



European Environment Agency



## **ANNEX I – TENDER SPECIFICATIONS**

***Framework service contract(s) for the provision of***

***GMES Initial Operations 2011-2013***

***Land Monitoring Services:***

***High Resolution land cover characteristics of 5 main land cover types (6 lots)***

**Reference: Open call for tenders EEA/SES/11/004**

**Closing date: 19/09/2011**

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# 1. Introduction

## 1.1 Introduction to EEA

The European Environment Agency (EEA) is a European Union public body governed by Regulation (EC) No 401/2009 of the European Parliament and of the Council of 23 April 2009<sup>1</sup>. The EEA role is to support the European Union in the development and implementation of environmental policy by providing relevant, reliable, targeted and timely information on the state of the environment and future prospects. The EEA also provides the necessary independent scientific knowledge and technical support to enable the Union and the member countries to take appropriate measures to protect and improve the environment as laid down in the Treaty and by successive Community action programmes on the environment and sustainable development. Currently, the EEA has 32 member countries and 7 cooperating countries.

There are approximately 200 staff members working at the EEA. These staff members come from a wide range of national, professional and cultural backgrounds. Their functions at the EEA vary from environment-related research and data-analysis to administrative or managerial tasks.

Further information about the work of EEA can be obtained on its website: <http://www.eea.europa.eu>.

## 1.2 Introduction to GMES services

Environmental information is of crucial importance. It helps to understand how our planet and its climate are changing, the role played by human activities in these changes and how these will influence our daily lives. The well-being and security of future generations are more than ever dependent on everyone's actions and on the decisions being made today on environmental policies. To take the right actions, decision makers, businesses and citizens must be provided with reliable and up-to-date information on how our planet and its climate are changing.

The European Earth monitoring program GMES (Global Monitoring for Environment and Security) provides this information. Policymakers and public authorities, the major users of GMES, will use the information to prepare environmental legislation and policies with a particular focus on Climate Change, monitor their implementation and assess their effects.

Users will be provided with information through services dedicated to a systematic monitoring and forecasting of the state of the Earth's subsystems. Six thematic areas are developed: marine, land, atmosphere, emergency, security and climate change. A **land monitoring service**, a marine monitoring service and an atmosphere monitoring service contribute directly to the monitoring of climate change and to the assessment of mitigation and adaptation policies. Two additional GMES services address respectively emergency response (e.g. floods, fires, technological accidents, humanitarian aid) and security-related aspects (e.g. maritime surveillance, border control). GMES services are designed to meet

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<sup>1</sup> OJEU L 126 of 21.5.2009, p. 13.

common data and information requirements varying from a local up to a global dimension.

The **Land monitoring service** of the Global Monitoring of Environment and Security (GMES) led by DG ENTR<sup>2</sup> of the European Commission, has entered its Initial Operation (GIO) phase following the entry into application of Regulation (EU) n°911/2010 of 22 September 2010 of the European Parliament and the Council on the European Earth monitoring programme (GMES) and its initial operations (2011 to 2013).

The objective of the GMES Land monitoring service is to provide users in the field of environment and other terrestrial applications with information based on space data combined with other sources of data. It addresses a wide range of policies such as environment, agriculture, regional development, transport and energy policies at EU level and European commitments to International Conventions. The Land monitoring service will focus on the priorities defined by the Land Monitoring Service Implementation Group and the results of consultation of user communities. The Land Service also builds on precursor activities (Geoland and Geoland-2<sup>3</sup>), ESA GSE<sup>4</sup> projects, Corine Land Cover<sup>5</sup>, Land Fast Track precursor project<sup>6</sup>, on a preparatory action (Reference Data Access project) and on existing operational activities at European level and national level. Details of these priorities and their relevance to users are validated by the Commission with the advice of the newly established User Forum.

The initial operations (2011-2013) of the Land Monitoring service focus on the priority for multi-purpose information common to a large community of users, i.e. land cover/land cover change at various scale and periodicity, bio-geophysical variables for dynamic land monitoring, improved access to reference data. On this basis, four components have been identified for the Land service in GIO: (i) a pan-European Land Cover component, (ii) a Global component producing biophysical variables at global scale (iii) a 'Local' component providing very high resolution information on specific areas of interest and (iv) access to a reference data component building on INSPIRE architecture and useful for several GMES services.

The Land monitoring service will begin with the pan-European land cover component which encompasses (i) the continuity of Corine Land Cover (CLC) with a new exercise for the reference year 2012, (ii) the production of 5 additional pan-European High Resolution Layers (HRL) with specific land cover characteristics, and (iii) support to harmonisation efforts of countries in order to improve synergies between pan-European and national land cover activities and in support to the implementation of INSPIRE<sup>7</sup> Annex II & III geospatial data specifications.

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<sup>2</sup> Directorate General Enterprise and Industry

<sup>3</sup> <http://www.gmes-geoland.info/project-documentation/product-service-specifications.html>

<sup>4</sup> GMES Service Element

<sup>5</sup> <http://www.eea.europa.eu/publications/COR0-landcover>

<sup>6</sup> <http://www.eea.europa.eu/data-and-maps/data/eea-fast-track-service-precursor-on-land-monitoring-degree-of-soil-sealing-100m>

<sup>7</sup> Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

Pursuant to the GMES Work Programme 2011 these activities will start with the production of the 5 High Resolution pan-European layers which is the objective of this call for tender.

## 2. Presentation of the tender

Tenders shall be submitted in accordance with the ***double envelopes system***:

The outer envelope or parcel should be sealed with adhesive tape and signed across the seal and carry the following information:

- The open call for tenders reference No **EEA/SES/11/004**
- The contract title **“Land Monitoring Services: High Resolution land cover characteristics of 5 main land cover types (6 lots)”**
- The name of the tenderer
- The indication **“Tender – Not to be opened by the internal mail services”**
- The address for submission of tender (as specified in the letter of invitation to tender)
- The date of submission shall be legible on the outer envelope or parcel

The outer envelope or parcel must contain three inner envelopes, i.e. Envelope No 1, 2 and 3, corresponding to the following three sections: administrative section, technical offer and financial offer.

**(a) Envelope No 1 – Administrative section** shall include the following:

- The Tender submission form drawn up in accordance with the template in annex 1
- The declaration on exclusion criteria as required under section 11.1.2 drawn up in accordance with the template in annex 2
- The legal entity form as required under section 11.2.1 drawn up in accordance with the template in annex 3
- The financial identification form drawn up in accordance with the template in annex 4
- The evidence and documentation demonstrating the fulfilment of the selection criteria as required under sections 11.2.2 (economic and financial capacity) and 11.2.3 (technical and professional capacity)

**(b) Envelope No 2 – Technical offer** shall include the following:

The technical offer providing all information requested under sections 7, 8 and 11.3.1 including information relevant to sub-contracting as requested under section 4.3.

**(c) Envelope No 3 – Financial offer** shall include the following:

The financial offer providing all information requested under sections 10 and 11.3.2, drawn up in accordance with the template in annex 5.

Tenders shall be drafted in one of the official languages of the European Union, **preferably in English** (supporting evidence does not need to be translated) and submitted **in triplicate** (one signed original unbound and two copies).

It is important that tenders are presented in the correct format and include all documents necessary to enable the evaluation committee to assess them. Failure to respect these requirements will constitute a formal error and may result in the rejection of the tender.

Tenderers shall observe precisely the indications in points 2, 3, 4 and 6 of the letter of invitation to tender to ensure their tender is admissible. Late delivery will lead to non-admissibility of the tender and its rejection from the award procedure for this contract. Offers sent by e-mail or by fax will also be non-admissible and discarded. Envelopes found opened at the opening session will also lead to non-admissibility of the tender. Consequently, tenderers must ensure that their tenders are packed in such a way as to prevent any accidental opening during its mailing.

### **3. Confidentiality and protection of personal data**

For the processing of this tendering procedure, the EEA observes the rules set in Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by Community institutions and bodies and on the free movement of such data (OJEU L 8 of 12.1.2001, p. 1).

For further detailed information please refer to the privacy statement attached as annex 7 to these tender specifications.

### **4. Participation in the tendering procedure**

Submission of a tender implies acceptance of the terms and conditions set out in the invitation to tender, in these tender specifications and in the draft framework contract attached to the latter (see annex 6) and, where appropriate, waiver of the tenderer's own general or specific terms and conditions. It is binding on the tenderer to whom the contract is awarded for the duration of the contract.

