




Terms of Reference (ToR)
for GIS hydropower resource mapping for the ECOWAS region

(Call for Proposal issued by the ECOWAS Centre For Renewable Energy and Energy Efficiency - ECREEE)

The project is supported by:

 Austrian
Development Cooperation



Contents

A) Introduction	3
B) Overall Goals of the Web-based GIS Mapping of Hydropower Resources	3
C) Methods and Models to be Used.....	4
D) Requested Outputs of the GIS Mapping for Hydropower Potentials	5
D1) Layer with Climatic Zones.....	6
D2) Layer with Single River Channels in the selected River Basin	6
D2a) Template for River Channels (River Sections).....	6
D2b) Graph with Longitudinal Section	7
D2c) Graph with Monthly Discharge Values	7
D3) Layers with Subareas.....	7
D3a) Power Generation Potentials of Subareas in GWh or in TWh	7
D3b) Suitability of Subareas for Plant Sizes.....	7
D3c) Suitability of Subareas for Various Types of Power Machines.....	7
D3d) Suitability of Subareas for Various Plant Types	8
D3e) Suitability according to Further Criteria	8
D4) Country Reports (Hydropower Resources by Countries)	8
D5) Final Report	8
E) Language	9
F) Technical Requirements for Data, Maps and Images.....	9
G) Upgrades of Hydropower Mapping and New Data Inputs from Hydrological Measurements....	10
H) Sequence of Orders and River Basins.....	10
I) Warranty Period	11
J) PROPOSAL OUTLINE.....	11
K) Qualification Requirements and Evaluation Criteria	11
K1) Qualification Requirements for Bidders	11
K2) Evaluation Criteria for Bid Awarding	13
M) Summary Table for the Financial Part.....	15

A) Introduction

The ECOWAS **Small Scale Hydro Power Program (SSHP)** was adopted by the **ECOWAS Ministers of Energy in October 2012** and will be implemented between 2013 and 2018. The SSHP Program aims to contribute towards increased access to modern, affordable and reliable energy services, energy security and mitigation of negative externalities of the energy system (e.g. GHG emissions, local pollution) by establishing an enabling environment for small-scale hydro power investments and markets in the ECOWAS region. The program is a priority action under the regional SE4ALL Framework for West Africa.

The **SSHP Program contributes to the targets of the ECOWAS Renewable Energy Policy (EREP)** to increase the share of renewable energy (excl. large hydro) in the overall electricity mix to around 10% in 2020 and 19% in 2030. These targets translate to the installation of additional 2.425 MW renewable electricity capacity by 2020 and 7.606 MW by 2030. It is estimated that SSHP could contribute with 787 MW (33%) by 2020 and 2449 MW (32%) by 2030 to this additional capacity. The SSHP program also contributes to the objectives of the ECOWAS White Paper on Energy Access in Peri-Urban and Rural areas. It is expected that in 2030 around 25% of the rural population will be supplied in energy either fully or partly through renewable energy powered mini-grids. The SSHP program complements the WAPP Master Plan which mainly focuses on the expansion of transmission lines and power generation from large hydropower and natural gas.

The ECOWAS SSHP defines the hydropower categories according to the following generation capacities.

Table 1: ECOWAS Hydro Power Definitions

Terms		Power output
Pico hydropower	“Small-scale” Hydro-power “SSHP”	< 5 kW
Micro hydropower		5 - 100 kW
Mini hydropower (MHP)		100 – 1 000 kW (=1 MW)
Small hydropower (normally “SHP”)		1 MW - 30 MW (!)
Medium hydropower		30 MW - 100 MW
Large hydropower "LHP"		> 100 MW

B) Overall Goals of the Web-based GIS Mapping of Hydropower Resources

The Web-based GIS mapping of hydropower resources facilitates open knowledge sharing on SSHP aspects through the ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX). The provided data and contents will be utilized by stakeholders in ECOWAS region (e.g. project developers, utilities, national hydrological services, energy ministries, etc.) for supporting the identification and implementation of hydropower projects in the ECOWAS member countries.

