivered to all the involved people. This Note shall describe the audit purpose, the audit procedure and the audit agenda. An Internal Audit Report shall be filled with audit results and possible corrective actions, and will be notified to the MB.

6.4 Problem reporting and corrective action

All the problems found throughout the project activities will be managed and traced. The problems can be divided in two different categories:

- Documentation problem: it is related to the contents of a document and shall be reported using RID forms (see template in annex A).

- SW problem: it is a difference between the expected result and the actual one. It shall be reported using an appropriate form (not yet defined).

The Lead Beneficiary is in charge of verifying the tracing of the above mentioned problems and carrying out the follow-up of the relevant corrective actions.

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6.5 Code control

All the SW developed in the frame of the GEOURBAN project shall be delivered to JSC by FORTH. FORTH will be also responsible for the configuration management of all the SW developed. Algorithms, tools, SW control rules and other practices applicable to SW configuration management shall be defined in a specific Technical Note issued by the Lead Beneficiary to all the Beneficiaries involved in code development. The Lead Beneficiary will verify the correct application of the Configuration Management procedures defined.

6.6 Media control

Each media will be identified by a proper label providing information on its content. At least it will contain:

- Project name (i.e. GEOURBAN).

- Media identifier.
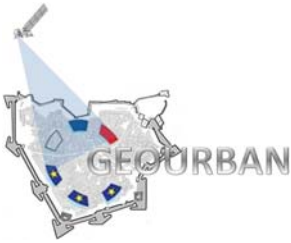
- Date.

- Content description.

The media identifier is defined as follows:

GEOURBAN-<Number>-< MediaType >-<BeneficiaryCode>

where:

- **<MediaType>** can be CD, DVD ROM, etc.

- <**Number**> have the same meaning described in §5.2.1.

- <**BeneficiaryCode**> have the same meaning described in §5.2.1.

The date written on the medium label is the medium creation date. The content description will include the issue/revision number and the Deliverable Number (e.g. D.3.), if any. Media will be archived by the PC who is responsible for their security and safety. He will also verify the correct labeling of media used for formal delivery.

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7. Project Workplan

7.1 Process model

This section describes the development approach adopted by the GEOURBAN project in order to achieve its objectives. The overall **GEOURBAN approach** is shown in Figure 3. GEOURBAN will explore the potential of EO to support urban planning and management by providing **guidelines** towards **sustainability** objectives at micro, local and regional scales, as well as towards **climate change adaptation**. These guidelines will be the result of the combination of several EO-based indicators using the web-based information system that will be developed. The web-based character of this tool makes it easily transferable from city to city and the indicators can be evaluated if EO data are available.
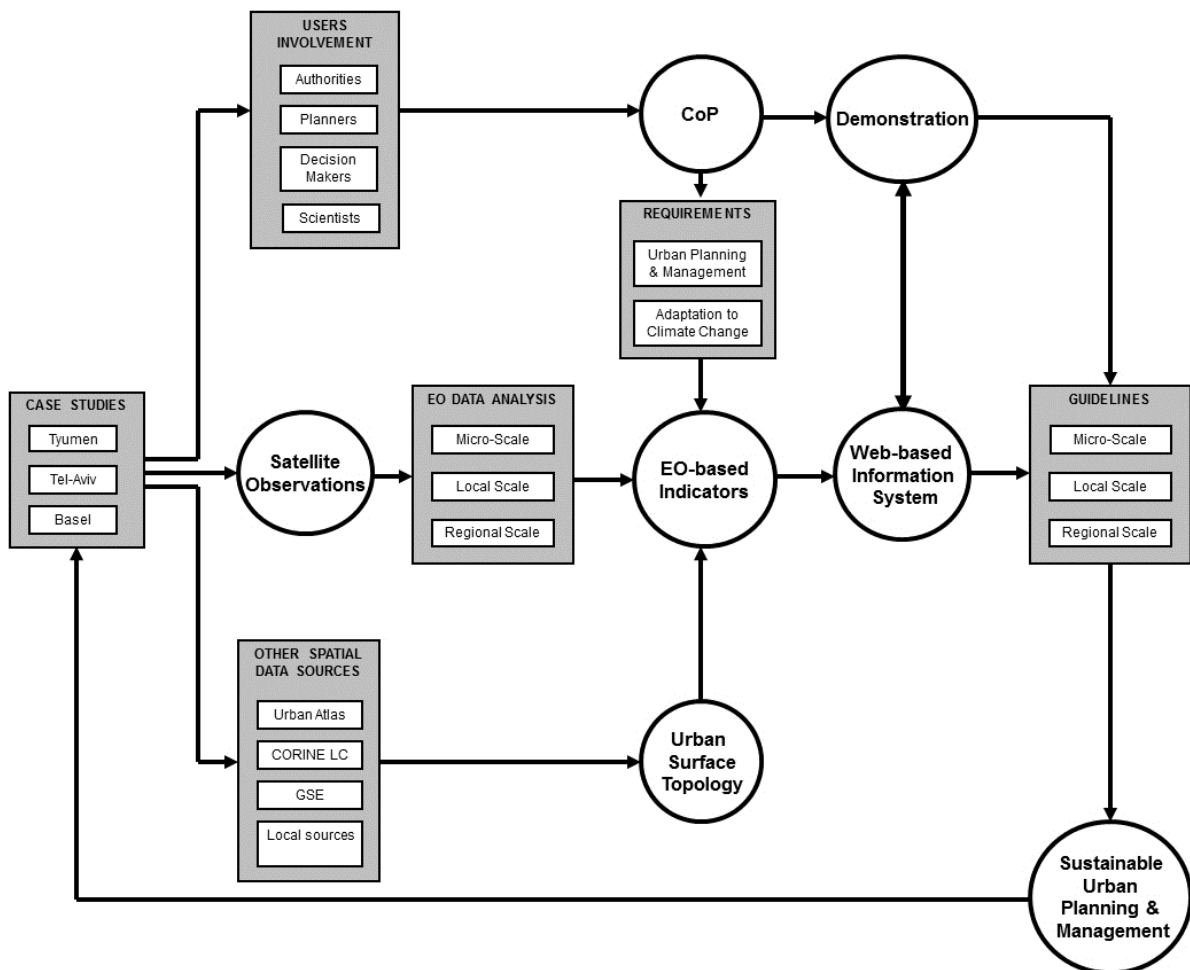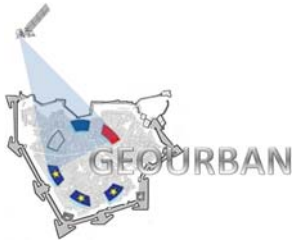

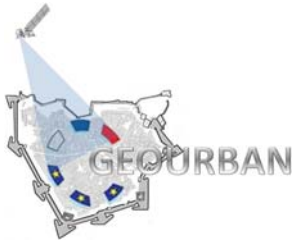**Figure 3.** *Flowchart of the GEOURBAN methodology.*

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Auxiliary vector data that may be needed to describe the urban surface topology and to spatially constrain the indicator calculations will be available from public sources free of charge (i.e. Urban Atlas, CORINE Land Cover, GMES Service Elements, etc.). However, the end-user will have the option to use his/her own spatial data in vector format to support the indicator calculation, especially in cities where no other spatial information is available.

The EO data is the **main input** for GEOURBAN indicators. Well-known EO analysis methods will be used to calculate products from raw data. It should be noted that the development of new EO data processing tools is not among the objectives of GEOURBAN, but rather **state of the art methods** will be implemented. However, the end-user will be provided with guidelines on the implementation of a minimum set of these methods, capable of extracting the products that are needed in indicator estimation, if the EO raw data are available. These methods will be implemented off-line, therefore they will be not part of the information system; only the products will be used as inputs. Some of these indicators, especially in regional scale, could be evaluated by EO higher level products available on-line, such as MODIS Level-2 products. In this case, the indicator evaluation will be fully **automatic**. However, for micro-scale, where very high spatial resolution EO data are needed, the respective analysis will be implemented off-line by the consortium for the GEOURBAN case studies. This can lead to a **new service** after the completion of the GEOURBAN information system. Because the indicators will be easily **transferable** from city to city, however, the inputs needed in the estimation of some of these indicators will need to be produced **off-line.** It is therefore obvious that the **private companies** involved in GEOURBAN consortium can develop a new service for the urban planning community by supporting the information system implementation for scales that EO higher level products are not online available.

The end-users at GEOURBAN case studies (local authorities, urban planers and decision makers) will be involved in the project from the beginning via a **CoP** approach. They will provide the consortium with **requirements** related to urban planning and management, as well as to adaptation to climate change. A sub-set of these requirements that can be supported by EO methods and data will be extracted after a round of CoP meetings in all case studies. A second round of CoP meetings, or an umbrella CoP, will be organized
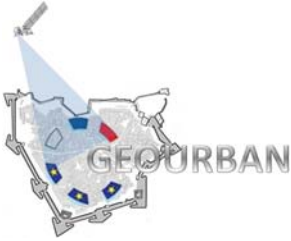
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during the **demonstration** of the GEOURBAN information system. In the framework of the demonstration procedure, hands-on applications will be organized to give the end-users the opportunity to be familiarized with the final version of the information system.

The GEOURBAN information system will be developed in an **iterative procedure**. User requirements will lead to EO-based indicators, as well as to specifications for the information system design. The consortium will release several versions of the information system during its development exercise. Since it will be a web-based tool, the end-users will be able to **evaluate it online** and provide their **feedback** to the consortium. The consortium will take into account the end-user suggestions to develop the next version of the information system. The **final version** will be available during a demonstration event to be organized by the end of the project.

The work to be carried out in GEOURBAN has been broken down into **9 Work Packages** (WPs) following the logical phases of the implementation of the project:

- **WP1**: Project Management.

- **WP2** is dedicated to **Urban Planning Requirements relative to EO**. It will document current understanding and the status of needs of urban planning and management that can be supported by EO data and methods.

- **WP3** is related to **EO-based indicators development**. It is a central WP in GEOURBAN, because the main research activity will focus on the development of these indicators. They will be the result of the synthesis of several EO products at various scales in a way that they result in meaningful information for urban planning and management

- **WP4** includes the **micro-scale applications** in GEOURBAN case studies

- **WP5** includes the **local and regional applications** in GEOURBAN case studies.

- **WP6** includes the investigation of the **potential of future missions** to support the GEOURBAN indicators and information system.

- **WP7** is dedicated to **Information System Development** including its design and development activities. GEOURBAN will exploit the advances in EO and information
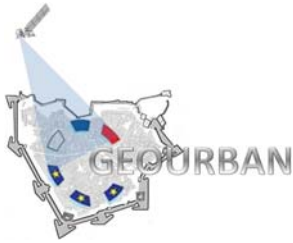
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systems technologies to develop a tool which will be used to support the decision making in urban planning and management.

- **WP8** includes demonstration and feedback by the end-users on the applicability, usefulness and potential impact of the GEOURBAN Information System.