#### **4.1 Eligibility**

This call for tender is open on equal terms to all natural and legal persons from one of the 32 EEA member countries as well as the seven EEA cooperating West Balkan countries: Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia as well as Kosovo under the UN Security Council Resolution 1244/99. The number of countries involved is 39. In addition, this call for tender is open to all natural and legal persons established in a third country which has a special agreement with the European Union in the field of procurement on the conditions laid down in that agreement.

As proof of eligibility tenderers must indicate in which country they have their headquarters, registered office or residence, and provide the necessary supporting documents in accordance with their national law. If the tender is a natural person, he/she must provide a copy of identity card/passport or driving license and proof that he/she is covered by a social security scheme as a self-employed person.

## **4.2 Application**

All eligible natural and legal person (as per above) or groupings of such persons (consortia) may apply.

A consortium may be a permanent, legally established grouping or a grouping, which has been constituted informally for a specific tender procedure. If awarded the contract, the members of the consortium (i.e. the leader and all other partners) will have an equal standing towards the EEA in executing the framework service contract and they will be jointly and severally liable to the EEA.

The participation of ineligible natural or legal persons will result in the automatic exclusion of that person. In particular, if that ineligible person belongs to a consortium, the whole consortium will be excluded.

The EEA will not request consortia to have a given legal form in order to be allowed to submit a tender, but reserves the right to require a consortium to adopt a given legal form before the contract is signed if this change is necessary for proper performance of the contract. This can take the form of an entity with or without legal personality but offering sufficient protection to the EEA contractual interests (depending on the member countries concerned this may be for instance, incorporation or partnership or a temporary association). Consortia must identify one of their members as coordinator who will interface with the EEA.

Each member of a consortium or group of service providers must fulfil the conditions for participation mentioned in sections 4.1 above and 4.2 and provide the required documents listed in these tender specifications under sections 11.1 and 11.2 below. Therefore, each member of a consortium or group of service providers shall specify his role, qualifications and experience.

## **4.3 Sub-contracting**

A contractor may sub-contract part of the services.

Tenderers must state what part of the work, if any, they intend to sub-contract, and to what extent (for instance % of the total contract value), specifying the names, addresses and legal status of the sub-contractors.

Legal persons must provide a document containing a list of the professional qualifications of the sub-contractors. If awarded the contract, contractors may not choose sub-contractors other than those mentioned in the bids unless they obtain the prior written authorisation of the EEA. The overall responsibility of the work remains with the contractor.

Contractors must ensure that Article II.17 of the draft framework contract (see annex 6 to these tender specifications) can be applied to sub-contractors. Once the contract has been signed, Article II.13 of the above-mentioned draft framework contract shall govern sub-contracting.

## 5. Contractual terms

In drawing up their bid tenderers should bear in mind the provisions of the draft framework contract and draft specific contract attached to these tender specifications (Annex 6).

## 6. Subject of the contract(s)

The overall objective is the production of 5 seamless European coverages of high resolution land cover characteristics of 5 main land cover types, i.e. artificial surfaces, forest areas, agricultural areas, wetlands, and water bodies for the reference year 2012. The ortho-rectified satellite input data for this GMES Land monitoring service will be made available through the GMES satellite image Data Warehouse set up by and hosted at the European Space Agency (ESA). The 5 high resolution layers (HRL) deal with following topics:

- Artificial surfaces: mapping of imperviousness as land cover characteristic based on high resolution satellite images, together with mapping of changes in imperviousness.
- Forest areas: mapping of forest cover characteristics i.e. tree cover density and forest type based on high resolution satellite images. (The service should also support a forest cover map to be produced with an MMU of 0.5 ha in line with Member State requirements for their reporting obligations to UN-ECE<sup>8</sup> / FAO<sup>9</sup>.)
- Agricultural areas: mapping of permanent grassland with possible distinction of agricultural/semi-natural areas.
- Wetlands: mapping of wetlands for designated areas of international importance, (e.g. from the Ramsar Convention<sup>10</sup> and European classifications).
- Water bodies: mapping of small inland and coastal surface water based on high resolution satellite images (e.g. water body layer for WISE<sup>11</sup>).

### 6.1 Context of the contract(s)

Strategic discussions amongst member countries, European Parliament and the main EU institutions responsible for environmental policy, reporting and assessment (DG ENV, EEA, ESTAT and JRC) have underlined an increasing need for factual and quantitative information on the state of the environment to be based on timely, quality assured data, in particular in land cover and land use related issues.

Pursuant to the Regulation (EU) No 911/2010 of the European Parliament and of the Council of 22 September 2010 on the European Earth Monitoring Programme (GMES) and its initial operations (2011 to 2013) and to the delegation agreement signed between the EC and the EEA, the technical coordination of the

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<sup>8</sup> United Nations Economic Commission for Europe

<sup>9</sup> Food and Agriculture Organization

<sup>10</sup> The Convention on Wetlands of International Importance ([www.ramsar.org](http://www.ramsar.org))

<sup>11</sup> Water Information System for Europe

implementation of the pan-European and local component of the GMES Initial Operations land monitoring services is delegated to the EEA.

For the implementation of this pan-European GMES Initial Operations service on land monitoring 2012, a CLC (Corine Land Cover) update will be combined with the production of 5 high resolution land cover characteristics datasets for the reference year 2012, to provide a set of cost-effective operational services on core land cover and land use data at European level, based on high resolution ortho-rectified multi-temporal satellite data.

These land cover characteristics data will support a wide range of environmental information requirements for framing, implementing and evaluating several policy areas at European level, and to the extent feasible at national and regional level.

## **6.2 Purpose of the contract(s)**

### **6.2.1. Description of the overall production of the service**

The 5 High Resolution Layers (HRLs) shall be extracted from multispectral IRS-P6/Resourcesat and RapidEye satellite data resampled to 20m ground resolution using semi-automatic image classification. In addition, medium resolution AWiFS<sup>12</sup> data resampled to 60 m ground resolution will be available, and shall be used for at least 2 out of the 5 HRLs. In addition, for forest service element 2, HR satellite imagery at 25m x 25m resolution, European LAEA projection will be available.

The data, except for forest service element 2 (cfr. section 6.2.3.2) is to be produced in full spatial resolution, i.e. 20m by 20m, which provides the best possible core data for any further analysis. The initial production will yield an intermediate full resolution product (20m x 20m, national projections), which will then be verified and enhanced before yielding the final product (20m x 20m, national and European LAEA<sup>13</sup> projections). The final product of this service will provide both the 20m x 20m enhanced classifications and the aggregated enhanced classifications using the standard EEA 100m x 100m grid (European LAEA projection). An additional resampling of the 20m x 20m national projection products to a 25m x 25m product in European projection is to be produced as part of service element 1.

For forest service element 2, a workflow at 25m x 25m spatial resolution and immediately in European projection is considered. The final product of the forest service element 2 will result in both the 25m x 25m enhanced classifications and the aggregated enhanced classifications using the standard EEA 100m x 100m grid (European LAEA projection).

The production of the 5 HRLs as part of the GMES Initial Operations pan-European Land monitoring service will be organized as a mix of:

- **Centralized production by industry** via this open call for tender (framework and subsequent specific contracts) and,

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<sup>12</sup> Advanced Wide Field Sensor

<sup>13</sup> Lambert Azimuthal Equal Area, based on ETRS89

- **Decentralized delivery by EEA member and cooperating countries** that expressed their interest in participating in some steps of the production process. In the context of this open call for tenders, countries will be participating in the verification and enhancement phases of the HRL production, as shown in Figure 1.

A wall-to-wall HR image coverage will be acquired spread over the years 2011 and 2012. It is anticipated that approximately 1/3 of the total pan-European coverage (EEA 39) will be delivered through the ESA satellite image Data Warehouse by the end November 2011. The remaining 2/3<sup>rd</sup> of the total pan-European coverage will be acquired in 2012. Therefore the approach is to split the production on the basis of the acquisition and availability of cloud free<sup>14</sup> satellite images across different geographic regions of the 39 EEA countries (6 million km<sup>2</sup>). The production of the HRLs shall start early 2012, using the image data acquired in 2011. The remaining 2/3 of the area will be processed in 2012/2013 using the image data that will be acquired in 2012.

Statistical cross validation will be used by EEA to determine the accuracy of results with an independent assessment (subject to a separate contract). Accuracy assessment will be performed using Very High Resolution (VHR) data (e.g. aerial photography, LUCAS<sup>15</sup> data, other satellite data, thematic maps, etc.) within a stratified sampling design based on different Corine land cover classes.

An Eionet NRC<sup>16</sup> land workshop organised in May 2011 indicated that approximately 3/4 of the 29 countries that participated in the workshop, are interested in participating in the HRL production. Most countries expressed an interest in performing both the verification and enhancement phases. A minority of countries expressed an interest in performing the verification phase only. For those countries that do not want to participate in the HRL production, the verification and/or enhancement phase(s) shall be covered by the service provider(s).