For an overview about ECOWREX GIS pls. refer to <http://www.ecowrex.org/page/maps#>

Small scale hydropower schemes have attractive potentials for project developments in the ECOWAS region but the search of specific exploitable sites requires a series of data (e.g seasonal, long term river flow data) which is not always available and when available there is concern about the reliability of data. Therefore, ECREEE wants to support the creation of reliable hydrological databases by initiating hydrological measurement campaigns or by motivating partner stakeholders to start measurement activities. For this reason the GIS Mapping tool shall identify promising geographical areas and river sections for the future development of small scale hydropower projects. In such areas/ river sections measurement campaigns shall be started.

C) Methods and Models to be Used

The Bidder shall explain in his proposal the methods and procedures he will apply to create the requested outputs for the GIS hydropower resource mapping (see provisions of paragraphs C and D). The Bidder/Contractor shall choose the methods and processes which are most suitable considering the following provisions in paragraphs C1 to C3.

The Bidder is requested to take into consideration updated data sets and maps for hydrological modellings for African River Basins:

- a) Development of a data set for hydrological modelling. Input layers related to topography, channel geometry, land cover and soil characteristics of European and African river basins (chapters 3.8.2 Development of Local Drain Direction Map, 3.9.5 Land Cover Data and chapter 5 New African Input Maps <http://bookshop.europa.eu/en/development-of-a-data-set-for-continental-hydrologic-modelling-pbLBNA24087/>)
- b) The Availability of Renewable Energies in a Changing Africa (chapter 5 Expected Changes in Hydropower Ressources, 2013) <http://bookshop.europa.eu/en/the-availability-of-renewable-energies-in-a-changing-africa-pbLDNA25980/>

C1) Digital Elevation Model/ Accuracy

The **Digital Elevation Model (DEM) should have the highest possible accuracy which is available on the market for free.** The Bidder is asked to disclose the name of provider of the DEM and to inform about the vertical and horizontal accuracy of the selected model. If the Bidder recommends to use a DEM with higher accuracy, and this DEM induce additional costs for ECREEE, the Bidder shall disclose the costs (see paragraph M “Summary Table for Financial Part”).

In case a DEM with higher resolution (higher accuracy) is available for free, but requires manual processing and extra work by the Bidder/Contractor, such circumstances shall be disclosed by the Bidder; and ECREEE has to be informed if the extra works lead to additional costs. In such case the Bidder has to inform about the amount of additional costs (see paragraph M “Summary Table for Financial Part”).

C2) Digital Elevation Model/ Typical Problems for West Africa Region

In order to analyze the theoretical linear potential of the streams, a hydrographic network is generated from a **DEM**. The Contractor is requested to explain how he wants **to avoid the following typical problems** which can probably appear when creating a hydrographic network **for West Africa region**:

- a) In flat areas the modelled river ways are poorly reconstituted as the valley line of the natural water streams are not sufficiently indicated (the required accuracy of elevation data and model is maybe not provided). In such zones, modeling creates several parallel features which do not correspond to reality at all.
- b) In many areas, water does not flow sufficiently to create permanent valley lines. In such cases the valley lines do not correspond to the waterways in reality.

C3) Precipitation Data and Net Rainfall

With the submission of proposal the Bidder shall explain the fundamentals of the calculation of the runoff data. As trustworthy long-term hydrological measurements are not always available the idea of ECREEE is to use seasonal precipitation data which correspond to the climatic zones under consideration. The Bidder is asked to **explain how the precipitation data is converted into net rainfall** (the part of rainfall that flows into the modelled river network, considering evaporation and drainage to ground water) **and how the conditions of several West African climatic zones are considered.**

C4) Quality Assurance and Calibration of Calculated Results

After contract assignment the following **quality assurance** activities have to be followed: For some of the selected river basins the Global Runoff Data Centre (GRDC, Germany) can provide data about measured river discharges. ECREEE can help to collect such data. During project execution the Contractor shall appraise if the received data can improve the quality and accuracy of the calculated results. If yes, the Contractor shall reasonably select subareas and compare calculated river discharge values with measured discharge data. If necessary, he shall adapt the assumptions of calculation and/ or adapt the calculation result for the subarea. The Contractor shall either prove that he has executed such calibration or he shall give reasons why such calibration could not improve quality and accuracy of the calculated results.

ECREEE reserves the right to nominate a project/ quality assurance manager who will closely coordinate the project with the Contractor. All data, maps, defined parameters and calculation results shall be kept at the premises of the Contractor and shall be open to inspection and acceptance by the project and quality manager entitled by ECREEE.