- **WP9**: Dissemination - Exploitation. It will cover activities related to dissemination and exploitation, such as the establishment of a network community, the provision of publishable deliverables and the setting up of workshops, ect.
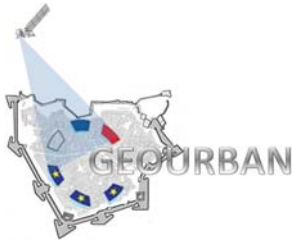
There are two horizontal WPs (Management and Dissemination - Exploitation) and seven thematic WPs. The framework of **CoP's** will also run across the WPs 2 and 8. **WP1** interacts with **all** the other **WPs** since it coordinates and monitors project implementation. **WP2** to **WP8** provide information to **WP9**. This information is related to the progress and achievements of the project and will be disseminated and used to support exploitation of the GEOURBAN indicators and Information System. **WP2** specifies the urban planning and management requirements. Therefore it provides guidelines to the other thematic WPs. The EO-based indicators will be developed in **WP3**, taking into account these guidelines. The EO data will be analysed in **WPs 4** and **5,** whereas the capabilities of future missions will be explored in **WP6**. **WPs 4, 5** and **6** will give inputs to **WP3**. The indicators that will be developed in WP3 will be integrated in the information system to be developed in **WP7.** As it is shown in Figure 4, **WPs 4, 5** and **6** provide also inputs to **WP7** via **WP3.** These inputs will be used for the information system database development. The selected GEOURBAN case studies will be used in **WP8** for the GEOURBAN information system demonstration.

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7.2 Project Deliverables

The following **Deliverables** will be submitted for review to the ERA.Net RUS Secretariat:

#	Name	WP	Responsible	Delivery Date
D.1.1	Project Management Plan.	1	FORTH	M3
D.1.2.i	Semesterly Progress Reports	1	FORTH	Semesterly
D.2	Urban Planning Requirements relative to EO	2	UNIBAS	M6
D.4.1	EO Products Database (VHR)	4	KUZGUN	M6
D.4.2	EO Data Analysis Protocol (VHR)	4	KUZGUN	M6
D.9.1	Dissemination and Use Plan	9	GARD	M6
D.9.2	GEOURBAN Web Site.	9	GARD	M6
D.5.1	EO Products Database (HR-LR)	5	UNIBAS	M12
D.5.2	EO Data Analysis Protocol (HR-LR)	5	UNIBAS	M12
D.1.3	Mid-term Report	1	FORTH	M12
D.9.3.i	GEOURBAN Published Material.	9	GARD	Periodically
D.6	Guidelines for Future Missions Data Analysis	6	DLR	M15
D.3	EO-based Indicators Development	3	FORTH	M18
D.7	GEOURBAN Information System	7	GRADI	M20
D.8	Demonstration Proceedings	8	GARD	M22
D.1.4	Final Report	1	FORTH	M22

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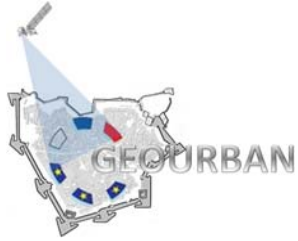Date: 30/3/2012
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7.3 Work Packages list and Project Milestones

The table below lists the project WPs.

WP No	WP Title	Type of activity	Lead	Person Months	Start Mont	End Month
WP1	Project Management	MGT	B1	10,5	1	24
WP2	Urban Planning Requirements relative to EO	RTD	B2	16,5	1	6
WP3	EO-based Indicators Development	RTD	B3	24	7	18
WP4	Micro-scale Applications	RTD	B5	16,2	2	6
WP5	Local & Regional Applications	RTD	B8	17,3	7	12
WP6	Future Missions Potential	RTD	B1	6	13	15
WP7	Information System Development	RTD	B6	36	13	22
WP8	Case Studies Demonstration	DEM	B13	12,5	22	24
WP9	Dissemination - Exploitation	OTHER	B10	9	6	24
	TOTAL			**148**		

The following **milestones** have been identified for the project:

#	Name	WP	Date	Comments
M.1	Kick-off meeting	1	M1	▪ Discussion on the Project Management Plan.
M.2	1st Progress Meeting	1,2,3,4,5,9	M6	▪ WPs 2, 4 and CoP meetings concluded. ▪ Begin of WPs 3 and 5; web-site operation.
M.3	Mid-term Meeting	All	M12	▪ WP5 concluded; 1st Newsletter released. ▪ Begin of WPs 6 and 7.
M.4	2nd Progress Meeting	1, 3, 6, 7	M18	▪ WP3 concluded; 2nd Newsletter released. ▪ First release of the information system.
M.5	Information System Developed	7,8,9	M22	▪ WP7 concluded; begin of WP8 ▪ Final release of the information system
M.6	Final Meeting	All	M24	▪ WPs 8, 9 and demonstration event concluded ▪ 3rd Newsletter and Final Report released.

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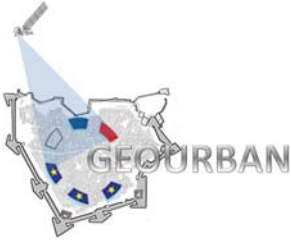Date: 30/3/2012
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7.4 Project Planning and Time table

The following chart shows the intended Project Schedule in Gantt format:

- Work Packages.
- Milestones.
- Meetings.

GEOURBAN	Year 1												Year 2											
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
	2012												2013											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WP1 Project Managemnt	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WP2 Urban Planning Requirments relative to EO	■	■	■	■	■	■																		
WP3 EO-based Indicators Development							■	■	■	■	■	■	■	■	■	■	■	■						
WP4 Micro-scale Applications		■	■	■	■	■																		
WP5 Local & Regional Scale Applications							■	■	■	■	■	■												
WP6 Future Missions Potential													■	■	■									
WP7 Information System Development													■	■	■	■	■	■	■	■	■	■		
WP8 Case Studies Demonstration																						■	■	■
WP9 Dissemination - Exploitation						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Kick-off Meeting (Heraklion)	■																							
Community of Practice Meeting (Basel)			■																					
Community of Practice Meeting (Tel-Aviv)				■																				
Community of Practice Meeting (Tyumen)						■																		
1st Progress Meeting (Tyumen)						■																		
Mid-term Meeting (Tel-Avivl)											■													
2nd Progress Meeting (Ankara)																		■						
Demonstration Event (Basel)																								■
Final Meeting (Basel)																								■

Figure 4. *Gantt chart presented the work schedule and the project milestones.*

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7.5 Work Package descriptions

In this section the Work Breakdown Structure and the detailed Work Package Description is given. The following figure depicts the project WBS and the WP interdependencies.
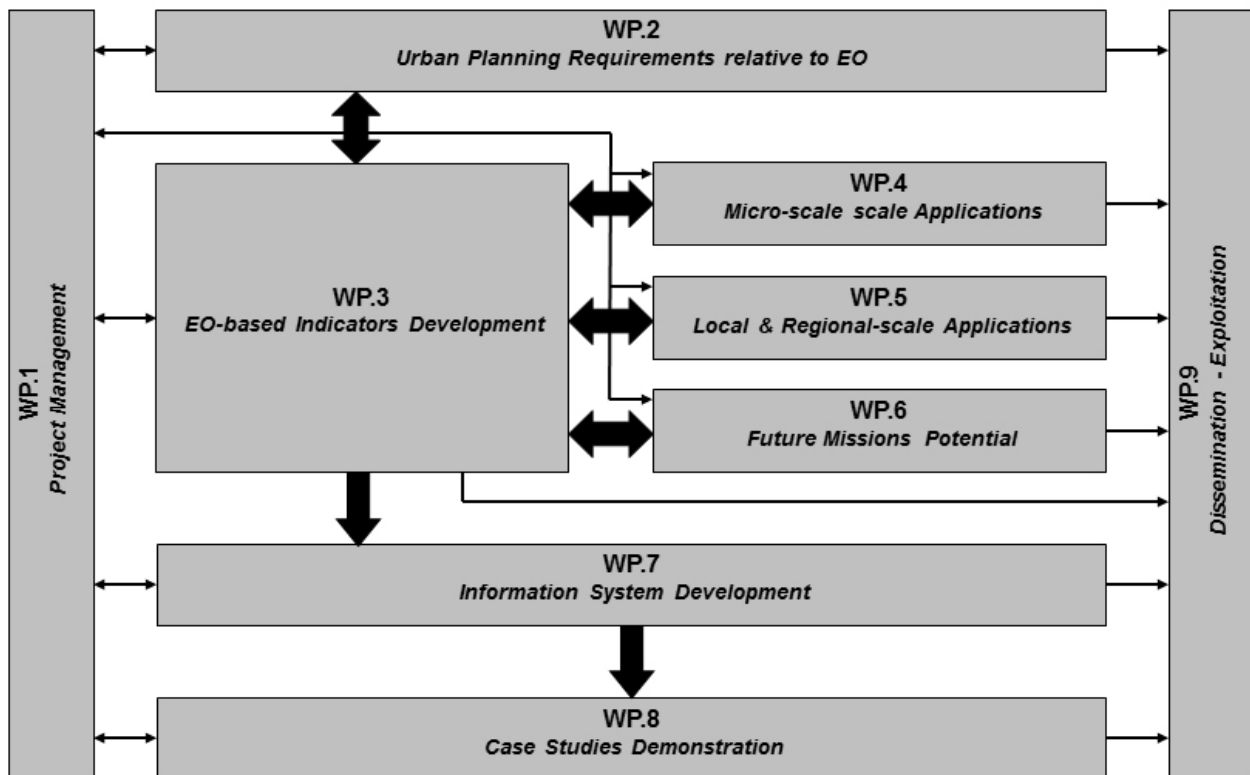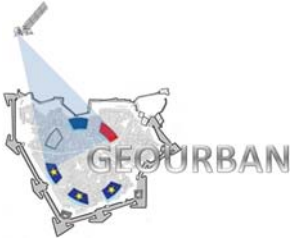

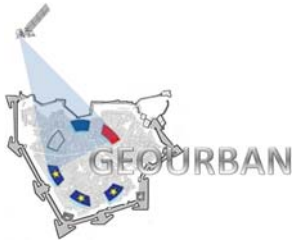**Figure 5.** Graphical *representation of the WP components showing their interdependencies.*

In the following, a detailed WP description is given. When more then one Beneficiaries contributes to the same WP the responsible one is indicated in bold. The starting date of each WP has been defined in months after the project kick-off.
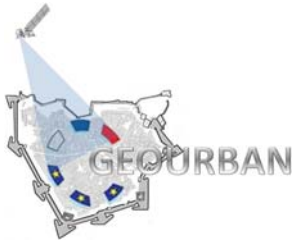
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WP1: Project Management.
(start: month 1; duration: 24 months)

The ambitious objectives, the number of participants and the implementation of the project require a strong and coherent excellence-oriented management system able to carry out projects such as GEOURBAN. This management system relies on internationally recognized management models and standards. It is split into three levels of management activities: Strategic management, integrative management and management of WPs. The strategic management is mainly based upon the ISO 10006 project management standard. The responsibility of defining, implementing, controlling and improving the strategic management belongs to a Management Board (MB), an Advisory Committee and an Intellectual Property Right Committee, as defined in **Section C** and further detailed in the **Consortium Agreement** that will be endorsed by GEOURBAN partners before the project starts. The integrative management is carried out by the MB as well and is supported by the Administrative Service. It will interact with the R&D, demonstration and training activities performed in the WPs, through the implementation of integrative processes. These processes include project planning, resource management, project communication, contract management, quality control, legal activities, knowledge management, shared tools, etc. They will provide common services and support to all WPs and thus will contribute to a high degree of integration. The management of WPs, based upon the principles of ISO 10006, will rely on the identified WPs that will group and coordinate all individual Tasks belonging to their activity. Each WP will be managed by a WP Leader who will be responsible for the administrative and technical management of its WP. The overall approach to management is described in **Section C**. WP1 will continuously interact with **all** other **WPs**. **FORTH** will lead WP1 and all partners will be involved.
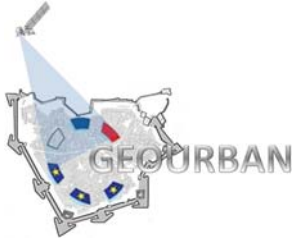
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WP2: Urban Planning Requirements relative to EO.