A formal request for participation will be sent to all EEA39 countries in the second half of 2011. Grant agreements will be established with each participating country, addressing amongst other the HRL verification and enhancement phases as well as the access to in-situ data. The final list of participating countries is expected to be available by mid-2012. The information on the co-operation with the countries will include a timing expectation for the one or two phases (verification, enhancement) they intend to participate to. Grant agreements are dealt with separately outside the context of this open call for tenders, and will be managed by the EEA.

For the estimation of the overall value of this open call for tenders, a conservative participation rate of 2/3 of the countries has been applied. The exact ratio of participating countries will be accounted for in the specific contracts that will be established in the context of the framework contract resulting from this open call for tenders.

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<sup>14</sup> cfr specifications on cloud coverage in the ESA Data Warehouse description

<sup>15</sup> The Land Use/Cover Area frame Survey, managed and operated by DG Eurostat.

<sup>16</sup> European Environment Information and Observation Network, National Reference Centres

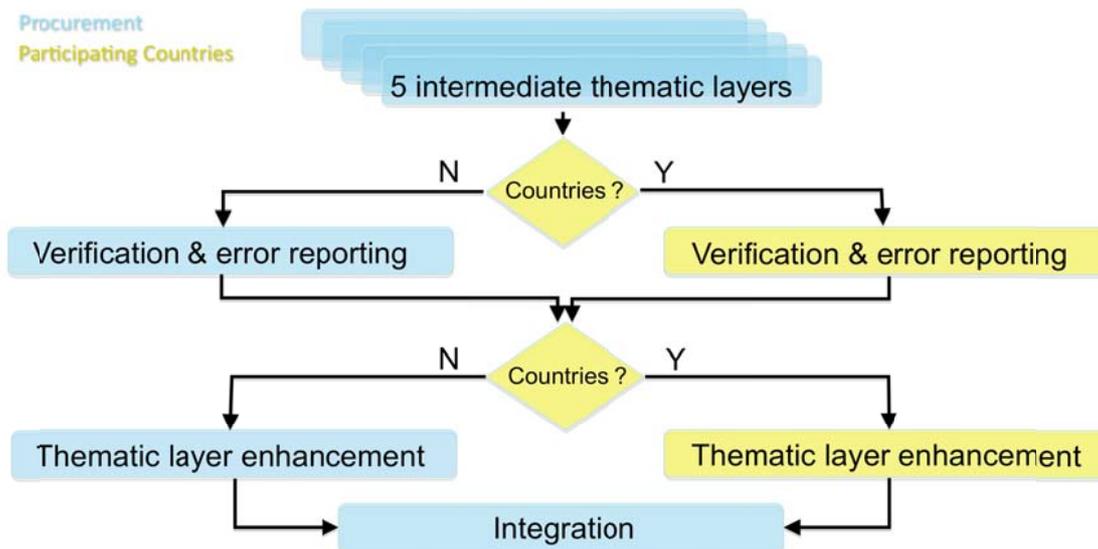


Figure 1: "Decision tree between centralised procurement and decentralised delivery by participating countries for the High Resolution Layers

### 6.2.2. Description of biophysical variables production

The production of the HRLs shall benefit from a series of initial operations, such as the production of biophysical variables that will be useful for the production of several HRLs in any one lot.

The production of HRLs shall be based on (semi-)automatic classification of the satellite images. Several of the HRLs build upon biophysical variables, for which it is considered appropriate to centralise the production step on a per lot basis. As a minimum, the NDVI<sup>17</sup> layer will be calculated. The tenderer may include the calculation of other biophysical variables (e.g. fAPAR<sup>18</sup>, LAI<sup>19</sup>), in order to match the minimum thematic accuracy required for the HRLs. Biophysical variable layers will be considered as intermediate data products.

### 6.2.3. Description of the High Resolution Layers (HRLs)

Land cover characteristics of 5 main land cover types shall be mapped in full pan-European coverage (EEA39) and spatial resolution, i.e. 20m by 20m.

The full resolution data shall be further processed to yield final products using a minimum mapping unit of 100m x 100m (1ha). Full resolution data will nevertheless remain available for those users wanting to exploit the full resolution. Different thematic accuracies will be applied for the individual HRLs.

<sup>17</sup> Normalized Difference Vegetation Index

<sup>18</sup> fraction of Absorbed Photosynthetically Active Radiation

<sup>19</sup> Leaf Area Index

The main scope of the high resolution layers is to provide a set of land cover characteristics that can be used as attributes to different kind of map objects, such as NUTS<sup>20</sup>, CLC polygons, regular grids, designated areas, etc.

All 5 HRL series of products will be produced using national projections. It is only at the data integration phase (after verification and enhancement) that final products in national projections will be transformed to the European LAEA<sup>21</sup> projection, based on ETRS89<sup>22</sup>. One exception is identified for forest areas service element 2, and in case this service element would be included in the contract(s).

To the extent feasible, tenderers shall carefully consider optimisation of production processes, for instance by envisaging common use of biophysical variables, parallel processing of production steps for various HRLs whenever appropriate and possible.

#### 6.2.3.1. Imperviousness

Built-up areas are characterized by the substitution of the original (semi-)natural cover or water surface with an artificial, often impervious, cover. These artificial surfaces are usually characterized by long cover duration (FAO Land Cover Classification System, 2005)<sup>23</sup>. A high resolution imperviousness dataset with all artificially sealed areas will be produced (0-100% and change detection 0-100%) using automatic derivation based on calibrated NDVI. A per-pixel estimate of imperviousness is foreseen as the index for the degree of artificial soil sealing. Data for 2006 and 2009 were produced in the frame of GMES precursor activities and Geoland-2, and are provided by EEA. Re-analysis is needed to keep consistency in the time series. The processing scheme is based on the experiences of the 2006<sup>24</sup> and 2009 exercises and the results of the product validation. Statistical validation will be carried out on the 100m x 100m data. Minimum overall accuracy shall be 85% with > 90% as the overall target.

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<sup>20</sup> Nomenclature of Terrestrial Units for Statistics

<sup>21</sup> Lambert Azimuthal Equal Area projection

<sup>22</sup> European Terrestrial Reference System 1989

<sup>23</sup> Impervious surfaces of built-up areas account for 80 to 100% of the total cover.

<sup>24</sup> <http://www.eea.europa.eu/data-and-maps/data/eea-fast-track-service-precursor-on-land-monitoring-degree-of-soil-sealing-100m-1/eea-ftsp-degree-of-soil-sealing>

**Table 1: Specification Imperviousness Layer**

<b>Product</b>	<b>Year</b>	<b>Classification</b>
Degree of Imperviousness (20m x 20m, national and European projections)	2012	Degree of Imperviousness 0 – 100%
Degree of Imperviousness (100m x 100m (1ha), European projection)	2012	Degree of Imperviousness 0 – 100%
Time series 2006-2009-2012 (100m x 100m (1ha), European projection)	2006-2009- 2012	Degree of change over time 0 – 100%

#### 6.2.3.2. Forest areas

Tenderers are requested to indicate prices and conditions for the provision of the two service elements outlined below. Depending on the actual needs and overall budget availability, the EEA may decide to procure only the required service element 1 or to the extent feasible both service elements.

#### **Service element 1:**

The forest service element 1 is compatible with the other high resolution layers and their multi-purpose approach. A high resolution forest dataset will be produced as a baseline for further monitoring. A per-pixel classification of tree cover<sup>25</sup> density and of dominant leaf type (broadleaved, coniferous) will be provided. In addition, an aggregated 100m x 100m forest density layer will be created which will also include a “mixed” class. Statistical validation will be carried out on the 20m x 20m forest type data. Minimum overall accuracy shall be 85% with > 90% as overall target. A stratified accuracy assessment will be applied.