C5) GIS Layers and Outputs according to ISO Standards

The Contractor will be obligated to submit the GIS outputs and layers with the metadata according to ISO standards (ISO 19115-1:2014 and 19139-2:2012). The Bidder shall make a comment in his proposal, if he will fulfill above mentioned ISO standards (see also paragraph J "Proposal Outline").

D) Requested Outputs of the GIS Mapping for Hydropower Potentials

To show all GIS mapping results the ECOWREX base maps will be used. The ECOWREX map and several already existing layers can be found under the following link:

<http://www.ecowrex.org/mapView/index.php?legend=true&layers=layerSHydro&country=&lang=en>

No other base maps will be used (see slide no.2 of attached presentation).

Several layers for “Infrastructure”, “Country Info” and so on already exist in the ECOWREX observatory. The Contractor should deliver the missing layers of “Hydropower Resources” (see slide no. 3 in attached presentation).

D1) Layer with Climatic Zones

This layer shall show the relevant climatic zones for the ECOWAS region. A click on the zone reveals data about monthly averages of precipitations and temperatures in the selected zone. Adequate graph will be shown including information about source and year of precipitation data.

The Bidder is asked to inform about the number of climatic zones he is going to use and about the reliability of given precipitation data (see slide no. 4 of attached presentation).

D2) Layer with Single River Channels in the selected River Basin

The Bidder defines a suitable spectrum for the length of river channels (river sections) that is to say the Bidder schedules the smallest unit under consideration. The Bidder shall inform ECREEE about the spectrum he defines (about min. and max. length of river channels/sections in km).

The river channels (river sections) will be colored according to their specific power generation potential. A colored scale/ legend will explain the categories of the generation potentials (see slide no. 5 of attached presentation). The Bidder is requested to inform about the number of categories in the scales and about the min./max. values for defined categories. There shall be one unique scale for all river basins.

After zooming-in each river section can be seen in more detail (see slide no. 6 of attached presentation). The Bidder is requested to describe how he wants to visualize the river network for the complete river basin. For better orientation of the end user the river basin shall be structured and divided into subareas (or sub-catchment areas). The Bidder is asked to explain how he is going to ensure a comfortable orientation for the end user (e.g. displaying borders of subareas, using gradient fill in colors for subareas, numbering of subareas, etc.).

D2a) Template for River Channels (River Sections)

With a click on the river channels (river sections) the user can open a template with the following data for the selected river section (see slide no. 7 of the attached presentation):

- ID number of subareas & of rivers sections
- Name of country(ies)
- Specific generation potential in kW /km or in MW /km

By clicking on the template a separate webpage will open. The webpage will show a summary table for all river channels (river sections) of a river basin. The summary table will show the data for the selected river channel (river section) in the first line of the table (user doesn't need to scroll down or up). The data sets of river channels (river sections) will have the following content:

- ID number of subareas & of river sections
- Name of country(ies)
- Specific generation potential in kW /km or in MW /km
- Yearly average discharge (m³/s)

- Upstream area in km²
- River channel (river section) length in km
- Elevation max. in m
- Elevation min. in m
- Slope of river channel (river section) in m/ km

The Bidder is asked to inform if the following graphs can be created for each river channel (river section):

D2b) Graph with Longitudinal Section

Graph with the river's longitudinal section (showing the profile of the river from the selected point till the river mouth).

D2c) Graph with Monthly Discharge Values

Graph with monthly river discharge values in the selected river section in m³/s.

The graphs of D2b) and D2c) shall be shown in the summary table as well (see slide no. 8 of attached presentation).

The graphs for each river section shall be prepared by the Contractor. It is so far assumed that the integration of the graphs into the ECOWREX application will be done by ECREEE. The same is valid for other delivered outputs, i.e. the integration of delivered data, layers and other outputs will be done by ECREEE. The Contractor and ECREEE will define the technical requirements for the handover of outputs during project execution.

D3) Layers with Subareas

The Bidder shall explain how he will define subareas in the given river basin (e.g. subareas defined by catchment areas). The goal is to have the average size of subareas in km² more or less the same for all river basins, i.e. large river basins will have a higher number of defined subareas.

The Bidder/Contractor is requested to provide the following layers which show the attractiveness of subareas for hydropower project development.