(start: month 1; duration: 6 months)

The main objective of WP2 is to document current understanding and the status of needs of urban planning and management that can be supported by EO data and methods. The work to be carried within WP2 has two main directions: a) routine urban planning and management requirements (including requirements for natural disaster risk mitigation and urban security) and b) urban planning requirements for adaptation to climate change. To achieve this, the experience of the consortium partners in past projects, such as BRIDGE (Chrysoulakis et al. 2009, 2010), will be exploited and a CoP will be used. The output of this WP will be a report on urban planning and management needs that can be met by using EO data and methods. **WP2** will continuously interact with **WP3** and give inputs to **WP9**. **UNIBAS** will lead WP2; GRADI, GARD and FORTH will participate.
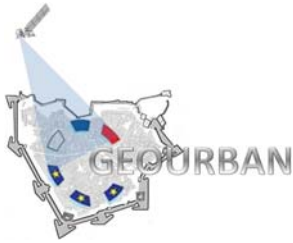
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WP3: EO-based Indicators Development.

(start: month 7; duration: 12 months)

It is a central WP in GEOURBAN, because the main research activity will focus on the development of these indicators. They will be the result of the synthesis of several EO products at various scales in a way that they result in meaningful information for urban planning and management. They will have the potential to provide urban planners with meaningful information related to the monitoring of urban sprawl (track urban area growth and change, monitor changes in peri-urban regions), mapping and analyzing the urban surface structure (land cover, buildings arrangement, assess the spatial arrangement of green/open space within cities and at the periphery), extracting of bio-physical parameters (albedo, emissivity, impervious areas), assessing urban environmental and microclimatic characteristics (track land-cover and land-use changes that influence urban climatology and atmospheric deposition, urban heat island and air quality monitoring) and assessing urban vulnerability to natural disaster risks (earthquakes, subsidence, mudslides, floods) and urban security (crime prevention through urban planning). We envisage that the proposed set of indicators will help decision-making to optimize the planning and management in the urban environment through the use of the information system. The output of this WP will be a set of indicators to be used by the GEOURBAN information system and a report summarizing the development of these indicators. **WP3** will contiguously interact with **WPs 2,4, 5** and **6** and give inputs to **WPs 7** and **9**. **FORTH** will lead WP3; KUZGUN, DLR and UNIBAS will participate.

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WP4: Micro-scale Applications in GEOURBAN Case Studies.

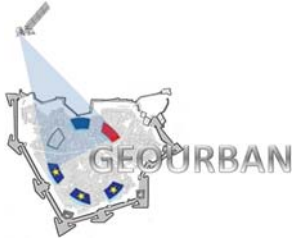### (start: month 2; duration: 5 months)

Although previous research projects already addressed the use of very high spatial resolution (VHR) EO data in urban planning and management, **WP4** represents a unique attempt to collect and to analyze an integrated EO dataset suitable for the estimation of a subset of the EO-based indicators developed in WP3. The development of EO data analysis techniques is beyond the scope of GEOURBAN, therefore state of the art methods will be used to derive specific products from raw EO datasets. VHR (e.g. Ikonos/Quickbird/WorldView type) satellite data will be used in the GEOURBAN case studies. The output of this WP will be a set of products to be used as inputs for indicator evaluation and a report on the techniques used to derive these products from raw EO data. This report will have the form of a protocol guiding the end-user in deriving such products. **WP4** will continuously interact with WP3 and provide inputs to **WPs 7** (via **WP3**) and **9. KUZGUN** will lead WP4; DLR and FORTH will be involved.
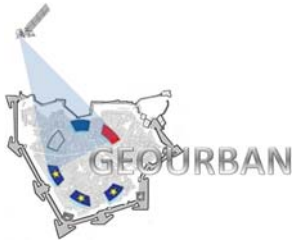
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WP5: Local & Regional Scale Applications in GEOURBAN Case Studies.

(start: month 7; duration: 6 months)

As in the case of VHR data, previous research projects already addressed the use of high spatial resolution (HR) EO data in local scale applications such as land cover mapping and change detection, as well as the use of low spatial resolution (LR) EO in regional scale applications such aerosol concentration estimation, **WP5** represents a unique attempt to collect and to analyze an integrated EO dataset suitable for the evaluation of a subset of the EO-based indicators developed in WP3. As in WP4, the development of EO data analysis techniques is beyond the scope of GEOURBAN, therefore state of the art methods will be used to derive specific products from raw EO datasets. Both HR (Landsat/SPOT type) and LR (MERIS/AATSR type) satellite data will be used in GEOURBAN case studies. In case of regional scale where EO derived products are already available online (i.e. MODIS Level 2 products) these products will be directly used. The output of this WP will be a set of products to be used as inputs for indicator evaluation and a report on both the techniques used to derive these products from raw EO data and the location of the online available EO-derived products. **WP5** will continuously interact with WP3 and provide inputs to **WPs 7** (via **WP3**) and **9. UNIBAS** will lead WP5; GARD, FORTH and DLR will be involved.
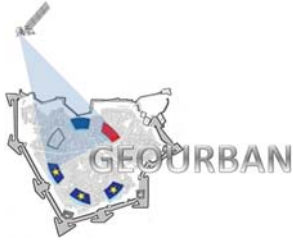
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WP6: Future missions Potential.

(start: month 13; duration: 3 months)

The characteristics of future missions capable of supporting urban planning and management will be examined and their capability to provide inputs for the evaluation of the developed indicators will be addressed. The study will focus on the following missions, expected to be operational in the near future: Sentinels 2 and 3 to be operated by ESA, EnMAP to be operated by DLR and HyspIRI to be operated by NASA. WP6 will provide guidelines on how the EO data from future missions will be used to evaluate GEOURBAN indicators and suggests additional indicators that cannot be provided using current sensors data, but are likely to be evaluated by using future mission observations. The output of this WP will be a report summarizing the above guidelines and describing any additional indicators. **WP6** will continuously interact with WP3 and provide inputs to **WPs 7** (via **WP3**) and **9. DLR** will lead WP6; KUZGUN and FORTH will be involved.
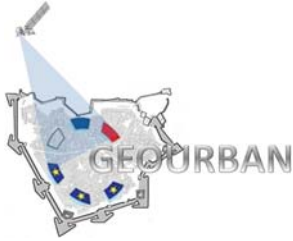
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WP7: Information System Development.

(start: month 13; duration: 10 months)

GEOURBAN will exploit the advances in EO and information systems technologies to develop a tool which will be used to support the decision making in urban planning and management. GEOURBAN Information System will be web-based, therefore easily **transferable** from city to city. It will offer an **analytical** and a **visualization** component. The analytical component will support the evaluation of the various indicators using EO-derived products, as well as their statistical integration in space and time. The visualization tool will exploit the web-GIS capabilities to present the composed maps to the user in a web environment (i.e. GoogleEarth type). The information system will be designed to run on the user's client, therefore the user will be able to use its individual EO derived products and to extract and save the produced maps in several standard vector formats. A Graphical User Interface (**GUI**) will be developed resulting in a **user friendly** application. This WP will also ensure that the information system will be built on current knowledge and make best use of the available geo-information resources from a scientific and planning perspective. The output of this WP will be the GEOURBAN Information System. **WP3** will provide inputs to **WP7**, whereas WP7 provide inputs to **WPs 8** and **9. GRADI** will lead WP7; KUZGUN and FORTH will be involved.
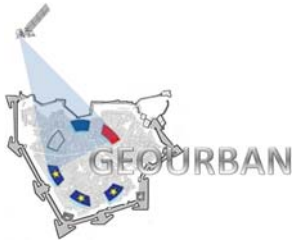
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WP8: Case Studies Demonstration.

(start: month 22; duration: 3 months)

WP8 includes demonstration and feedback by the end-users on the applicability, usefulness and potential impact of the GEOURBAN Information System. The work will be focused on a major event in terms of an umbrella CoP, to be organized in M22. During this event the final version of the information system will be demonstrated. The output of this WP will be the demonstration proceedings reporting also the urban planning guidelines based on the application of the system in GEOURBAN case studies. **WP7** will provide inputs to **WP8**, whereas WP8 provide inputs to **WP9. GARD** will lead WP8; UNIBAS, GRADI and FORTH will participate.

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WP9 is related to **Dissemination – Exploitation.**
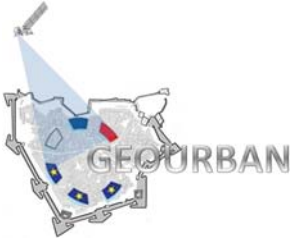
(start: month 6; duration: 19 months)

Dissemination, communication and capacity-building activities are foreseen during the life cycle of the project, preparing the information system exploitation. Activities such as the establishment of a network community (using the CoP's as building blocks), the provision of publishable deliverables and the setting up of workshops will support the surveys in urban environmental research and sustainable planning activities. The dissemination and exploitation strategy is described in **Section D**. WP9 received inputs from **WPs 2, 3, 4, 5, 6, 7** and **8**. **GARD** will lead WP9 and all partners will be involved.

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7.6 Responsibility assignment

The following table summarizes Beneficiaries main responsibility assignment within the GEOURBAN project life cycle. The allocation lists the main area of involvement on which Beneficiaries shall provide their contribution according to the estimated effort reported in Section 7.5. Bold means responsibility at WP / task level.