**Table 2a: Specification Forest Layer service element 1**

<b>Product</b>	<b>Year</b>	<b>Classification</b>
Tree cover density (20m x 20m, national and European projections)	2012	Tree cover density 0 – 100%
Forest type (20m x 20m, national and European projections)	2012	Broadleaved or Coniferous
Forest density (100m x 100m (1ha) European projection)	2012	Degree of forest cover 0 – 100%

<sup>25</sup> “tree cover” is used instead of “crown cover” in view of compliance with the global land cover initiative (GEO)

Forest type (100m x 100m (1ha) European projection)	2012	Broadleaved, (mixed) or Coniferous
Tree cover density (resampled from 20m x 20m to 25m x 25m and in European LAEA projection system)	2012	Tree cover density 0 – 100%
Forest type (resampled from 20m x 20m to 25m x 25m and in European LAEA projection system)	2012	Broadleaved or Coniferous

### Service element 2:

Tenderers shall additionally provide a quote for an additional production scheme for the forest layer, service element 2. The forest service element 2, matching as closely as possible the product that the European Forest Data Centre<sup>26</sup> at JRC provides to DG ENV, is required with the following specifications:

A high resolution forest dataset as a baseline for further monitoring. A per-pixel classification of forest presence/absence and dominant leaf type (broadleaved, coniferous) shall be provided for all individual scenes covering the area of any one lot. The layer will be validated on a per pixel basis. Classification accuracy requirements will be defined through the user accuracy<sup>27</sup> of the forest (and type) class and will be dependent on the forest (type) fraction within the validation units. As an example: 85% user accuracy for forest in an area with 30% forest cover must be achieved.

Remarks:

- The 25m resolution imagery in the European LAEA projection is taken as the primary input data source. Projection and resolution are maintained throughout the processing;
- Service providers verify the intermediate products using a harmonised methodology and using harmonised validation data. Participation from the countries is still to be defined for this service element.

**Table 2b: Specification Forest Layer service element 2**

Product	Year	Classification
Forest presence/absence (25m x 25m, European projection LAEA)	2012	Forest or non-forest
Forest type (25m x 25m European projection LAEA)	2012	Broadleaved or Coniferous

<sup>26</sup> <http://efdac.jrc.ec.europa.eu/>

<sup>27</sup> Story, M., Congalton, R., 1986, Accuracy Assessment: A User's Perspective, Photogrammetric Engineering and Remote Sensing, 52 (3), pp. 397-399

### 6.2.3.3. Agricultural areas

A high resolution data set of permanent grassland shall be produced. The analysis will use the 3 reference years 2006 – 2009 - 2012 to detect the permanent presence of grassland. The discrimination of permanent grassland from other agricultural land areas such as arable land, bare soil, etc... should take into account seasonal variations. A minimum of 3 (worst case), an average of 4-5 and up to maximum 8 seasonal images of AWiFS data (reference year 2012) will be used as additional information for the classification process. Statistical validation will be carried out on the 100m x 100m data. Required minimum accuracy is 80%.

**Table 3: Specification Agricultural Layer**

<b>Product</b>	<b>Year</b>	<b>Classification</b>
Presence of permanent grassland (20m x 20m, national and European projections)	2006 – 2009 - 2012	Occurrence of permanent grassland (binary)
Areal density of permanent grassland (100m x 100m (1ha))	2006 – 2009 - 2012	Occurrence of permanent grassland (0 – 100%)

### 6.2.3.4. Wetlands

For wetland areas presence of surface water during the reference year (2012) shall be mapped. Seasonal changes using AWiFS data will be used to map areas covered temporarily by water surfaces, as well as areas covered during the whole reference year. Minimum 3, maximum 8 dates will be analysed depending on the availability of medium resolution data. Statistical validation will be carried out on the 100m x 100m data. Required minimum accuracy is 80%.

**Table 4: Specification Wetlands Layer**

<b>Product</b>	<b>Year</b>	<b>Classification</b>
Wetland Inventory (20m x 20m, national and European projections)	2012	Wetland – Non-Wetland seasonal variation (degree of wetness classes)
Wetland Inventory (100m x 100m (1ha) European projection)	2012	Wetland – Non-Wetland seasonal variation (degree of wetness classes)

#### 6.2.3.5. Water bodies

Permanent water bodies will be mapped using the same spatial resolution (20m x 20m) and aggregated at 100m x 100m grid (1ha). The analysis will use the 3 reference years 2006 – 2009 - 2012 to detect the permanent presence of surface water. Seasonal AWiFS data will be used to separate temporary from permanent water bodies for the reference year 2012 and exclude effects of seasonal changes in water levels. Statistical validation will be carried out on the 20m x 20m data. Required minimum accuracy is 90%.

**Table 5:** *Specification Water bodies Layer*

<b>Product</b>	<b>Year</b>	<b>Classification</b>
Permanent water bodies (20m x 20m, national and European projections)	2006 – 2009 – 2012	Water – Non-Water mask
Permanent water bodies (100m x 100m (1ha), European projection)	2006 – 2009 – 2012	Water – Non-Water mask

#### **6.2.4. Verification**

Tenderers shall propose a methodology for the verification phase, which aims at identifying systematic classification errors that are eligible for improvement. The HRLs will be checked on omission and commission errors, eg. beaches and bare soil erroneously mapped as imperviousness; young wheat fields erroneously mapped as permanent grassland; young tree plantations erroneously mapped as permanent grassland; permanent water bodies missing due to shadow effects in mountainous areas. This production phase will be done partly by those countries that will have expressed their interest in participating to the process. The service providers are expected to verify only those countries that do not participate to the process. It is estimated that 1/3 of the total area to be covered in any one lot will need to be carried out by a service provider. Verification will be carried out on the intermediate products at full resolution, national projections. The tenderer shall specify which ancillary data will be used for the verification.

#### **6.2.5. Enhancement**

For the enhancement phase, the tenderers shall propose a methodology to enhance the data content based on the findings in the verification reports. All enhancements must be done to the individual country datasets (20m x 20m, national projections). The tenderer shall specify which improvements shall be done through automatic processes and/or manual interactive processes. This production phase will be done partly by those countries that will have expressed their interest in participating to the process. The service providers are expected to enhance only those countries that do not participate to the process. It is estimated that 1/3 of the total area to be covered in any one lot will need to be carried out by a service provider. Enhancement will be carried out on the

intermediate products at full resolution, national projections. The tenderer shall specify which ancillary data will be used for the enhancement.

#### **6.2.6. Data aggregation and integration**

The tenderer shall propose a methodology to aggregate full resolution enhanced HRL products to 100m x 100m HRL final products, and to transform the data from national projections to the European LAEA projection.

All full resolution enhanced HRL products shall be aggregated to the 100m x 100m standard grid in European LAEA projection, based on ETRS89, yielding the final HRL products.

#### **6.2.7. Satellite input data and use conditions**

The work shall be produced on the basis of the satellite imagery that will be made available through the GMES/ESA satellite image Data Warehouse (DWH). For each of the datasets below an acquisition strategy has been agreed upon, such that:

- 1/3 of the EEA39 territory (+/- 2 Million km<sup>2</sup>) shall be acquired in 2011, and made available by end November 2011;
- 2/3 of the EEA39 territory (+/- 4 Million km<sup>2</sup>) shall be acquired in 2012, and made available by the end of 2012;
- To the extent feasible, and depending on cloud cover, synchronisation between coverages shall be pursued.

In summary, the work shall be produced on the basis of the following high resolution multi-spectral satellite data, acquired primarily in the reference year 2012 (- 1 year), re-sampled to 20m ground resolution using cubic convolution interpolation and covering 2 dates<sup>28</sup>:

- IRS-P6/Resourcesat: VNIR<sup>29</sup> + SWIR<sup>30</sup>, ortho-rectified using national projections, 20m ground resolution (ca. 800 images)<sup>31</sup>;
- RapidEye: VNIR, ortho-rectified using national projections, 20m ground resolution (ca. 10.000 images).

Additionally multispectral medium resolution data will be available, acquired primarily in the reference year 2012 (-1 year), as seasonal datasets in the acquisition window March to October. A minimum of 3 monthly composites will be acquired over the April to June time frame, which can be extended up to maximum of 8 monthly composites, depending on cloud cover, and priority that will be given to HR image acquisitions:

- Resourcesat 1 / 2 AWiFS, VNIR & SWIR, ortho-rectified using the ETRS89 based LAEA projection, 60m ground resolution<sup>32</sup>.

The High Resolution (HR) images will be geometrically corrected towards national projection systems with relative reference to the Image2009 coverage,

<sup>28</sup> ESA DAP\_V2.1 reference : DWH\_MG2\_CORE\_01 - Optical HR Pan EU coverages 2011/2012

<sup>29</sup> Visible and Near Infra Red

<sup>30</sup> Short Wave Infra Red

<sup>31</sup> Azores, Canaries, Iceland and French DOM areas will be covered with SPOT 4/5 imagery

<sup>32</sup> ESA DAP\_V2.1 reference : DWH\_MG2-3\_CORE\_08 - European Monthly MR composites 2011-2012

and using different Digital Elevation Models for the various datasets. The Medium Resolution (MR) images will be geometrically corrected towards the European Lambert Azimuthal Equal Area projection, based on the European Terrestrial Reference System 1989.