D3a) Power Generation Potentials of Subareas in GWh or in TWh

This layer will show the sums of power generation potentials in subareas (see slide no.9 of attached presentation).

D3b) Suitability of Subareas for Plant Sizes

e.g. for pico-micro-mini up to 1 MW / for small scale hydro 1MW-30MW / medium and large hydro above 30 MW (see slide no.10 of attached presentation).

D3c) Suitability of Subareas for Various Types of Hydropower Machines

e.g. high pressure, medium and low pressure machines (see slide no. 11 of attached presentation).

D3d) Suitability of Subareas for Various Plant Types

e.g. plant with dam and water reservoir / plant with diverted river water without reservoir (see slide no. 12 of attached presentation).

D3e) Suitability according to Further Criteria

e.g. for a combination of D3a) and D3b). The Bidder is requested to inform which further criteria could be relevant to show the attractiveness of subareas for hydropower deployments (see slide no. 13 of attached presentation).

For visualization of above mentioned attributes for D3a) to D3b), the Contractor shall provide an easy to understand scale/ legend for each layer. For each attribute (for each layer) one unique scale/legend should be applied to all subregions and to all river basins (in future project phases).

So far it is not planned that further mouse clicks on subareas reveal data templates with more information about the subareas. The Bidder should make recommendations for further template options in case that usability and information content will be considerable improvement for end users/ project developers.

D4) Country Reports (Hydropower Potentials by Countries)

The Bidder shall make recommendations for creating layers with information about countries (power generation potentials within ECOWAS countries, attractiveness of different plant sizes within ECOWAS countries, and so on). The Bidder is free to offer any other layer which might be interesting for country reports (see slide no.14 of attached presentation).

D5) Final Report

The Contractor shall provide a summary report with the following content:

- i. to describe used methods, calculations and main work stages
- ii. to declare the source of used input data (climate & precipitation, elevation models, hydrological data, ...)
- iii. to specify the main assumptions of his calculations and to declare in which regard the assumptions possibly do not meet reality
- iv. to estimate the degree of inaccuracy of reported results for river discharges incl. a statement how the inaccuracy was estimated
- v. to provide the following information about the river basin: number of created river channels, average length of river channels, number of subareas in the river basin
- vi. verbal description of results and conclusions regarding attractiveness of identified subregions in a river basin (see slides 9-13 of attached presentation).
- vii. recommendations for new measurement campaigns for identified subareas (or new measurement campaigns in downstream locations of the main river to re-calculate discharge data for several identified upstream subareas)
- viii. recommendations for further activities to localize specific attractive sites in attractive subregions

The final report should provide above information in a comprehensible, structured format. The text document should be as short as possible without leaving important information for the end user (bullet points i – iii 5 to 10 pages/ iii to viii 10 – 15 pages).

E) Language

All terms, titles, scales and the final report etc. shall be provided in English language. No other language shall be used. All terms, titles and scales should be editable for later translation into French language (will be done by ECREEE). English will be the contract language and the language for the execution of the project. Letters, e-mails and documents will be exchanged in English.

F) Technical Requirements for data, maps and images

F1) NON-GEOGRAPHIC DATA

All non-geographic data shall be made available in the following data formats for upload to a data repository, most likely via an Application Programming Interface (API) provided by ECREEE:

- .csv (csv output from an excel file or see rfc 4180 for standard format)
- .xls (Excel 97 and later)
- .xlsx (2007 and later)
- .tsv

F2) GEOGRAPHIC DATA

All geographic data shall be delivered as shapefiles, file geodatabases, or other accepted OGC standard geographic formats. See <http://www.opengeospatial.org/standards> for a list of accepted formats. Preferred formats are shapefiles for vector data, and GeoTiff for raster data. See table below for some further details:

All geographic data shall be delivered in standard geographic formats accepted by the OGC. See <http://www.opengeospatial.org/standards> for a list of accepted formats. Preferred formats are shapefiles for vector data, and GeoTiff for raster data. See table below for some further details.