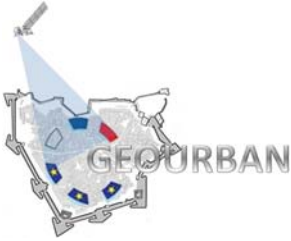|	
FORTH	**WP1: PROJECT MANAGEMENT** 　　**Task 1.1 Strategic Management** 　　**Task 1.2 Technical Management** 　　**Task 1.3 Administrative and Contractual Management** WP2: URBAN PLANNING REQUIREMENTS RELATIVE TO EO 　　Task 2.1 Documentation of the urban planning needs that can be supported by EO 　　✓ Routine requirements 　　✓ Requirements for adaptation to climate change 　　**Task 2.2 Initiation of a CoP for stakeholders involvement for each case study** **WP3: EO-BASED INDICATORS DEVELOPMENT** 　　**Task 3.1 Indicators Selection** 　　✓ Urban surface structure related indicators 　　✓ Urban surface type related indicators 　　✓ **Urban sprawl and dynamics related indicators** 　　✓ Urban environmental quality related indicators 　　✓ Vulnerability to natural hazards related indicators 　　✓ Socioeconomics related indicators 　　**Task 3.2 Key parameters definition** 　　**Task 3.3 Final GEOURBAN indicators set** WP4: MICRO-SCALE APPLICATIONS 　　Task 4.1 Micro-scale applications specification 　　✓ Literature review and identification of relevant indicators 　　✓ Selection of suitable algorithms and related accuracy measures 　　✓ Implementation of the selected algorithms 　　✓ Preparatory actions for the report and the database 　　Task 4.2 Micro-scale applications in GEOURBAN case studies 　　✓ **Micro-scale EO products for Tyumen** WP5: LOCAL AND REGIONAL SCALE APPLICATIONS 　　Task 5.1 Local and regional scale applications specification 　　✓ **Algorithms for urban sprawl and dynamics related products** 　　✓ Algorithms for urban environmental quality related products 　　Task 5.2: Local and regional scale applications in GEOURBAN case studies 　　✓ **Local and regional scale products for Tyumen** WP6: FUTURE MISSIONS POTENTIAL 　　Task 6.1 Review of planned EO missions 　　Task 6.2 Guidelines for future EO missions data analysis WP7: INFORMATION SYSTEM DEVELOPMENT 　　Task 7.1 WIS Design 　　✓ Analysis of the user requirements and provision of WIS specifications WP8: CASE STUDIES DEMONSTRATION 　　Task 8.1 Establishing an umbrella CoPs 　　Task 8.2 Setting up and executing the demonstrations of the GEOURBAN WIS WP9: DISSEMINATION - EXPLOITATION 　　Task 9.1 Networking activities 　　Task 9.2 Publishing activities 　　Task 9.3 Conference participations and contributions 　　**Task 9.4 Internal GEOURBAN meetings**

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GRADI

WP1: PROJECT MANAGEMENT
  Task 1.2 Technical Management
  Task 1.3 Administrative and Contractual Management
WP2: URBAN PLANNING REQUIREMENTS RELATIVE TO EO
  Task 2.1 Documentation of the urban planning needs that can be supported by EO
  ✓ **Review of the current understanding of urban planning and management requirements**
  ✓ Routine requirements
  ✓ Requirements for adaptation to climate change
  Task 2.2 Initiation of a CoP for stakeholders involvement for each case study
  Task 2.3 Data collection in GEOURBAN case studies
WP7: INFORMATION SYSTEM DEVELOPMENT
  Task 7.1 WIS Design
  ✓ **Analysis of the user requirements and provision of WIS specifications**
  ✓ **Select of the technology to be adopted**
  ✓ **Conceptual design of the WIS architecture**
  ✓ **Technical design of data storage and flow modules, communication interfaces, calculation modules, visualization modules and GUI**
  Task 7.2 WIS Development
  ✓ **Database development**
  ✓ **Analytical component development**
  ✓ **Visualization component development**
  ✓ **Communication modules development**
  ✓ **Integration**
WP8: CASE STUDIES DEMONSTRATION
  Task 8.1 Establishing an umbrella CoPs
  Task 8.2 Setting up and executing the demonstrations of the GEOURBAN WIS
WP9: DISSEMINATION - EXPLOITATION
  Task 9.1 Networking activities
  Task 9.2 Publishing activities
  Task 9.3 Conference participations and contributions
  Task 9.4 Internal GEOURBAN meetings

GARD

WP1: PROJECT MANAGEMENT
  Task 1.2 Technical Management
  Task 1.3 Administrative and Contractual Management
WP2: URBAN PLANNING REQUIREMENTS RELATIVE TO EO
  Task 2.1 Documentation of the urban planning needs that can be supported by EO
  ✓ Review of the current understanding of urban planning and management requirements
  ✓ Routine requirements
  ✓ Requirements for adaptation to climate change
  Task 2.2 Initiation of a CoP for stakeholders involvement for each case study
  Task 2.3 Data collection in GEOURBAN case studies
WP5: LOCAL AND REGIONAL SCALE APPLICATIONS
  Task 5.1 Local and regional scale applications specification
  ✓ **Algorithms for urban environmental quality related products**
  ✓ Algorithms for vulnerability to natural hazards related products
  ✓ **Algorithms for socio-economics related products**
  Task 5.2: Local and regional scale applications in GEOURBAN case studies
  ✓ Local and regional scale products for Tyumen
  ✓ **Local and regional scale products for Tel-Aviv**
WP8: CASE STUDIES DEMONSTRATION
  Task 8.1 Establishing an umbrella CoPs
  Task 8.2 Setting up and executing the demonstrations of the GEOURBAN WIS
WP9: DISSEMINATION - EXPLOITATION
  Task 9.1 Networking activities
  Task 9.2 Publishing activities
  Task 9.3 Conference participations and contributions
  Task 9.4 Internal GEOURBAN meetings

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DLR

WP1: PROJECT MANAGEMENT
    Task 1.2 Technical Management
    Task 1.3 Administrative and Contractual Management

WP3: EO-BASED INDICATORS DEVELOPMENT
    Task 3.1 Indicators Selection
    ✓ Urban surface structure related indicators
    ✓ **Urban surface type related indicators**
    ✓ Urban sprawl and dynamics related indicators
    ✓ **Socioeconomics related indicators**
    Task 3.2 Key parameters definition
    Task 3.3 Final GEOURBAN indicators set

WP4: MICRO-SCALE APPLICATIONS
    Task 4.1 Micro-scale applications specification
    ✓ Literature review and identification of relevant indicators
    ✓ **Selection of suitable algorithms and related accuracy measures**
    ✓ Implementation of the selected algorithms
    Task 4.2 Micro-scale applications in GEOURBAN case studies
    ✓ Micro-scale EO products for Basel
    ✓ Micro-scale EO products for Tyumen
    ✓ Micro-scale EO products for Tel-Aviv

WP5: LOCAL AND REGIONAL SCALE APPLICATIONS
    Task 5.1 Local and regional scale applications specification
    ✓ Algorithms for surface structure related products
    ✓ Algorithms for urban sprawl and dynamics related products
    ✓ Algorithms for socio-economics related products
Task 5.2: Local and regional scale applications in GEOURBAN case studies
    ✓ Local and regional scale products for Basel
    ✓ Local and regional scale products for Tyumen
    ✓ Local and regional scale products for Tel-Aviv

WP6: FUTURE MISSIONS POTENTIAL
    Task 6.1 Review of planned EO missions
    Task 6.2 Guidelines for future EO missions data analysis

WP9: DISSEMINATION - EXPLOITATION
    Task 9.3 Conference participations and contributions
    Task 9.4 Internal GEOURBAN meetings

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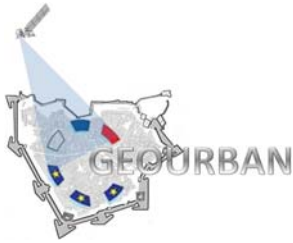| KUZGUN	WP1: PROJECT MANAGEMENT 　　Task 1.2 Technical Management 　　Task 1.3 Administrative and Contractual Management WP3: EO-BASED INDICATORS DEVELOPMENT 　　Task 3.1 Indicators Selection 　　✓ **Urban surface structure related indicators** 　　✓ Urban surface type related indicators 　　✓ **Vulnerability to natural hazards related indicators** 　　Task 3.2 Key parameters definition 　　Task 3.3 Final GEOURBAN indicators set **WP4: MICRO-SCALE APPLICATIONS** 　　**Task 4.1 Micro-scale applications specification** 　　✓ **Data collection and pre-processing** 　　✓ **Literature review and identification of relevant indicators** 　　✓ Selection of suitable algorithms and related accuracy measures 　　✓ **Implementation of the selected algorithms** 　　✓ **Preparatory actions for the report and the database** 　　**Task 4.2 Micro-scale applications in GEOURBAN case studies** 　　✓ **Micro-scale EO products for Basel** 　　✓ Micro-scale EO products for Tyumen 　　✓ **Micro-scale EO products for Tel-Aviv** 　　**Task 4.3 Development of a VHR EO data analysis protocol** WP6: FUTURE MISSIONS POTENTIAL 　　Task 6.1 Review of planned EO missions 　　Task 6.2 Guidelines for future EO missions data analysis WP7: INFORMATION SYSTEM DEVELOPMENT 　　Task 7.1 WIS Design 　　✓ Analysis of the user requirements and provision of WIS specifications 　　✓ Conceptual design of the WIS architecture 　　✓ Technical design of data storage and flow modules, communication interfaces, calculation modules, 　　　visualization modules and GUI WP9: DISSEMINATION - EXPLOITATION 　　Task 9.1 Networking activities 　　Task 9.2 Publishing activities 　　Task 9.3 Conference participations and contributions 　　Task 9.4 Internal GEOURBAN meetings

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UNIBAS	WP1: PROJECT MANAGEMENT
	    Task 1.2 Technical Management
	    Task 1.3 Administrative and Contractual Management
	WP2: URBAN PLANNING REQUIREMENTS RELATIVE TO EO
	    Task 2.1 Documentation of the urban planning needs that can be supported by EO
	     ✓ Review of the current understanding of urban planning and management requirements
	     ✓ **Routine requirements**
	     ✓ **Requirements for adaptation to climate change**
	    Task 2.2 Initiation of a CoP for stakeholders involvement for each case study
	    Task 2.3 Data collection in GEOURBAN case studies
	WP3: EO-BASED INDICATORS DEVELOPMENT
	    Task 3.1 Indicators Selection
	     ✓ Urban surface structure related indicators
	     ✓ Urban surface type related indicators
	     ✓ **Urban environmental quality related indicators**
	     ✓ Socioeconomics related indicators
	    Task 3.2 Key parameters definition
	    Task 3.3 Final GEOURBAN indicators set
	WP5: LOCAL AND REGIONAL SCALE APPLICATIONS
	    Task 5.1 Local and regional scale applications specification
	     ✓ **Review of the state of the art techniques**
	     ✓ **Algorithms for surface structure related products**
	     ✓ Algorithms for urban sprawl and dynamics related products
	     ✓ Algorithms for urban environmental quality related products
	     ✓ **Algorithms for vulnerability to natural hazards related products**
	     ✓ Algorithms for socio-economics related products
	Task 5.2: Local and regional scale applications in GEOURBAN case studies
	    ✓ **Local and regional scale products for Basel**
	Task 5.3 Development of a HR-LR EO data analysis protocol
	WP8: CASE STUDIES DEMONSTRATION
	    Task 8.1 Establishing an umbrella CoPs
	    Task 8.2 Setting up and executing the demonstrations of the GEOURBAN WIS
	WP9: DISSEMINATION - EXPLOITATION
	    Task 9.1 Networking activities
	    Task 9.2 Publishing activities
	    Task 9.3 Conference participations and contributions
	    Task 9.4 Internal GEOURBAN meetings

It should be noted that the above responsibility assignment can be subject to changes during the course of the project, taking into account specific technical needs, provided that the effort related to redefined activities will be equivalent for the Beneficiaries. According to the above responsibility assignment, each Beneficiary shall provide contribution to:

- Project deliverables production.