The delivery of the HR images will in principle be made on a per country basis. However, at the end of the 2011 acquisition window, delivery of areas of contiguous cloud free coverage of a minimum of 20.000 km<sup>2</sup> will be allowed, and then to be completed on a per country basis with 2012 acquisitions.

ESA will provide the ortho-rectified images to the service provider(s) along with a detailed products description (scenes size, algorithms used, format description, etc.) through its Data Warehouse. Full specifications of the data that will be available as basis input data for this project can be found in the following document:

*“GMES Space Component Data Access Portfolio: Data Warehouse 2011-2014”,*

available at the following URL:

[http://gmesdata.esa.int/web/gsc/dap\\_document](http://gmesdata.esa.int/web/gsc/dap_document)

Attention is drawn to the fact that minor updates of the document may become available on the above mentioned URL, and shall be taken as guiding reference for the input data throughout the project.

The service provider(s) shall comply with the general licensing conditions (established in the frame of this Data Warehouse) for the use of the data, prior to delivery. These conditions are available in the following document:

*“Multiple-User and -Usage Sub-licence for EO Data from the GSCDA, Terms & Conditions”,*

available at the following URL:

[http://gmesdata.esa.int/web/gsc/terms\\_and\\_conditions](http://gmesdata.esa.int/web/gsc/terms_and_conditions)

Additionally, access to the 2006 and 2009 satellite imagery, for change analysis purposes, will be made available.

The use of the data by the service provider(s) shall be limited to the GMES Initial Operations Land Monitoring service framework contract and these data shall be returned to EEA or ESA upon completion of the work.

#### **6.2.8. In-situ ancillary data**

In-situ data as defined by GMES comprise all non-space-borne data with a geographic dimension. Access to existing in-situ data is subject to Art 9.2 of the GMES Initial Operations Regulation<sup>33</sup>.

In-situ data in the context of this open call for tenders will be needed mainly for 3 purposes:

1. To support the processing of satellite data (biophysical variables);

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<sup>33</sup> Regulation (EU) No 911/2010 of the European Parliament and of the Council of 22 September 2010 on the European Earth Monitoring Programme (GMES) and its initial operations (2011 to 2013); Official Journal of the European Union, L276/1, 20.10.2010

2. To support the production processes of the HRLs;
3. To provide ground truth data for the verification and enhancement process.

The service providers are fully responsible for getting access to (and procuring when appropriate) the necessary in-situ data. However, EEA strongly encourages service providers to investigate with the participating countries in order to explore to which extent access to national and regional in-situ data can be provided for this open call for tenders, either through services the countries are establishing in the framework of the implementation of the INSPIRE directive<sup>34</sup>, and/or through services the countries will set up as part of their contribution to the GIO Land Monitoring services.

At European level, EEA will provide access to the following datasets:

- A dataset with the national borders, including the 12 nautical miles zone of national waters into the seas and oceans, which should be used during the project for clipping the data at national level (EEA39).
- The Corine Land Cover datasets with reference year 2006 (36 countries)
- Urban Morphological Zones 2006 (32 countries)
- The 2006 imperviousness products (EEA38<sup>35</sup>)
- The 100m x 100m reference grid

All EEA datasets will be accessible through its data-service at following URL:

<http://www.eea.europa.eu/data-and-maps/>

Furthermore, Forest maps are available through the JRC forest data centre at:

<http://efdac.jrc.ec.europa.eu/>

### **6.2.9. Geographic coverage**

The products to be delivered shall cover all of the EEA 32 Member Countries and 7 Cooperating Countries, i.e. the full EEA39: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France<sup>36</sup>, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kosovo (under the UN Security Council Resolution 1244/99), Latvia, Liechtenstein, Lithuania, Luxembourg, Former Yugoslavian Republic of Macedonia, Malta, Montenegro, the Netherlands, Norway<sup>37</sup>, Poland, Portugal<sup>38</sup>, Romania, Serbia, Slovakia, Slovenia, Spain<sup>39</sup>, Sweden, Switzerland, Turkey, United Kingdom) who are participating in the regular Corine land cover dataflow. The number of countries involved is 39. The area covered is, approximately, 6 Million km<sup>2</sup>.

<sup>34</sup> Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), Official Journal of the European Union, L108, 25.10.2007

<sup>35</sup> excluding: Kosovo under the UN Security Council Resolution 1244/99

<sup>36</sup> including the French Overseas Departments (DOMs) and excluding the French Overseas Territories (TOMs)

<sup>37</sup> The Svalbard archipelago is not included

<sup>38</sup> The Azores and Madeira archipelagos included

<sup>39</sup> The Canary and Balears islands included

### 6.3 Distribution in lots

In order to deal appropriately with the volume and complexity of the content of this tender, a breakdown in lots for the production of the HRLs is envisaged along 3 major axis:

- A thematic split of the HRL production that reflects the input images that are used to produce the HRL (i.e. HR or MR data). The thematic split also reflects the level of methodological maturity of the approach;
- The geographic distribution of the EEA39 territory in lots is designed along national boundaries;
- To the extent feasible, the geographic distribution of the EEA39 in lots will comprise homogeneous (groups of) European bio-geographical regions.

Applying the above breakdown rules for the production of HRLs, yields a distribution in lots as follows:

- **Lot 1: Imperviousness and forest in Northern Europe (1.452.275 km<sup>2</sup>):**  
This lot includes the following countries: Estonia, Finland, Iceland, Lithuania, Latvia, Norway, Sweden;
- **Lot 2: Imperviousness and forest in Central Europe, partim Atlantic region (1.024.114 km<sup>2</sup>):**  
This lot includes the following countries: Belgium, France<sup>40</sup>, Ireland, the Netherlands, United Kingdom;
- **Lot 3: Imperviousness and forest in Central Europe, partim Alpine, Continental, and Pannonian region (1.546.595 km<sup>2</sup>):**  
This lot includes the following countries: Austria, Bulgaria, Czech Republic, Germany, Denmark, Hungary, Lichtenstein, Luxemburg, the former Yugoslav Republic of Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Switzerland;
- **Lot 4: Imperviousness and forest in Southern Europe, partim West and Central Mediterranean region (1.202.046 km<sup>2</sup>):**  
This lot includes the following countries: Albania, Bosnia and Herzegovina, Croatia, Cyprus, Greece, Italy, Kosovo under the UN Security Council Resolution 1244/99, Montenegro, Malta, Portugal<sup>41</sup>, Spain<sup>42</sup>;
- **Lot 5: Imperviousness and forest in Southern Europe, partim East Mediterranean region (783.562 km<sup>2</sup>):**  
This lot includes the following country: Turkey;
- **Lot 6: Grasslands, wetlands and water bodies in the EEA39 (6.008.592 km<sup>2</sup>)**  
This lot includes all of the EEA39 countries.

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<sup>40</sup> including the DOMs

<sup>41</sup> including the Azores and Madeira

<sup>42</sup> including the Balears and Canaries

Each lot entails the type of tasks outlined below:

1. Data preparation (access/acquire and verify in-situ data and download and verify space data);
2. Producing the bio-physical variables which are required for the production of the HRL;
3. Producing each individual HRL set of intermediate products;
4. Verifying each individual HRL set of intermediate products (only for countries that will not contribute to the verification);
5. Enhancing each individual HRL set of products (only for countries that will not contribute to the verification);
6. Data integration (for each lot the geographical integration of national extents of the dataset into a seamless coverage per lot, thereby transforming to a European projection)
7. Data aggregation (the aggregation of both national extents and full lot coverage extents to 100m x 100m grids)<sup>43</sup>
8. Reporting activities and participating to project meetings

Tenderers may place an offer for one or more lots based on their expertise and experience. In case tenderers submit offers for multiple lots, they are requested to submit their bids separately for each individual lot, specifying the number and subject of the lot and comprising a section giving the technical offer (Envelope No 2) and a section giving the financial offer (Envelope No 3) for each individual lot. The administrative section (Envelope No 1) providing information as to the legal, economic and financial, professional and technical capacity of the tenderer and including annexes 1 to 4 to these tender specifications need though to be submitted only once. In this respect and owing to the variety of profiles and services required, tenderers may choose presenting the evidence related to their technical and professional capacity in one or more sub-sections for the lot(s) for which they want to submit an offer.

Tenders will be evaluated separately, lot by lot, as to their merits (see section 11.3 below). For each lot, a framework contract will be awarded (maximum 1 per lot).