DATASET	FORMAT	SPATIAL REFERENCE
Vector	Shapefile (.shp)	Geographic Coordinate System: GCS_WGS_1984 Datum: D_WGS_1984 Prime Meridian: Greenwich Angular Unit: Degree
Raster	Tiff (.geoTiff), Grids (.ASCII), or Imagine	Geographic Coordinate System: GCS_WGS_1984

		Datum: D_WGS_1984 Prime Meridian: Greenwich Angular Unit: Degree
Tabular	.csv, .dbf or .xls	XY coordinates must be in Decimal Degrees

All files pertaining to the map creation, whether it is GPL software or not, such as .mxd (arcGIS), .qgs (QGIS), as well as .ai files shall be included in the delivery of the GIS data.

F3) IMAGES

Mapping images (which usually combine text and images) shall be supplied with a 500-600 dpi density and lossless compression (PNG), suitable for professional printing. Mapping images will be reviewed by ECREEE's GIS team before going to publication to ensure cartographic quality and content. Images without text can be supplied with a 300 dpi density and lossless compression (PNG).

If the Contractor supplies any photos, all of them shall be delivered in their original high-resolution format (raw or .jpg), preferably exif-tagged with GPS and timestamp.

G) Upgrades of Hydropower Mapping and New Data Inputs from Hydrological Measurements

In a later project phase ECREEE plans to collect new river flow data (e.g. through measurement campaigns). The Bidder is requested to explain the way how new river flow data can be integrated into the calculations of river discharges and how much effort it requires. Which parts of the calculations and mappings can be re-used? Which parts have to be newly calculated and mapped?

H) Sequence of Orders and River Basins

ECREEE is going to order the GIS mapping for hydropower resources only for one river basin (1st order). ECREEE asks the bidders for binding offer for the selected river basin.

1st order for one selected river basin:

Volta basin with approx. 407.000 km²

In addition ECREEE asks the Bidder to provide offers with expected costs for further orders (other river basins). However ECREEE will decide about additional procurements only after the delivery of the outputs of the first order (Volta basin). There is no obligation for ECREEE to buy further product packages from the same supplier.

2nd order for five other river basins

Niger basin with approx. 2.100.000 km²

Senegal basin with approx. 300.000 km²

Gambia basin 77.000 km²

Komadugu Yobe basin (with approx. 1480.000 km²)

Mano basin (Mano, Lofta, Moa rivers) with approx. 41.000 km²

3rd order will probably be made for estimated 16 rivers basins (sizes from approx. 78.000 km² to 11.000 km²).

I) Warranty Period

Failures and/or bugs detected in the system during the operational testing period should be fixed by the Contractor free of charge. Failures or limitations revealed during the operation and maintenance of the system should be eliminated by the Contractor within the framework of warranty period of six (6) months free of charge.

J) PROPOSAL OUTLINE

Bids shall include a separated technical and financial part:

1. Technical Part:

1.1 Description of the suggested execution methodology, provided software solutions and scope of offered modules (according to the requirements of above paragraphs C to G)

1.2 Description of the contractor and team:

- 1.2.1 Documents requested below (see formal, legal, financial and management requirements in paragraphs of K1);
- 1.2.2 Short company description with examples of its previous experiences with GIS development; contacts of three recent corporate clients;
- List of experts / project team members and their qualifications, name and contact data of the project coordinator for the Contractor (see K1b);
- 1.2.3 CVs of project team with proven track record of similar international assignments with similar scope and complexity, as well as copy of highest university degree certificates of project team and other technical trainings related to the assignment (as far as available);
- 1.2.5 Indicative work Plan of activities, schedule of works, including diagram indicating the working days of the offered experts per activity;
- 1.2.6 The Bidder shall hand over a written confirmation that the project works will be executed by experts which are employed by his company. The Contractor is not allowed to subcontract the whole or parts of the project works, unless ECREEE provides written allowance to the Contractor. If the Bidder plans to cooperate with other companies he shall inform ECREEE about scope of work and profile of the cooperating company.

2. Financial Part:

It is obligatory to fill out the Summary Table for the Financial Part (see paragraph M).