- Technical internal documents.

- Integration sessions.

- Demonstration & Dissemination Activities.

- Reporting documentation for the European Commission.

Concerning the interaction with users (Basel, Tyumen and Tel-Aviv Planning Offices), **UNIBAS** will be in charge of the Swiss side, **GRADI** will be in charge of the Russian side

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and **GARD** will be in charge of the Israeli side, whereas **FORTH** will support the CoP in each city.

Furthermore each Beneficiary shall ensure its participation to Progress Meetings, Technical Meetings and CoP Workshops. All the activities shall be performed according to the internal standard procedures to be agreed among the Beneficiaries.

The table below contains Beneficiary's responsibility concerned deliverable production.

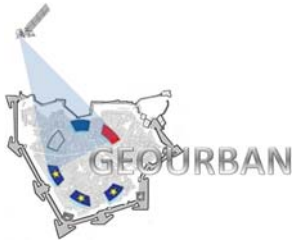| #	Name	Leader	Envisaged Main Contributions
D.1.1	Project Management Plan.	FORTH	All
D.1.2.i	Semesterly Progress Reports	FORTH	All
D.2	Urban Planning Requirements relative to EO	UNIBAS	FORTH, GRADI, GARD
D.4.1	EO Products Database (VHR)	KUZGUN	FORTH, DLR
D.4.2	EO Data Analysis Protocol (VHR)	KUZGUN	FORTH, DLR
D.9.1	Dissemination and Use Plan	GARD	All
D.9.2	GEOURBAN Web Site.	GARD	All
D.5.1	EO Products Database (HR-LR)	UNIBAS	GARD, FORTH, DLR
D.5.2	EO Data Analysis Protocol (HR-LR)	UNIBAS	GARD, FORTH, DLR
D.1.3	Mid-term Report	FORTH	All
D.9.3.i	GEOURBAN Published Material.	GARD	All
D.6	Guidelines for Future Missions Data Analysis	DLR	KUZGUN, FORTH
D.3	EO-based Indicators Development	FORTH	KUZGUB, UNIBAS, DLR
D.7	GEOURBAN Information System	GRADI	GARD, KUZGUB, FORTH
D.8	Demonstration Proceedings	GARD	GRADI, FORTH
D.1.4	Final Report	FORTH	All

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7.7 Resource requirements

Each beneficiary will be in charge to procure all the equipment needed to perform tasks that fall under its own responsibilities. Each Beneficiary will also contribute making available to the project all basic infrastructures needed for the execution and management of the work and not eligible for funding from the Commission. A summary of the effort for each of the WP is provided in the table below. The workload is defined in person months (PM).

	B1 FORTH	B2 GRADI	B3 GARD	B4 DLR	B5 KUZGUN	B6 UNIBAS	TOTAL PM
WP1	6	1	1	0.5	1	1	10.5
WP2	3	7	1.5			5	16.5
WP3	12			2	5	5	24
WP4	3			1	12		16.2
WP5	3		2.5	2		10	17.3
WP6	2			2	2		6
WP7	1	32			3		36
WP8	1	7	2.5			2	12.5
WP9	2	3	1.5	0.5	1	1	9
MNGMENT	6	1	1	0.5	1	1	10.5
RTD	24	39	4	7	22	20	116
DEMO	1	7	2.5			2	12.5
OTHER	2	3	1.5	0.5	1	1	9
TOTAL MM	33	50	9	8	24	24	148

A detailed estimation of the effort for each of the WP is provided in the table below. It shows the distribution of workload between the GEOURBAN Beneficiaries. The workload is defined in PM.

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Beneficiary 1 - FORTH

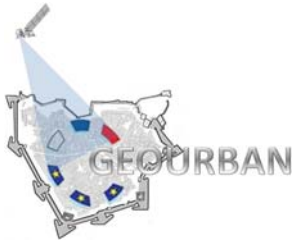| WP		Task	Responsible	PM
1	1.1	**Strategic Management**	**FORTH**	**3**
	1.2	**Technical Management**	**FORTH**	**2**
	1.3	**Administrative and Contractual Management**	**FORTH**	**1**
2	2.1	**Documentation of the urban planning needs that can be supported by EO**	**UNIBAS**	
	2.1	Review of the current understanding of urban planning and management requirements	GRADI	
	2.1	Routine requirements	UNIBAS	0,5
	2.1	Requirements for adaptation to climate change	UNIBAS	0,5
	2.2	**Initiation of a CoP for stakeholders involvement for each case study**	**FORTH**	**2**
	2.3	**Data collection in GEOURBAN case studies**	**UNIBAS**	
3	3.1	**Indicators Selection**	**FORTH**	**0,5**
	3.1	Urban surface structure related indicators	KUZGUN	1
	3.1	Urban surface type related indicators	DLR	1
	3.1	Urban sprawl and dynamics related indicators	FORTH	2
	3.1	Urban environmental quality related indicators	UNIBAS	2
	3.1	Vulnerability to natural hazards related indicators	KUZGUN	1
	3.1	Socioeconomics related indicators	DLR	1
	3.2	**Key parameters definition**	**FORTH**	**1,5**
	3.3	**Final GEOURBAN indicators set**	**FORTH**	**2**
4	4.1	**Micro-scale applications specification**	**KUZGUN**	
	4.1	Data collection and pre-processing	KUZGUN	
	4.1	Literature review and identification of relevant indicators	KUZGUN	0,5
	4.1	Selection of suitable algorithms and related accuracy measures	DLR	0,5
	4.1	Implementation of the selected algorithms	KUZGUN	0,5
	4.1	Preparatory actions for the report and the database	KUZGUN	0,5
	4.2	**Micro-scale applications in GEOURBAN case studies**	**KUZGUN**	
	4.2	Micro-scale EO products for Basel	KUZGUN	
	4.2	Micro-scale EO products for Tyumen	FORTH	1
	4.2	Micro-scale EO products for Tel-Aviv	KUZGUN	
	4.3	**Development of a VHR EO data analysis protocol**	**KUZGUN**	

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WP		Task	Responsible	PM
5	**5.1**	**Local and regional scale applications specification**	**UNIBAS**	
	5.1	Review of the state of the art techniques	UNIBAS	
	5.1	Algorithms for surface structure related products	UNIBAS	
	5.1	Algorithms for urban sprawl and dynamics related products	FORTH	1
	5.1	Algorithms for urban environmental quality related products	GARD	1
	5.1	Algorithms for vulnerability to natural hazards related products	UNIBAS	
	5.1	Algorithms for socio-economics related products	GARD	
	5.2	**Local and regional scale applications in GEOURBAN case studies**	**UNIBAS**	
	5.2	Local and regional scale products for Basel	UNIBAS	
	5.2	Local and regional scale products for Tyumen	FORTH	1
	5.2	Local and regional scale products for Tel-Aviv	GARD	
	5.3	**Development of a HR-LR EO data analysis protocol**	**UNIBAS**	
6	**6.1**	**Review of planned EO missions**	**DLR**	1
	6.2	**Guidelines for future EO missions data analysis**	**DLR**	1
7	**7.1**	**WIS Design**	**GRADI**	
	7.1	Analysis of the user requirements and provision of WIS specifications	GRADI	1
	7.1	Select of the technology to be adopted	GRADI	
	7.1	Conceptual design of the WIS architecture	GRADI	
	7.1	Technical design of data storage and flow modules, communication interfaces, calculation modules, visualization modules and GUI	GRADI	
	7.2	**WIS Development**	**GRADI**	
	7.2	Database development	GRADI	
	7.2	Analytical component development	GRADI	
	7.2	Visualization component development	GRADI	
	7.2	Communication modules development	GRADI	
	7.2	Integration	GRADI	
8	**8.1**	**Establishing an umbrella CoPs**	**GARD**	0,5
	8.2	**Setting up and executing the demonstrations of the GEOURBAN WIS**	**GRADI**	0,5
9	**9.1**	**Networking activities**	**GARD**	0,5
	9.2	**Publishing activities**	**UNIBAS**	0,5
	9.3	**Conference participations and contributions**	**DLR**	0,5
	9.4	**Internal GEOURBAN meetings**	**FORTH**	0,5
			Total	**33**

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Beneficiary 2 - GRADI

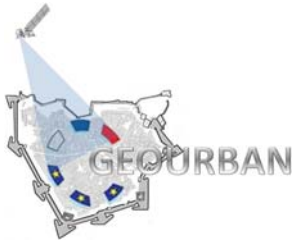| WP		Task	Responsible	PM
1	1.1	**Strategic Management**	**FORTH**	
	1.2	**Technical Management**	**FORTH**	0,5
	1.3	**Administrative and Contractual Management**	**FORTH**	0,5
2	2.1	**Documentation of the urban planning needs that can be supported by EO**	**UNIBAS**	
	2.1	Review of the current understanding of urban planning and management requirements	GRADI	3
	2.1	Routine requirements	UNIBAS	1
	2.1	Requirements for adaptation to climate change	UNIBAS	1
	2.2	**Initiation of a CoP for stakeholders involvement for each case study**	**FORTH**	1
	2.3	**Data collection ijn GEOURBAN case studies**	**UNIBAS**	1
3	3.1	**Indicators Selection**	**FORTH**	
	3.1	Urban surface structure related indicators	KUZGUN	
	3.1	Urban surface type related indicators	DLR	
	3.1	Urban sprawl and dynamics related indicators	FORTH	
	3.1	Urban environmental quality related indicators	UNIBAS	
	3.1	Vulnerability to natural hazards related indicators	KUZGUN	
	3.1	Socioeconomics related indicators	DLR	
	3.2	**Key parameters definition**	**FORTH**	
	3.3	**Final GEOURBAN indicators set**	**FORTH**	
4	4.1	**Micro-scale applications specification**	**KUZGUN**	
	4.1	Data collection and pre-processing	KUZGUN	
	4.1	Literature review and identification of relevant indicators	KUZGUN	
	4.1	Selection of suitable algorithms and related accuracy measures	DLR	
	4.1	Implementation of the selected algorithms	KUZGUN	
	4.1	Preparatory actions for the report and the database	KUZGUN	
	4.2	**Micro-scale applications in GEOURBAN case studies**	**KUZGUN**	
	4.2	Micro-scale EO products for Basel	KUZGUN	
	4.2	Micro-scale EO products for Tyumen	FORTH	
	4.2	Micro-scale EO products for Tel-Aviv	KUZGUN	
	4.3	**Development of a VHR EO data analysis protocol**	**KUZGUN**	