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<sup>43</sup> Exception for forest service element 2, see section 6.2.3.2

## 7. General obligations of the tenderer/mandatory requirements

The table below describes the required minimum level of deliverables to be provided for each lot:

<b>DELIVERABLES</b>			
<b>Lot No</b>	<b>Deliverables</b>	<b>Estimated date</b>	<b>Comments</b>
All lots	Draft project management plan	1 month after contract signature	
All lots	Draft country delivery report template	1 month after contract signature	
All lots	Final project management plan	1,5 month after contract signature	
All lots	[x] sets of files with the raster data of biophysical variables at full resolution.	Starting 3 months and ending 18 months after contract signature	[x] = the number of countries covered in the relevant lot
Lots 1 to 5	[x] sets of files with the raster data of the 2 intermediate HRLs (imperviousness and forest) at country level, in full spatial resolution, in national projections with the associated INSPIRE compliant metadata	Starting 4,5 months and ending 24 months after contract signature <sup>44</sup>	[x] = the number of countries covered in the relevant lot

<sup>44</sup> Subject to the contract renewal in accordance with the provision of Article I.2.5 of the framework contract (see Annex 6 to these tender specifications)

<b>DELIVERABLES</b>			
<b>Lot No</b>	<b>Deliverables</b>	<b>Estimated date</b>	<b>Comments</b>
Lot 6	39 sets of files with the raster data of the 3 intermediate HRLs (grasslands, wetlands, water bodies) at country level, in full spatial resolution, in national projections, with the associated INSPIRE compliant metadata	Starting 4,5 months and ending 24 months after contract signature <sup>44</sup>	
Lots 1 to 5	[x] intermediate country delivery reports	Starting 4,5 months and ending 24 months after contract signature <sup>44</sup>	[x] = the number of countries covered in the relevant lot
Lot 6	39 intermediate country delivery reports	Starting 4,5 months and ending 24 months after contract signature <sup>44</sup>	
Lots 1 to 6	[y] country verification reports	Starting 7 months and ending 27 months after contract signature <sup>44</sup>	[y] = the number of countries in the relevant lot that have to be verified by the service provider
Lots 1 to 5	[y] sets of files with the raster data of the 2 enhanced HRLs (imperviousness and forest) at country level, in full spatial resolution, in national projections with the associated INSPIRE compliant metadata	Starting 10 months and ending 30 months after contract signature <sup>44</sup>	[y] = the number of countries in the relevant lot that have to be enhanced by the service provider
Lot 6	[z] sets of files with the raster data of the 3 enhanced HRLs (grasslands, wetlands, water bodies) at country level, in full spatial resolution, in national projections with the associated INSPIRE compliant metadata	Starting 10 months and ending 30 months after contract signature <sup>44</sup>	[z] = the number of countries in the relevant lot that have to be enhanced by the service provider

<b>DELIVERABLES</b>			
<b>Lot No</b>	<b>Deliverables</b>	<b>Estimated date</b>	<b>Comments</b>
Lots 1 to 6	[u] updated country delivery reports	Starting 10 months and ending 30 months after contract signature <sup>44</sup>	[u] = the number of countries in the relevant lot that have to be enhanced by the service provider
Lots 1 to 5	2 sets of files with the seamless regional coverage of enhanced raster data, relevant for the lot, on imperviousness and forest, in full spatial resolution (20m by 20m <sup>45</sup> ), and in LAEA based on ETRS89, with associated INSPIRE compliant metadata	30 months after contract signature <sup>44</sup>	
Lot 6	3 sets of files with the seamless European coverage of enhanced raster data of the intermediate HRLs on grasslands, wetlands and water bodies, in full spatial resolution (20m by 20m), and in LAEA based on ETRS89, with the associated INSPIRE compliant metadata	32 months after contract signature <sup>44</sup>	
Lots 1 to 5	2 sets of files with the seamless regional coverage of enhanced raster data, relevant for the lot, on imperviousness and forest, aggregated to the 100m x 100m grid, and in LAEA based on ETRS89, with associated INSPIRE compliant metadata.	32 months after contract signature <sup>44</sup>	

<sup>45</sup> respectively 25m x 25m for forest service element 2

<b>DELIVERABLES</b>			
<b>Lot No</b>	<b>Deliverables</b>	<b>Estimated date</b>	<b>Comments</b>
Lot 6	3 sets of files with the seamless European coverage of enhanced raster data of the intermediate HRLs on grasslands, wetlands and water bodies, aggregated to 100m x 100m, and in LAEA based on ETRS89, with the associated INSPIRE compliant metadata	32 months after contract signature <sup>44</sup>	
All lots	Draft final report, including a detailed methodological description, and including a detailed and fully documented workflow scheme, in order to enable exact reproduction of the intermediate data and final products.	At the latest 1 month before the end of the contract <sup>44</sup>	
All lots	Final report, including a detailed methodological description, and including a detailed and fully documented workflow scheme, in order to enable exact reproduction of the intermediate data and final products.	Upon completion of the contract <sup>44</sup>	

<b>MEETINGS</b>			
<b>Lot No</b>	<b>Meetings</b>	<b>Estimated date</b>	<b>Comments</b>
All lots	Kick-off meeting	1 month after contract signature	To be held at EEA premises in Copenhagen
All lots	1st Intermediate progress meeting	After completion of 10% of the geographical area for the relevant lot	To be held at the EEA or via video conference

<b>MEETINGS</b>			
<b>Lot No</b>	<b>Meetings</b>	<b>Estimated date</b>	<b>Comments</b>
All lots	2nd intermediate progress meeting	After completion of 40% and of 70% of the geographical area for the relevant lot	To be held via video conference
All lots	Participation to GMES ad hoc meetings organised by the European Commission (e.g. GMES user forum meeting, coordination meeting with other GMES GIO services)		It is expected that maximum two meetings may take place during the contract duration

<b>ACCEPTANCE CONDITIONS</b>
<p>After delivery of each (intermediate) product to the EEA, the data will undergo an acceptance check. Whenever possible, this will be done with support from EIONET under supervision of the EEA. This acceptance check will be based on standard ISO criteria for geospatial data quality as reported on the EEA Data Service.</p> <p>The acceptance process is composed of two stages:</p> <ol style="list-style-type: none"> <li>1. Check up of completeness, logical consistency, geometric accuracy and metadata of the data;</li> <li>2. Check up of the thematic accuracy based on randomly selected samples within each country covered.</li> </ol> <p>EEA shall have 1 month from receipt to check and accept or reject the data and the service provider(s) shall have 1 month in which to submit additional information or a new set of data.</p>

## **8. Place of performance of the work/services**

The services shall mainly be performed at the contractor's premises with occasional meetings at the EEA in Copenhagen or at the European Commission (EC) in Brussels (see section 7). The contractor shall have videoconferencing tools to organise virtual meetings requested on short notice or of a short duration.

Intermediate and final products shall be delivered at EEA's premises in Copenhagen, Kongens Nytorv No 6, 1050 Copenhagen K, Denmark. Digital products will be uploaded to the servers of the EEA, according to specifications to be agreed upon during the kick-off meeting.

## 9. Type and volume of contract

The successful tenderer(s) will be awarded a framework service contract for an initial period of 12 months, starting from the date of signature, with the possibility of 2 renewals each time for a period of 12 months. The services will be implemented through specific contracts depending on the EEA's demand. The total value of the contracts is estimated at EUR 6.000.000 over a maximum period of 36 months, covering all products, services and travel specified above, and distributed as follows (the figures below are merely indicative and may vary depending on the actual volume of needs and overall budget consideration<sup>46</sup>):

1. Lot 1: maximum EUR 990.000
2. Lot 2: maximum EUR 700.000
3. Lot 3: maximum EUR 1.055.000
4. Lot 4: maximum EUR 820.000
5. Lot 5: maximum EUR 535.000
6. Lot 6: maximum EUR 1.900.000

## 10. Price

Tenderers are required to quote prices for the services to be provided as follows:

- Prices must be quoted per lot and per production step in any one lot as described under section 6 above. The minimum production steps for which a breakdown of the price per lot must be quoted are:
  - Production of biophysical variables;
  - Production of each individual HRL set of intermediate products (respectively: imperviousness, forest or grasslands, wetlands, water bodies)
  - Verification of each individual HRL set of intermediate products
  - Enhancement of each individual HRL set of products
  - Data aggregation and integration
- Prices quoted must be **all-inclusive** and expressed in **euro**, including for tenderers established in countries that are not part of the euro zone. For tenderers in countries that do not belong to the euro zone, the price quoted may not be revised in line with exchange rate movements. It is for the tenderers to select an exchange rate and assume the risks or the benefits deriving from any variation.
- No additional expenses incurred in the performance of the services will be reimbursed separately by the EEA.
- The price quoted must be fixed and not subject to revision.