K) Qualification Requirements and Evaluation Criteria

K1) Qualification Requirements for Bidders

ECREEE specifies the qualification requirements as follows:

K1a) Profile of the Bidder/ Company

- Scale of projects and experience in the sector of hydropower project development
- Scale of projects and experience in GIS mapping
- Scale of projects and experience in hydrological studies and evaluations of hydropower project developments

K1b) Profile of Contractor's Project Team

- Advanced degrees in web design and Geographic Information system (GIS) and relevant fields
- At least 5 years of experience of the proposed project team in web design and development and/or design of a GIS system
- At least 7 years of experience in modeling and calculation of river flows using precipitation data and digital topology models as basic input data
- Track record of the project team in implementing GIS hydropower resource maps or observatories
- Proficiency in web GIS systems such as Geoserver, PostgreSQL(PostGIS), OpenLayers, MapWindow and compliance to OGC standards

K1c) Formal and Legal Requirements

- Certificate of Incorporation: The Contractor should be registered as a legal Entity authorized to enter into contracts for provision of services and goods. As a proof, the Contractor should provide a certified copy of Certificate of Incorporation or other documents setting forth the legal basis of the company.
- Licenses/Authorizations/Quality-Standards: The Contractor should provide a copy of relevant licenses and/or authorizations, where applicable, enabling the company to perform the required services/work required; include quality standards if applied;
- All working files (including raw GIS data and modified elevation models as well as attributes of all river sections) will become the property of ECREEE.

K1d) Quality of Services

- The applicant should provide information that the required services and solutions meet international quality standards and, if yes, exactly which standards (see also paragraph C5).

K1e) Financial Requirements

The applicant has stable and sufficient source of finance to implement the activities. A certified copy of the Financial Statement shall be provided. In the optimum case it should meet the following basic financial criteria:

- Profit Margin ratio or Return on Assets Ratio should be in excess of 1%;
- A solvency ratio (ratio of current assets to current liabilities) of more than 1 is required.
- The average annual turnover for the past 3 years (or for whatever period of the time the contractor has been in the business for, if it has not yet reached 3 years) should be at least four times more than anticipated value of the contract.
- The impact of any pending claims, arbitration and other pending legal action should not exceed 50% of total of the amount which the Bidder will propose for this contract.

K1f) Management Requirements

The company has sufficient management capacity to implement the projects:

- Statement of Contractor's and Subcontractor's facilities, resources and staff available for this contract
- Adequacy of management organization and creation of detailed work schedule/ time plan (showing the following minimum set of activities/milestones: t_0 = day when contract comes into force, kick-off event and related signing of the final technical specification, hand over of main work results, meeting for acceptance of work results and signing acceptance note together with punch list of open works, warranty period). ECREEE plans to sign the contract in first half of July 2014.

K2) Evaluation Criteria for Bid Awarding

K2a) 70% Quality of technical part

- 1) Qualification, technical expertise and profile of the Bidder company (see K1a "Profile of Bidder/ Company") and quality and quantity of similar works conducted particularly in the hydropower area and on international levels, especially in Africa and in West Africa.
- 2) Qualifications and experience of the Contractors project team (consisting of at least one GIS expert and one experienced hydrological expert). See K1b "Profile of the Contractor's Project Team".
- 3) Quality of proposed methodology and software solutions and modules: shows clear understanding of all goals which ECREEE wants to reach by GIS hydropower mapping, including suitability of the proposed methodology for West African climatic and hydrologic conditions (e.g. irregular river flows with big differences between rainy and dry seasons, relatively fast changing climatic conditions, huge flat downstream zones of the rivers). See complete paragraph C.
- 4) Convincing concept for selection of criteria which define the attractiveness of hydropower generation in regions and sub-regions of river basins (criteria such as specific power generation, suitability for low and high pressure machines, type of plant and innovative approaches and combination of criteria). Suggestions made for further criteria and evaluation methods. See complete paragraph D.
- 5) Reusability of methodology and calculations once the project works are finished and new river flow data will be available (e.g. by measurement campaigns). Supplier has to explain how easy a re-evaluation with new data can be done. See complete paragraph G.
- 6) Convincing concept for the possible extensions of the GIS hydropower resource mapping towards a concept for the detailed identification of hydropower sites (as part of a new project under a separate contract).
- 7) The Proposal shows clear understanding and compliance to the technical aspects related to the requested outputs defined in paragraphs C), D), E) and F).

K2b) 30% Financial part

For the evaluation of the best financial offer the following costs will be considered:

- (a) total costs for defined and suggested outputs
- (b) additional costs e.g. for higher accuracy of digital elevation model
- (c) costs for optional components of the proposal (e.g. travelling costs)
- (d) suggested payment conditions

The financial evaluation of bids will be done according to the formula $Sf = 30 \times Fm/F$ (Sf financial score = offer with lowest price/offer of price under consideration).