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WP		Task	Responsible	PM
5	5.1	**Local and regional scale applications specification**	**UNIBAS**	
	5.1	Review of the state of the art techniques	UNIBAS	
	5.1	Algorithms for surface structure related products	UNIBAS	
	5.1	Algorithms for urban sprawl and dynamics related products	FORTH	
	5.1	Algorithms for urban environmental quality related products	GARD	
	5.1	Algorithms for vulnerability to natural hazards related products	UNIBAS	
	5.1	Algorithms for socio-economics related products	GARD	
	5.2	**Local and regional scale applications in GEOURBAN case studies**	**UNIBAS**	
	5.2	Local and regional scale products for Basel	UNIBAS	
	5.2	Local and regional scale products for Tyumen	FORTH	
	5.2	Local and regional scale products for Tel-Aviv	GARD	
	5.3	**Development of a HR-LR EO data analysis protocol**	**UNIBAS**	
6	6.1	**Review of planned EO missions**	**DLR**	
	6.2	**Guidelines for future EO missions data analysis**	**DLR**	
7	7.1	**WIS Design**	**GRADI**	**0,5**
	7.1	Analysis of the user requirements and provision of WIS specifications	GRADI	**2**
	7.1	Select of the technology to be adopted	GRADI	**1**
	7.1	Conceptual design of the WIS architecture	GRADI	**2**
	7.1	Technical design of data storage and flow modules, communication interfaces, calculation modules, visualization modules and GUI	GRADI	**3**
	7.2	**WIS Development**	**GRADI**	**0,5**
	7.2	Database development	GRADI	**3**
	7.2	Analytical component development	GRADI	**5**
	7.2	Visualization component development	GRADI	**5**
	7.2	Communication modules development	GRADI	**5**
	7.2	Integration	GRADI	**5**
8	8.1	**Establishing an umbrella CoPs**	**GARD**	**2**
	8.2	**Setting up and executing the demonstrations of the GEOURBAN WIS**	**GRADI**	**5**
9	9.1	**Networking activities**	**GARD**	**1**
	9.2	**Publishing activities**	**UNIBAS**	**0,5**
	9.3	**Conference participations and contributions**	**DLR**	**0,5**
	9.4	**Internal GEOURBAN meetings**	**FORTH**	**1**
			Total	**50**

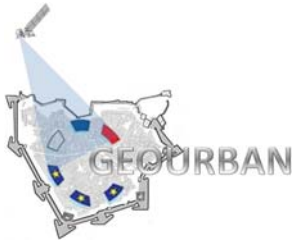**Project Management Plan**

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Beneficiary 3 - GARD

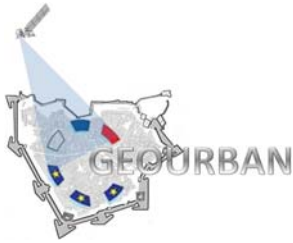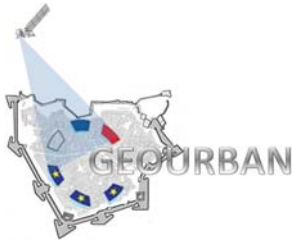| WP		Task	Responsible	PM
1	1.1	**Strategic Management**	**FORTH**	
	1.2	**Technical Management**	**FORTH**	**0,5**
	1.3	**Administrative and Contractual Management**	**FORTH**	**0,5**
2	2.1	**Documentation of the urban planning needs that can be supported by EO**	**UNIBAS**	
	2.1	Review of the current understanding of urban planning and management requirements	GRADI	**0,5**
	2.1	Routine requirements	UNIBAS	**0,25**
	2.1	Requirements for adaptation to climate change	UNIBAS	**0,25**
	2.2	**Initiation of a CoP for stakeholders involvement for each case study**	**FORTH**	**0,25**
	2.3	**Data collection in GEOURBAN case studies**	**UNIBAS**	**0,25**
3	3.1	**Indicators Selection**	**FORTH**	
	3.1	Urban surface structure related indicators	KUZGUN	
	3.1	Urban surface type related indicators	DLR	
	3.1	Urban sprawl and dynamics related indicators	FORTH	
	3.1	Urban environmental quality related indicators	UNIBAS	
	3.1	Vulnerability to natural hazards related indicators	KUZGUN	
	3.1	Socioeconomics related indicators	DLR	
	3.2	**Key parameters definition**	**FORTH**	
	3.3	**Final GEOURBAN indicators set**	**FORTH**	
4	4.1	**Micro-scale applications specification**	**KUZGUN**	
	4.1	Data collection and pre-processing	KUZGUN	
	4.1	Literature review and identification of relevant indicators	KUZGUN	
	4.1	Selection of suitable algorithms and related accuracy measures	DLR	
	4.1	Implementation of the selected algorithms	KUZGUN	
	4.1	Preparatory actions for the report and the database	KUZGUN	
	4.2	**Micro-scale applications in GEOURBAN case studies**	**KUZGUN**	
	4.2	Micro-scale EO products for Basel	KUZGUN	
	4.2	Micro-scale EO products for Tyumen	FORTH	
	4.2	Micro-scale EO products for Tel-Aviv	KUZGUN	
	4.3	**Development of a VHR EO data analysis protocol**	**KUZGUN**	

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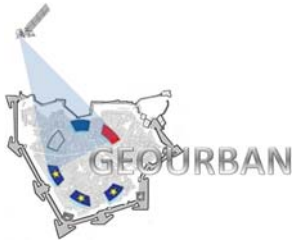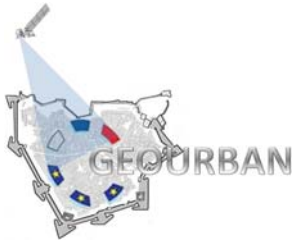| WP		Task	Responsible	PM
5	5.1	**Local and regional scale applications specification**	**UNIBAS**	
	5.1	Review of the state of the art techniques	UNIBAS	
	5.1	Algorithms for surface structure related products	UNIBAS	
	5.1	Algorithms for urban sprawl and dynamics related products	FORTH	
	5.1	Algorithms for urban environmental quality related products	GARD	0.5
	5.1	Algorithms for vulnerability to natural hazards related products	UNIBAS	0,5
	5.1	Algorithms for socio-economics related products	GARD	0,5
	5.2	**Local and regional scale applications in GEOURBAN case studies**	**UNIBAS**	
	5.2	Local and regional scale products for Basel	UNIBAS	
	5.2	Local and regional scale products for Tyumen	FORTH	0.5
	5.2	Local and regional scale products for Tel-Aviv	GARD	0.5
	5.3	**Development of a HR-LR EO data analysis protocol**	**UNIBAS**	
6	6.1	**Review of planned EO missions**	**DLR**	
	6.2	**Guidelines for future EO missions data analysis**	**DLR**	
7	7.1	**WIS Design**	**GRADI**	
	7.1	Analysis of the user requirements and provision of WIS specifications	GRADI	
	7.1	Select of the technology to be adopted	GRADI	
	7.1	Conceptual design of the WIS architecture	GRADI	
	7.1	Technical design of data storage and flow modules, communication interfaces, calculation modules, visualization modules and GUI	GRADI	
	7.2	**WIS Development**	**GRADI**	
	7.2	Database development	GRADI	
	7.2	Analytical component development	GRADI	
	7.2	Visualization component development	GRADI	
	7.2	Communication modules development	GRADI	
	7.2	Integration	GRADI	
8	8.1	**Establishing an umbrella CoPs**	**GARD**	0,5
	8.2	**Setting up and executing the demonstrations of the GEOURBAN WIS**	**GRADI**	2
9	9.1	**Networking activities**	**GARD**	0,5
	9.2	**Publishing activities**	**UNIBAS**	0,25
	9.3	**Conference participations and contributions**	**DLR**	0,25
	9.4	**Internal GEOURBAN meetings**	**FORTH**	0,5
			Total	**9**

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Beneficiary 4 - DLR

WP		Task	Responsible	PM
1	1.1	**Strategic Management**	**FORTH**	
	1.2	**Technical Management**	**FORTH**	**0,25**
	1.3	**Administrative and Contractual Management**	**FORTH**	**0,25**
2	2.1	**Documentation of the urban planning needs that can be supported by EO**	**UNIBAS**	
	2.1	Review of the current understanding of urban planning and management requirements	GRADI	
	2.1	Routine requirements	UNIBAS	
	2.1	Requirements for adaptation to climate change	UNIBAS	
	2.2	**Initiation of a CoP for stakeholders involvement for each case study**	**FORTH**	
	2.3	**Data collection in GEOURBAN case studies**	**UNIBAS**	
3	3.1	**Indicators Selection**	**FORTH**	
	3.1	Urban surface structure related indicators	KUZGUN	0,25
	3.1	Urban surface type related indicators	DLR	0,25
	3.1	Urban sprawl and dynamics related indicators	FORTH	0,25
	3.1	Urban environmental quality related indicators	UNIBAS	
	3.1	Vulnerability to natural hazards related indicators	KUZGUN	
	3.1	Socioeconomics related indicators	DLR	0,25
	3.2	**Key parameters definition**	**FORTH**	**0,5**
	3.3	**Final GEOURBAN indicators set**	**FORTH**	**0,5**
4	4.1	**Micro-scale applications specification**	**KUZGUN**	
	4.1	Data collection and pre-processing	KUZGUN	
	4.1	Literature review and identification of relevant indicators	KUZGUN	0,25
	4.1	Selection of suitable algorithms and related accuracy measures	DLR	0,25
	4.1	Implementation of the selected algorithms	KUZGUN	0,25
	4.1	Preparatory actions for the report and the database	KUZGUN	
	4.2	**Micro-scale applications in GEOURBAN case studies**	**KUZGUN**	
	4.2	Micro-scale EO products for Basel	KUZGUN	0,15
	4.2	Micro-scale EO products for Tyumen	FORTH	0,15
	4.2	Micro-scale EO products for Tel-Aviv	KUZGUN	0,15
	4.3	**Development of a VHR EO data analysis protocol**	**KUZGUN**	