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<sup>46</sup> Tenderers shall ensure that the total price of any one lot does not exceed the indicative maximum budget, when summing up the application of average price units to the total area of the lot and without weighting factor (cfr. section 11.3.2).

Under Articles 3 and 4 of the Protocol on the Privileges and Immunities of the European Communities and the Headquarters Agreement between EEA and the Government of Denmark of 17 August 1995, EEA is exempt from all charges, taxes and dues, including value added tax; such charges may not therefore be included in the calculation of the price quoted; the VAT amount must be indicated separately.

The costs incurred in preparing and submitting tenders are borne by the tenderers and cannot be reimbursed.

## 11. Criteria

### 11.1 Exclusion criteria

#### **11.1.1. Tenderers shall be excluded from participation in the procurement procedure if:**

- (a) they are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
- (b) they have been convicted of an offence concerning their professional conduct by a judgment which has the force of *res judicata*;
- (c) they have been guilty of grave professional misconduct proven by any means which the EEA can justify;
- (d) they have not fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country of the EEA or those of the country where the contract is to be performed;
- (e) they have been the subject of a judgment which has the force of *res judicata* for fraud, corruption, involvement in a criminal organisation or any other illegal activity detrimental to the Communities' financial interests;
- (f) following another procurement procedure or grant award procedure financed by the Community budget, they have been declared to be in serious breach of contract for failure to comply with their contractual obligations.

The cases referred to in paragraph 11.1.1 (e) above shall be the following:

- (a) cases of fraud as referred to in Article 1 of the Convention on the protection of the European Communities' financial interests established by the Council Act of 26 July 1995 (OJ/C 316 of 27.11.1995, p. 48);
- (b) cases of corruption as referred to in Article 3 of the Convention on the fight against corruption involving officials of the European Communities or officials of Member States of the European Union, established by Council Act of 26 May 1997 (OJ/C 195 of 25.6.1997, p. 1);

- (c) cases of involvement in a criminal organisation, as defined in Article 2(1) of joint Action 98/733/JHA of the Council (OJ/L 315 of 29.12.1998, p. 1);
- (d) cases of money laundering as defined in Article 1 of Council Directive 91/308/EEC (OJ/L 166 of 28.6.1991, p. 77).

Exclusion from **awarding**:

In addition, contracts may not be awarded to tenderers who, during the procurement procedure:

- (a) are subject to a conflict of interest;

Tenderers must declare:

- that they do not have any conflict of interest in connection with the contract; a conflict of interest could arise in particular as a result of economic interests, political or national affinities, family or emotional ties, or any other relevant connection or shared interest;
- that they will inform the EEA, without delay, of any situation constituting a conflict of interest or which could give rise to a conflict of interest;
- that they have not made and will not make any offer of any type whatsoever from which an advantage can be derived under the contract;
- that they have not granted and will not grant, have not sought and will not seek, have not attempted and will not attempt to obtain, and have not accepted and will not accept, any advantage, financial or in kind, to or from any party whatsoever, constituting an illegal practice or involving corruption, either directly or indirectly, as an incentive or reward relating to the award of the contract.

The EEA reserves the right to verify the above information.

- (b) are guilty of misrepresentation in supplying the information required by the EEA as a condition of participation in the contract procedure or fail to supply this information;
- (c) find themselves in one of the situations of exclusion, referred to in paragraph 11.1.1 above, for this procurement procedure.

**11.1.2. Evidence to be provided by the tenderers**

When submitting their bids, each tenderer (including subcontractor(s) or any member of a consortium or grouping) must provide a declaration on their honour, duly signed and dated, stating that they are not in any of the situations mentioned under paragraph 11.1.1 above. For that purpose, they shall complete and sign the form attached as annex 2 to these tender specifications.

The tenderer to whom the contract is to be awarded shall provide within 15 calendar days following receipt of the letter informing him of the proposed award of the contract and preceding the signature of the contract, the evidence specified in the last but one paragraph of the form attached as annex 2 to these tender specifications confirming the declaration aforementioned.

## **11.2 Selection criteria**

### ***11.2.1. Legal capacity***

Any tenderer is required to prove that he is authorised to perform the contract under national law, as evidenced by inclusion in a trade or professional register, or a sworn declaration or certificate, membership of a specific organisation, express authorisation, or entry in the VAT register. To that effect, each service provider (including subcontractor(s) or any member of a consortium or a group of service providers) is required to submit a legal entity form (see annex 3) duly filled out and signed, accompanied by a copy of inscription in trade register and/or a copy of inscription in VAT register, where applicable. However the subcontractor(s) shall not be required to fill in or provide those documents when the services represent less than 20 % of the contract.

### ***11.2.2. Economic and financial capacity***

Evidence of economic and financial capacity shall be furnished by **(one or more of)** the following documents:

- appropriate statements from banks or evidence of professional risk indemnity insurance;
- the presentation of balance sheets or extracts from balance sheets for at least the last two years for which account have been closed, where publication of the balance sheet is required under the company law of the country in which the economic operator is established;
- a statement of overall turnover and turnover concerning the services covered by the contract during the last two financial years.

If, for some exceptional reason, which the EEA considers justified, a tenderer is unable to provide the references requested above, he may prove his economic and financial capacity by any other means which the EEA considers appropriate.

An economic operator may, where appropriate and for a particular contract, rely on the capacities of other entities, regardless of the legal nature of the links that it has with them. It must in that case prove to the EEA that it will have at its disposal the resources necessary for performance of the contract, for example by producing an undertaking on the part of those entities to place those resources at its disposal.

### ***11.2.3. Technical and professional capacity***

Tenderers shall show their degree of technical and professional capacity to carry out the requested tasks by providing information on the criteria described below. If several service providers or subcontractors are involved in the tender, the selection criteria for the technical and professional capacity will be assessed in relation to the combined capacities of the service providers and subcontractors, as a whole, to the extent that service providers or subcontractors put their resources at the disposal of the tenderer for performance of the contract.

o **Human resources:**

Tenderers shall provide the following documents:

CVs detailing the educational and professional qualifications of the firm's managerial staff as well as those of the persons responsible for providing the services, indicating the required professional experience as follows:

- Managerial staff: minimum 1 CV (contract manager) documenting a minimum of 5 years relevant experience;
- Persons responsible for providing the services: minimum 3 CVs documenting a minimum of 5 years' experience in the fields of image processing methods, production flow and data management and accuracy assessment

o **Past contracts:**

Tenderers shall provide a list and a summary description of similar services provided in the past five years, indicating the value, dates and recipients of the services (public or private);

o **List of IT equipment and software:**

Tenderers shall provide a list of any IT equipment, and software to be employed for performing the services;

o **Quality control and customer service:**

Tenderers shall provide a description of the measures employed to ensure the quality of services and of their ability to respond quickly to request for services and/or modification thereof;

o **Sub-contracting:**

Tenderers shall provide an indication of the proportion of the contract, which they may intend to sub-contract. If sub-contracting is **not** envisaged, tenderers shall clearly state so in the tender submission form (see annex 1).

If sub-contracting is envisaged as part of this contract, tenderers shall provide a statement of their policy on the use of sub-contractors, and of the means of ensuring quality and confidentiality when sub-contractors are used.

NB: Tenderers must acknowledge that the EEA reserves the right to request them at later stage to provide documentation in relation to exclusion and selection criteria for any proposed sub-contractor (see section 4.3 above).

o **Environmental policy:**

Tenderers shall provide a description of their environmental policy specifying the status of implementation. In the event of a joint offer submitted by a consortium or a grouping of service providers, **each member** of the consortium or grouping shall provide the requested description.

### 11.3 Award criteria

The assessment method that will be used to determine the choice of the tender will be based on the criteria given below, on the basis of the economically most advantageous tender in terms of:

- The quality of the tender (Technical merit – TM)
- The financial value of the tender (Price – P)

**11.3.1. Technical merit I (max. 60, min. 40 points)**

Tenders will be evaluated following the award criteria and weights outlined below, producing a total potential score of 60 points. Tenderers shall elaborate on all criteria referred to below in order to score as many points as possible. The mere repetition of mandatory requirements set out in these tender specifications, without going into details or without giving added value, will only result in a low score. If essential elements of these tender specifications are not expressly addressed in the tender, EEA may decide to give a zero mark for the relevant quality criteria.

It is important that the technical offer is presented in a simple and clear structure, following the numbering and the headings of the award criteria outlined below to enable the evaluation committee to assess them. Failure to respect this requirement will result in a low score under award criterion No 1.

For lots 1 to 5, tenderers shall submit a technical offer for both forest service elements as outlined under section 6.2.3.2 above.