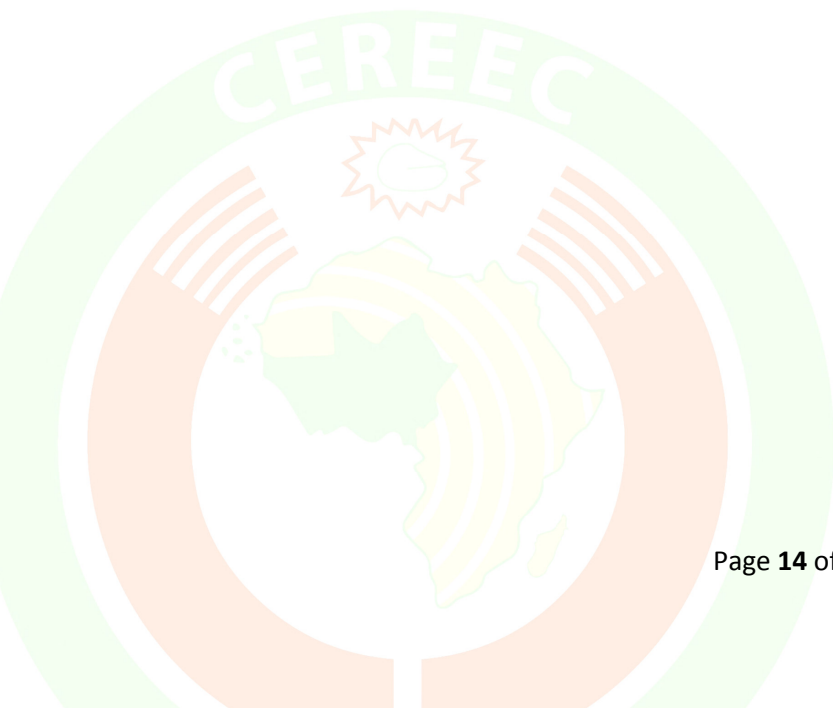
ECREEE reserves the right to verify the information provided by the applicant independently.

L) Bid Submission

Please send your signed, stamped and scanned bid by e-mail to **ECREEE Secretariat, Achada Santo Antonio, Electra Building, 2nd floor C.P. 288, Praia, Cape Verde.** HBauer@ecreee.org

Latest submission: 28/07/2014 (23h59min). Bids received after that deadline won't be considered.

Thank you very much for your interest in collaborating with ECREEE.



M) Summary Table for the Financial Part

The following table has to be filled out in the given structure.

GIS Mapping of Hydropower Resources in ECOWAS countries			
	1st River Basin Binding Offer	River Basins (2–6) Budgetary Offer/ Cost Estimation	Further River Basins (up to 15 rivers) Budgetary Offer/ Cost Estimation
Costs of outputs described in paragraph D under consideration of all provisions of this ToR	..... Euro	..... Euro	..... Euro
<i>thereof costs for D2b:</i>	..... Euro	..... Euro	..... Euro
<i>thereof costs for D2c:</i>	..... Euro	..... Euro	..... Euro
Extra costs for Digital Elevation Model (DEM) with higher accuracy (see C1)	..... Euro	..... Euro	..... Euro
and/or for manipulation of DEM with higher accuracy (see C1)	..... Euro	..... Euro	..... Euro
Optional price components for 2 business trips of one expert to Praia (Cape Verde), in total 4 travel days, 2 meeting days, flight tickets, daily allowances. ECREEE will provide hotels and all transfers in Cape Verde.	..... Euro	..... Euro	..... Euro
Total:	..... Euro	..... Euro	..... Euro
Payment conditions:			
<ul style="list-style-type: none"> • % after contract signing • % after kick-off event, inception report and work plan accepted by ECREEE • % after hand over of results and acceptance note signed by ECREEE (incl. a punch list of open tasks) • % after 6 months warranty period 			

Above mentioned costs components shall exclude VAT. All other taxes, duties of the Contractor shall be included.

Address of Company:

Location and date of signature:

Name of approved signatory (in block letters):

Signature of approved signatory:

Company Stamp:

Annex to this ToR:

- 1) **Specifications & Criteria for Web-based GIS Tool for Hydro, PPT Document, 2014-06-06**