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WP	Task		Responsible	PM
5	5.1	**Local and regional scale applications specification**	**UNIBAS**	
	5.1	Review of the state of the art techniques	UNIBAS	
	5.1	Algorithms for surface structure related products	UNIBAS	0,5
	5.1	Algorithms for urban sprawl and dynamics related products	FORTH	0,5
	5.1	Algorithms for urban environmental quality related products	GARD	
	5.1	Algorithms for vulnerability to natural hazards related products	UNIBAS	
	5.1	Algorithms for socio-economics related products	GARD	0,5
	5.2	**Local and regional scale applications in GEOURBAN case studies**	**UNIBAS**	
	5.2	Local and regional scale products for Basel	UNIBAS	0,1
	5.2	Local and regional scale products for Tyumen	FORTH	0,1
	5.2	Local and regional scale products for Tel-Aviv	GARD	0,1
	5.3	**Development of a HR-LR EO data analysis protocol**	**UNIBAS**	
6	6.1	**Review of planned EO missions**	**DLR**	**1**
	6.2	**Guidelines for future EO missions data analysis**	**DLR**	**1**
7	7.1	**WIS Design**	**GRADI**	
	7.1	Analysis of the user requirements and provision of WIS specifications	GRADI	
	7.1	Select of the technology to be adopted	GRADI	
	7.1	Conceptual design of the WIS architecture	GRADI	
	7.1	Technical design of data storage and flow modules, communication interfaces, calculation modules, visualization modules and GUI	GRADI	
	7.2	**WIS Development**	**GRADI**	
	7.2	Database development	GRADI	
	7.2	Analytical component development	GRADI	
	7.2	Visualization component development	GRADI	
	7.2	Communication modules development	GRADI	
	7.2	Integration	GRADI	
8	8.1	**Establishing an umbrella CoPs**	**GARD**	
	8.2	**Setting up and executing the demonstrations of the GEOURBAN WIS**	**GRADI**	
9	9.1	**Networking activities**	**GARD**	
	9.2	**Publishing activities**	**UNIBAS**	
	9.3	**Conference participations and contributions**	**DLR**	**0,25**
	9.4	**Internal GEOURBAN meetings**	**FORTH**	**0,25**
			Total	**8**

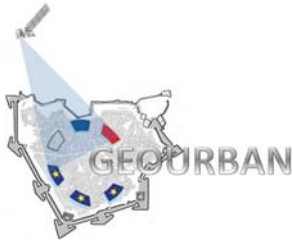**Project Management Plan**
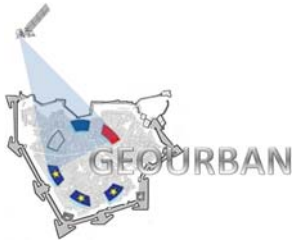
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Beneficiary 5 - KUZGUN

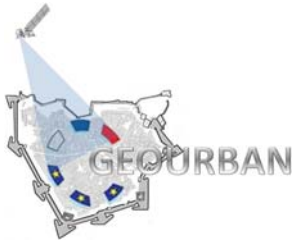| WP		Task	Responsible	PM
1	1.1	**Strategic Management**	**FORTH**	
	1.2	**Technical Management**	**FORTH**	**0,5**
	1.3	**Administrative and Contractual Management**	**FORTH**	**0,5**
2	2.1	**Documentation of the urban planning needs that can be supported by EO**	**UNIBAS**	
	2.1	Review of the current understanding of urban planning and management requirements	GRADI	
	2.1	Routine requirements	UNIBAS	
	2.1	Requirements for adaptation to climate change	UNIBAS	
	2.2	**Initiation of a CoP for stakeholders involvement for each case study**	**FORTH**	
	2.3	**Data collection in GEOURBAN case studies**	**UNIBAS**	
3	3.1	**Indicators Selection**	**FORTH**	
	3.1	Urban surface structure related indicators	KUZGUN	**1**
	3.1	Urban surface type related indicators	DLR	**1**
	3.1	Urban sprawl and dynamics related indicators	FORTH	
	3.1	Urban environmental quality related indicators	UNIBAS	
	3.1	Vulnerability to natural hazards related indicators	KUZGUN	**1**
	3.1	Socioeconomics related indicators	DLR	
	3.2	**Key parameters definition**	**FORTH**	**1**
	3.3	**Final GEOURBAN indicators set**	**FORTH**	**1**
4	4.1	**Micro-scale applications specification**	**KUZGUN**	**0,5**
	4.1	Data collection and pre-processing	KUZGUN	**0,5**
	4.1	Literature review and identification of relevant indicators	KUZGUN	**0,5**
	4.1	Selection of suitable algorithms and related accuracy measures	DLR	**0,5**
	4.1	Implementation of the selected algorithms	KUZGUN	**2**
	4.1	Preparatory actions for the report and the database	KUZGUN	**0,5**
	4.2	**Micro-scale applications in GEOURBAN case studies**	**KUZGUN**	**0,5**
	4.2	Micro-scale EO products for Basel	KUZGUN	**2**
	4.2	Micro-scale EO products for Tyumen	FORTH	**1**
	4.2	Micro-scale EO products for Tel-Aviv	KUZGUN	**2**
	4.3	**Development of a VHR EO data analysis protocol**	**KUZGUN**	**2**

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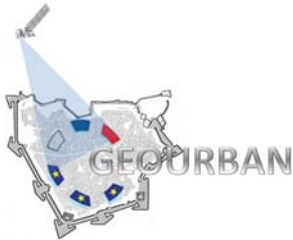
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WP		Task	Responsible	PM
5	**5.1**	**Local and regional scale applications specification**	**UNIBAS**	
	5.1	Review of the state of the art techniques	UNIBAS	
	5.1	Algorithms for surface structure related products	UNIBAS	
	5.1	Algorithms for urban sprawl and dynamics related products	FORTH	
	5.1	Algorithms for urban environmental quality related products	GARD	
	5.1	Algorithms for vulnerability to natural hazards related products	UNIBAS	
	5.1	Algorithms for socio-economics related products	GARD	
	5.2	**Local and regional scale applications in GEOURBAN case studies**	**UNIBAS**	
	5.2	Local and regional scale products for Basel	UNIBAS	
	5.2	Local and regional scale products for Tyumen	FORTH	
	5.2	Local and regional scale products for Tel-Aviv	GARD	
	5.3	**Development of a HR-LR EO data analysis protocol**	**UNIBAS**	
6	**6.1**	**Review of planned EO missions**	**DLR**	**1**
	6.2	**Guidelines for future EO missions data analysis**	**DLR**	**1**
7	**7.1**	**WIS Design**	**GRADI**	
	7.1	Analysis of the user requirements and provision of WIS specifications	GRADI	**1**
	7.1	Select of the technology to be adopted	GRADI	
	7.1	Conceptual design of the WIS architecture	GRADI	**1**
	7.1	Technical design of data storage and flow modules, communication interfaces, calculation modules, visualization modules and GUI	GRADI	**1**
	7.2	**WIS Development**	**GRADI**	
	7.2	Database development	GRADI	
	7.2	Analytical component development	GRADI	
	7.2	Visualization component development	GRADI	
	7.2	Communication modules development	GRADI	
	7.2	Integration	GRADI	
8	**8.1**	**Establishing an umbrella CoPs**	**GARD**	
	8.2	**Setting up and executing the demonstrations of the GEOURBAN WIS**	**GRADI**	
9	**9.1**	**Networking activities**	**GARD**	**0,25**
	9.2	**Publishing activities**	**UNIBAS**	**0,25**
	9.3	**Conference participations and contributions**	**DLR**	**0,25**
	9.4	**Internal GEOURBAN meetings**	**FORTH**	**0,25**
			Total	**24**

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GEOURBAN

Beneficiary 6 - UNIBAS

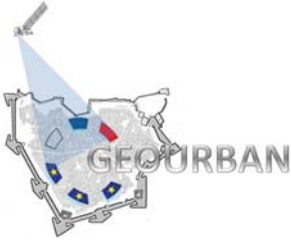| WP		Task	Responsible	PM
1	1.1	**Strategic Management**	**FORTH**	
	1.2	**Technical Management**	**FORTH**	0,5
	1.3	**Administrative and Contractual Management**	**FORTH**	0,5
2	2.1	**Documentation of the urban planning needs that can be supported by EO**	**UNIBAS**	0,5
	2.1	Review of the current understanding of urban planning and management requirements	GRADI	0,5
	2.1	Routine requirements	UNIBAS	1
	2.1	Requirements for adaptation to climate change	UNIBAS	1
	2.2	**Initiation of a CoP for stakeholders involvement for each case study**	**FORTH**	1
	2.3	**Data collection in GEOURBAN case studies**	**UNIBAS**	1
3	3.1	**Indicators Selection**	**FORTH**	
	3.1	Urban surface structure related indicators	KUZGUN	0,5
	3.1	Urban surface type related indicators	DLR	0,5
	3.1	Urban sprawl and dynamics related indicators	FORTH	
	3.1	Urban environmental quality related indicators	UNIBAS	1
	3.1	Vulnerability to natural hazards related indicators	KUZGUN	
	3.1	Socioeconomics related indicators	DLR	1
	3.2	**Key parameters definition**	**FORTH**	1
	3.3	**Final GEOURBAN indicators set**	**FORTH**	1
4	4.1	**Micro-scale applications specification**	**KUZGUN**	
	4.1	Data collection and pre-processing	KUZGUN	
	4.1	Literature review and identification of relevant indicators	KUZGUN	
	4.1	Selection of suitable algorithms and related accuracy measures	DLR	
	4.1	Implementation of the selected algorithms	KUZGUN	
	4.1	Preparatory actions for the report and the database	KUZGUN	
	4.2	**Micro-scale applications in GEOURBAN case studies**	**KUZGUN**	
	4.2	Micro-scale EO products for Basel	KUZGUN	
	4.2	Micro-scale EO products for Tyumen	FORTH	
	4.2	Micro-scale EO products for Tel-Aviv	KUZGUN	
	4.3	**Development of a VHR EO data analysis protocol**	**KUZGUN**	

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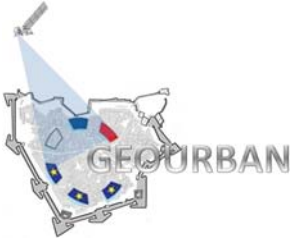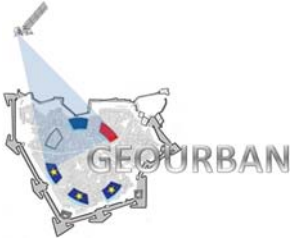| WP		Task	Responsible	PM
5	**5.1**	**Local and regional scale applications specification**	**UNIBAS**	**0,5**
	5.1	Review of the state of the art techniques	UNIBAS	**2**
	5.1	Algorithms for surface structure related products	UNIBAS	**1**
	5.1	Algorithms for urban sprawl and dynamics related products	FORTH	**0,5**
	5.1	Algorithms for urban environmental quality related products	GARD	**0,5**
	5.1	Algorithms for vulnerability to natural hazards related products	UNIBAS	**0,5**
	5.1	Algorithms for socio-economics related products	GARD	**0,5**
	5.2	**Local and regional scale applications in GEOURBAN case studies**	**UNIBAS**	**0,5**
	5.2	Local and regional scale products for Basel	UNIBAS	**2**
	5.2	Local and regional scale products for Tyumen	FORTH	
	5.2	Local and regional scale products for Tel-Aviv	GARD	
	5.3	**Development of a HR-LR EO data analysis protocol**	**UNIBAS**	**2**
6	**6.1**	**Review of planned EO missions**	**DLR**	
	6.2	**Guidelines for future EO missions data analysis**	**DLR**	
7	**7.1**	**WIS Design**	**GRADI**	
	7.1	Analysis of the user requirements and provision of WIS specifications	GRADI	
	7.1	Select of the technology to be adopted	GRADI	
	7.1	Conceptual design of the WIS architecture	GRADI	
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	7.2	Analytical component development	GRADI	
	7.2	Visualization component development	GRADI	
	7.2	Communication modules development	GRADI	
	7.2	Integration	GRADI	
8	**8.1**	**Establishing an umbrella CoPs**	**GARD**	**1**
	8.2	**Setting up and executing the demonstrations of the GEOURBAN WIS**	**GRADI**	**1**
9	**9.1**	**Networking activities**	**GARD**	**0,25**
	9.2	**Publishing activities**	**UNIBAS**	**0,25**
	9.3	**Conference participations and contributions**	**DLR**	**0,25**
	9.4	**Internal GEOURBAN meetings**	**FORTH**	**0,25**
			Total	**24**