<b>No</b>	<b>Award criteria</b>	<b>Maximum points (60)</b>	<b>Minimum points (40)</b>
1	<p><b>Understanding of the objectives of the contract and the work to be carried out</b></p> <p>Tenders will be evaluated in terms of their appreciation and understanding of the aims and context of the work to be undertaken as documented in a short description (max. 3 A4 pages), and their overall quality, completeness and presentation.</p>	5	3
2	<p><b>Methodological approach</b></p> <p>The methodological approach as documented by means of proposed image processing and classification methods, applied definitions, data management, accuracy assessment, verification and enhancement methods (min. 5 A4 pages), including a comprehensive, detailed and documented workflow scheme. Methodological differences between forest service elements 1 and 2 shall be documented as well.</p>	25	18

<b>No</b>	<b>Award criteria</b>	<b>Maximum points (60)</b>	<b>Minimum points (40)</b>
3	<p><b>Strategy to deal with (Sub)Regional diversity</b></p> <p>Proposed strategy to deal with the diversity of different bio-geographical regions in Europe, or subdivisions thereof.</p>	5	3
4	<p><b>Proposed Management Plan</b></p> <p>The proposed management plan, including the optimisation aspects of the workflow, the breakdown of content in tasks with deliverables and delivery milestones, completeness of documentation, quality assurance, risk analysis and mitigation approach, composition and complementarities of the proposed team.</p>	10	7
5	<p><b>Detailed Time Plan</b></p> <p>A detailed time plan, according to which all countries within any one lot can efficiently be covered within the foreseen maximum of 36 months.</p>	5	3
6	<p><b>Data quality of the test area</b></p> <p>For lots 1 – 5:</p> <p>Tenders shall provide: an example of the final product for a test area per HRL and within the geographic coverage of the lot(s) for which an offer is placed, i.e. one on the imperviousness, two on the forest area land cover characteristics (one on service element 1 and one on service element 2).</p> <p>For lot 6:</p> <p>Tenders shall provide: an example of the final product for a test area per HRL and within the geographic coverage of the lot(s) for which an offer is placed, i.e. land cover characteristics for grassland, wetland and water bodies.</p> <p>For all lots:</p> <ul style="list-style-type: none"> <li>- The final products for all test areas shall be at the spatial resolution of 20m x 20m and in the relevant national projection, except for forest service element 2, for which a 25m x 25m resolution and the</li> </ul>	10	6

	<p>European LAEA projection shall be applied.</p> <ul style="list-style-type: none"> <li>- All test final products shall be accompanied by INSPIRE compliant metadata.</li> <li>- All test areas shall be provided together with a printout at scale 1:50.000 of the final product, and together with the corresponding satellite images.</li> <li>- Any one test area, to be freely chosen by the tenderer, shall be of approximately 10km x 10km, situated within the EEA39 countries, and covering an area with a representative transition for the range of a characteristic addressed by each HRL product.</li> <li>- The tenderer shall ensure that the method applied to the test area is representative for the proposed methodological approach.</li> </ul>		
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Only tenders which obtain the indicated minimum number of points, both for each award criterion and in total, will be considered for the next stage, which involves determining the financial value of the tender (price index) and for the final assessment.

### 11.3.2. Price (P) (max. 40 points)

#### 11.3.2.1. Lots 1-5

For each lot, tenderers are requested to submit a financial offer, thereby taking **both service elements** for forest areas as outlined under section 6.2.3.2 above, giving the **all-inclusive** (i.e. include all relevant costs and all expenditure (e.g. management and administrative costs, travel costs, etc...)) **average price/100 km<sup>2</sup> in euro** for the following production phases:

<b>Production phase</b>	<b>Services</b>	<b>Average price units</b>	<b>Evaluation Weighting Factor (WF)<sup>47</sup></b>
1	Biophysical variables	Price/100 km <sup>2</sup>	10%
2.a	Production of the HRL imperviousness set of intermediate products	Price/100 km <sup>2</sup>	15%
2.b	Production of the HRL forest set of intermediate products <sup>48</sup>	Price/100 km <sup>2</sup>	30%

<sup>47</sup> The listed weighting factors are only applied for evaluation purposes.

<sup>48</sup> Separate quotes depending on the forest service elements (cfr. annex 5).

<b>Production phase</b>	<b>Services</b>	<b>Average price units</b>	<b>Evaluation Weighting Factor (WF)<sup>47</sup></b>
3	Verification of each HRL set of intermediate products	Price/100 km <sup>2</sup>	15%
4	Enhancement of each HRL set of products	Price/100 km <sup>2</sup>	20%
5	Data aggregation and integration	Price/100 km <sup>2</sup>	10%

#### 11.3.2.2. Lot 6

For lot 6, tenderers are requested to submit a financial offer, giving the **all-inclusive** (i.e. include all relevant costs and all expenditure (e.g. management and administrative costs, travel costs, etc...)) **average price/100 km<sup>2</sup> in euro** for the following production phases:

<b>Production phase</b>	<b>Services</b>	<b>Average price units</b>	<b>Evaluation Weighting Factor (WF)<sup>49</sup></b>
1	Biophysical variables	Price/100 km <sup>2</sup>	10%
2.a	Production of the HRL grassland set of intermediate products	Price/100 km <sup>2</sup>	20%
2.b	Production of the HRL wetlands set of intermediate products	Price/100 km <sup>2</sup>	15%
2.c	Production of the HRL water bodies set of intermediate products	Price/100 km <sup>2</sup>	10%
3	Verification of each HRL set of intermediate products	Price/100 km <sup>2</sup>	15%
4	Enhancement of each HRL set of products	Price/100 km <sup>2</sup>	20%
5	Data aggregation and integration	Price/100 km <sup>2</sup>	10%

<sup>49</sup> The listed weighting factors are only applied for evaluation purposes.

### 11.3.2.3. Price evaluation

For each production phase above, tenders meeting all mandatory requirements including the minima for technical merit will score points in function of the following formula, applied to the breakdown of average price units:

**For each production phase :**

$P_s = ((P_{\min}/P_0) \times WF) \times 40$  where

$P_s$  = Score for price of a production phase

$P_{\min}$  = the lowest price offered among the received tenders

$P_0$  = the price of the tender being considered

WF = weighting factor for the relevant production phase

40 = the maximum number of points that can be awarded under this award criterion

**The financial value of the tender (Price (P) is the sum of the  $P_s$  in any one lot.**

For that purpose, tenderers shall complete the price quotation attached as annex 5 to these tender specifications. Tenderers shall bear in mind that all fields are compulsory and non-compliance will lead to exclusion of the tender from the award process.

For lot 1 to 5, financial value P on imperviousness (20m x 20m) and forest service element 1 (basis: 20m x 20m) will be used for the 80% of the price evaluation and final assessment. The financial value P on forest service element 2 (25m x 25m) will be used for 20% of the price evaluation and final assessment.

Depending on the actual needs and overall budget availability, the EEA may decide to procure only the required forest service element 1 or both forest service element(s).

*Remark:* It is important that the total price of any one lot does not exceed the indicative maximum budget, when summing up the application of average price units to the total area of the lot without weighting factor, and under the assumption of 2/3 of the area covered by participating countries for the verification and enhancement production steps.

### **11.3.3. Final Assessment**

A framework contract will be awarded to the tenderer whose tender achieves the highest total score for technical merit and price (TM + P). Should tenders obtain the same final score and tie for first place, the winning tender will be decided on the basis of the highest score achieved for price.

## **12. Performance**

Competence in both selection and award criteria must be maintained throughout the framework contract. Should the contractor fail to do this during the validity of the framework contract, another vendor from the tenders may be chosen.

## **13. Environmental Considerations**

The EEA runs a certified environmental management system (EMAS) and aims to minimise the environmental impact of all its activities, including those carried out under contract. The future contractor will, therefore, be requested to consider the EEA environmental management guidelines in the implementation of the contract, in particular, those relating to business travel/electronic means of communication, paper and energy consumption. Further information on the EMAS system can be found on the EEA homepage: <http://www.eea.europa.eu/documents/emas>.

Moreover, it is strongly recommended that tenders are submitted in an environmentally friendly way, e.g., by choosing a simple and clear structure (list of contents and consecutive page numbering), double-sided printing, limiting attachments to what is required in the technical specifications (no additional material) and avoiding plastic folders or binders.

## **14. Annexes**

Annex 1: Tender submission form

Annex 2: Declaration on exclusion criteria

Annex 3: Legal entity form

Annex 4: Financial identification form

Annex 5: Price quotation (Lots 1-6)

Annex 6: Draft framework contract and draft specific contract

Annex 7: Privacy statement