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ANNEX: TEMPLATES

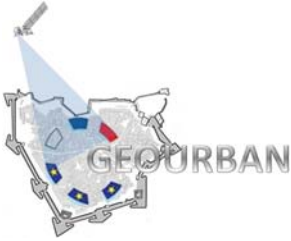- Minutes of Meeting

- RID

- Periodic Report

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Minutes of Meeting

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SUBJECT: <subject>	Place:
	Date: <dd-mm-yyyy>

Participants:	Organization	Signature	Written by:
<Participant 1> <Participant 2> <Participant n>			Distribution List :

AGENDA OF THE MEETING:

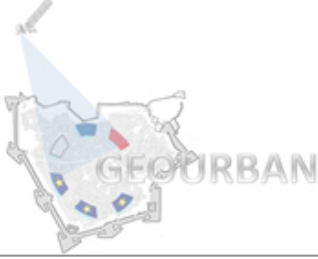**Project Management Plan**

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Minutes of Meeting

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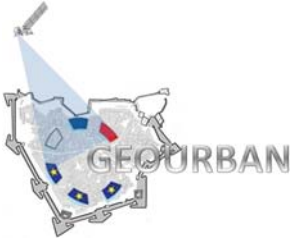| ITEM	TEXT	ACTION
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SUMMARY OF ACTIONS

ACTION	DESCRIPTION	RESPONSIBLE	DATE

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2	
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Review Item Discrepancy

RID no.:	Date:	Page: 1/1

RID Title:

Originator:

Document Ref.:	Issue:
Document Title:	

Problem Description

Severity: ☐ High ☐ Medium ☐ Low

Recommended Solution

Review Decisions:

☐ Accepted

☐ Rejected

☐ Deferred

RID Status:

☐ Open

☐ Closed

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GEOURBAN

PERIODIC REPORT TEMPLATE

Annex II: Guidelines for reporting to the JCS

Final / Intermediate/ Interim report

ERA.Net RUS

Cover sheet

Project number: ERANetRUS-033
Project acronym: GEOURBAN
Project run time:
Reporting period:

Name and address of the coordinating institution

Name of the legal representative of the coordinating institution

Name of the project coordinator

Tel:
Fax:
E-mail:

Project website address:

Legal representative (I declare the accuracy of statement)	Place, date and signature (signed and stamped)
	_____

Project coordinator (I declare the accuracy of statement)	Place, date and signature (signed and stamped)
	_____

GEOURBAN

Project Management Plan

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Annex II: Guidelines for reporting to the JCS

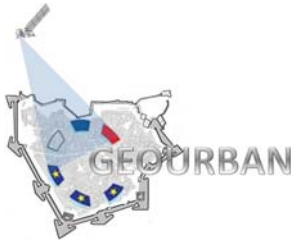*Final / Intermediate/ Interim report*

ERA.Net RUS

Declaration by the scientific representative of the project coordinator

I, as scientific representative of the coordinator of this project and in line with the obligations as stated in the contract declare that:

- The attached periodic report represents an accurate description of the work carried out in this project for this reporting period;

- The project (tick as appropriate):
  ☐ has fully achieved its objectives and technical goals for the period;
  ☐ has achieved most of its objectives and technical goals for the period with relatively minor deviations.
  ☐ has failed to achieve critical objectives and/or is not at all on schedule.

- The public website, if applicable
  ☐ is up to date
  ☐ is not up to date

- To my best knowledge, the financial statements which are being submitted as part of this report are in line with the actual work carried out and are consistent with the report on the resources used for the project (section 6) and if applicable with the certificate on financial statement.

Name of scientific representative of the Coordinator: _____

Place & Date: ....

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GEOURBAN

Annex II: Guidelines for reporting to the JCS

Final / Intermediate/ Interim report

ERA.Net RUS

Structure of the Intermediate and Final report
- to be prepared by the coordinator -

For the projects months 12 and 24, the coordinator should send a formal progress report to the JCS, which should be between 15 and 20 pages including tables, graphs and figures.

1. Publishable summary

This section must be of suitable quality to enable direct publication by the Joint Call Secretariat (JCS) and should not exceed two pages.
The publishable summary has to include all the distinct parts described below:

> • A summary description of project context and objectives,
> • A description of the work performed since the beginning of the project and the main results achieved so far ,
> • The expected final results and their potential impact and use (including the socio-economic impact and the wider societal implications of the project so far),
> • The address of the project public website, if applicable.

In line with this, diagrams or photographs illustrating and promoting the work of the project, as well as relevant contact details or list of partners can be provided without restriction.

2. & 3. Project objectives and Work progress and achievements during the period

Please provide a concise overview of the progress of the work in line with the structure of the Annex A to the contract.

> • A summary of progress towards objectives and details for each task;
> • Highlight clearly significant results;
> • If applicable, explain the reasons for deviations from Annex A and their impact on other tasks as well as on available resources and planning;
> • If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator) ;
> • a statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex A;
> • If applicable, propose corrective actions.

4. Deliverables table [Table 1] and milestones table [Table 2]

Deliverables

The deliverables due in this reporting period, as indicated in Annex A to the contract have to be prepared by the responsible participants (as indicated in Annex A), and then approved and submitted by the Coordinator.
If a deliverable has been cancelled or regrouped with another one, please indicate this in the column "Comments".
If a new deliverable is proposed, please indicate this in the column "Comments".
This table is cumulative, that is, it should always show all deliverables from the beginning of the project.

Milestones

Please complete this table if milestones are specified in Annex A to the contract. Milestones will be assessed against the specific criteria and performance indicators as defined in Annex A. This table is cumulative, which means that it should always show all milestones from the beginning of the project.
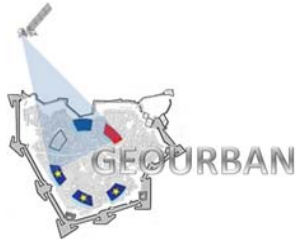
Project Management Plan

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Document Ref.: GEOURBAN_01_PL_FORTH
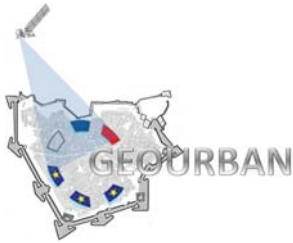Issue: 1.0
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GEOURBAN

Annex II: Guidelines for reporting to the JCS

Final / Intermediate/ Interim report

ERA.Net RUS

TABLE 1. DELIVERABLES								
Del. no.	Deliverable name	WP no.	Lead beneficiary	Nature	Delivery date from Annex A (proj. month)	Delivered Yes / No	Actual / Forecast Delivery date dd/mm/yyyy	Comments

TABLE 2. MILESTONES						
Mile stone no.	Milestone name	WP no.	Lead beneficiary	Delivery date From Annex A dd/mm/yyyy	Achieved Yes/No	Actual / Forecast Achievement date dd/mm/yyyy	Comments

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Annex II: Guidelines for reporting to the JCS

Final / Intermediate/ Interim report
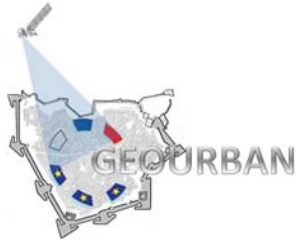
ERA.Net RUS

5. Project Management

Please use this section to summarise management of the consortium activities during the period. Amongst others, this section should include the following:

- Consortium management tasks and achievements;
- Problems which have occurred and how they were solved or envisaged solutions;
- Changes in the consortium, if any;
- List of project meetings, dates and venues;
- Project planning and status;
- Impact of possible deviations from the planned milestones and deliverables, if any;
- Any changes to the legal status of any of the beneficiaries, in particular non-profit public bodies, secondary and higher education establishments, research organisations and SMEs;
- Development of the Project website, if applicable;

The section should also provide short comments and information on co-ordination activities during the period in question, such as communication between beneficiaries, possible co-operation with other projects/programmes etc.

6. & 7. Explanation of the use of the resources and Finances

Please submit a summary financial report, which should include the overall costs, funding and own funds, as well the funding quota for the reported period.
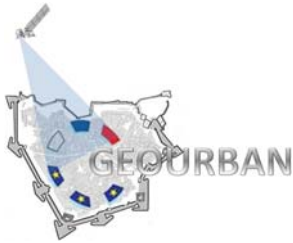
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Annex II: Guidelines for reporting to the JCS

Final / Intermediate/ Interim report

ERA.Net RUS

in EURO	Coordinator	Partner 2	Partner 3	Partner 4	Partner 5	Partner 6	Partner 7	Total
Contractual funding Max.								
Contractual funding rate Max.								
Intermediate Reporting Period								
Total Costs								
Own funds								
Funding								
Quota								
Receipts								
Final Reporting Period								
Total Costs								
Own funds								
Funding								
Quota								
Receipts								
Total reported								
Total Costs								
Own funds								
Funding								
Quota								
Receipts								

received Payments								
Total received								
Payment 1								
Date								
Payment 2								
Date								
Payment 3								
Date								

Reference number: ERANetRUS-033   page 6   Intermediate report

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Annex II: Guidelines for reporting to the JCS

Final / Intermediate/ Interim report

ERA.Net RUS

Structure of the Interim report
- in project month 6 and 18 to be prepared by the coordinator -

For the months 6 and 18, the coordinator should send an informal progress report to the JCS, it should not exceed <u>TWO</u> pages.

1. Publishable summary

This section should not exceed <u>one</u> page.

The publishable summary has to include all the distinct parts described below:
• A description of the work performed by the research group since the beginning of the project and the main results achieved so far.

In line with this, diagrams or photographs illustrating and promoting the work of the project, as well as relevant contact details or list of partners can be provided without restriction.

2. & 3. Project objectives and Work progress and achievements during the period

Please provide a concise overview of the progress of the work in line with the structure of the Annex A to the contract.

• A summary of progress towards objectives and details for each task;
• Highlight clearly significant results;
• If applicable, explain the reasons for deviations from Annex A and their impact on other tasks as well as on available resources and planning;
• If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator) ;
• a statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex A;
• If applicable, propose corrective actions.