



REQUEST FOR PROPOSAL (RFP)

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| NAME & ADDRESS OF FIRM: | DATE: May 21, 2019 |
| All interested and potential companies | REFERENCE: RFP/004/19: Development a software on water database "Suv-info" with mobile application |

Dear Sir / Madam:

We kindly request you to submit your Proposal for Development a software on water database "Suv-info" with mobile application.

Please be guided by the form attached hereto as Annex 1, in preparing your Proposal.

Proposals may be submitted **on or before June 10, 2019, 6:00 pm local time (Tashkent)** via email, courier mail or fax to the address below:

United Nations Development Programme

Republic of Uzbekistan 4, Taras Shevchenko Street, Tashkent 100029

Tel: + 998 71 120-34-50, 120-61-67;

Fax: + 998 71 120-34-85

Procurement Unit, UNDP Uzbekistan

For email proposals: bids.uz@undp.org

Your Proposal must be expressed in the English or Russian language and valid for a minimum period of **120 calendar days after the date of Proposal submission.**

In the course of preparing your Proposal, it shall remain your responsibility to ensure that it reaches the address above on or before the deadline. Proposals that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation. If you are submitting your Proposal by email, kindly ensure that they are signed and in the .pdf format, and free from any virus or corrupted files.

It shall remain your responsibility to ensure that your quotation will reach the address above on or before the deadline. Quotations that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation. If you are submitting your quotation by email, kindly ensure that they are signed and in the .pdf format, and free from any virus or corrupted files.

IF you intended to submit your proposal by courier mail, consequently your proposal should be in sealed envelope with the following marking on envelope:

"TO: UNDP Uzbekistan

ATTENTION: PROCUREMENT UNIT

SEALED QUATATION ref: RFP/004/19: Development a software on water database "Suv-info" with mobile application

PROPOSER: [NAME AND ADDRESS OF YOUR COMPANY]"

DEADLINE: June 10, 2019, 6:00 pm local time (Tashkent)

"DO NOT OPEN"

Services proposed shall be reviewed and evaluated based on completeness and compliance of the Proposal and responsiveness with the requirements of the RFP and all other annexes providing details of UNDP requirements.

The Proposal that complies with all of the requirements, meets all the evaluation criteria and offers the best value for money shall be selected and awarded the contract. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price shall be re-computed by UNDP, and the unit price shall prevail and the total price shall be corrected. If the Service Provider does not accept the final price based on UNDP's re-computation and correction of errors, its Proposal will be rejected.

No price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted by UNDP after it has received the Proposal. At the time of Award of Contract or Purchase Order, UNDP reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.

Any Contract or Purchase Order that will be issued as a result of this RFP shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a Proposal implies that the Service Provider accepts without question the General Terms and Conditions of UNDP, herein attached as Annex 2.

Please be advised that UNDP is not bound to accept any Proposal, nor award a contract or Purchase Order, nor be responsible for any costs associated with a Service Providers preparation and submission of a Proposal, regardless of the outcome or the manner of conducting the selection process.

UNDP's vendor protest procedure is intended to afford an opportunity to appeal for persons or firms not awarded a Purchase Order or Contract in a competitive procurement process. In the event that you believe you have not been fairly treated, you can find detailed information about vendor protest procedures in the following link:

<http://www.undp.org/content/undp/en/home/operations/procurement/protestandsanctions/>

UNDP encourages every prospective Service Provider to prevent and avoid conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, cost estimates, and other information used in this RFP.

UNDP implements a zero tolerance on fraud and other proscribed practices, and is committed to preventing, identifying and addressing all such acts and practices against UNDP, as well as third parties involved in UNDP

activities. UNDP expects its Service Providers to adhere to the UN Supplier Code of Conduct found in this link:
http://www.un.org/depts/ptd/pdf/conduct_english.pdf

Sincerely yours,
Procurement Unit, UNDP Uzbekistan
5/21/2019

Description of Requirements

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| Context of the Requirement | Technical Capacity Building component of the Programme on “Sustainable Management of Water Resources in rural areas in Uzbekistan” |
| Implementing Partner of UNDP | Ministry of Water Resources of the Republic of Uzbekistan |
| Brief Description of the Required Services ¹ | <p>The purpose of this assignment is to create a single reference database called the “Suv-info” (hereinafter referred to as the “system”), intended for use by water specialists, irrigation and melioration experts, water user associates (WUA’s), farmers in their work to accelerate the necessary hydraulic and other calculations, simplify the process of searching and obtaining information, as well as disseminating knowledge related to all aspects water management, and use of water resources.</p> <p>The platform will help to increase the knowledge and awareness of interested parties and organizations in technical issues of water management. The platform will also be a useful tool for academics, young scientists and students of specialized educational institutions. It is expected that the creation of an electronic reference database as well as a mobile application (Android & iOS versions) will contribute to strengthening research and development programs in the water sector and modernizing the means to support the educational process of colleges / lyceums and higher educational institutions.</p> <p>The purpose of this document is to give a detailed description of the requirements for the system. It will illustrate the purpose and complete declaration for the development of system. It will also explain sub system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team.</p> <p>Please refer to the Annex 3 “Terms of Reference” for the detail information.</p> |
| List and Description of Expected Outputs to be Delivered | <p>To achieve the defined goals and objectives, and submit the final products to UNDP, the contractor is expected to deliver the following results:</p> <ol style="list-style-type: none"> 1. Development of a detailed work plan and timetable for the implementation of work on this term of reference for the assessment, including an analysis of all related source and current information, including the collection of additional data, interviews, etc. 2. Presentation/performance of the following tasks reports and products: <ul style="list-style-type: none"> • a situation analysis report, including the structure of the platform, refined based on the discussion held with relevant specialists and users of the |

¹ A detailed TOR is attached to the solicitation document.

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| | <p>“system” (provision of a discussion protocol, signed by the discussion participants);</p> <ul style="list-style-type: none"> • launching the first version of the platform in a demo mode for receiving comments and recommendations for improvement; <p>3. Presentation of all platforms features, content areas, integrations, water glossary, calculations and all other features at a seminar with the participation of interested parties.</p> |
| Person to Supervise the Work/Performance of the Service Provider | Team Leader of the contractor |
| Frequency of Reporting | As per TOR |
| Progress Reporting Requirements | See section Results of the TOR |
| Location of work | <input checked="" type="checkbox"/> Free location |
| Expected Business trips | Not required |
| Expected duration of work | 320 calendar days from signing the contract |
| Target start date | During 5 calendar days upon signing of contract by both parties |
| Latest completion date | 320 calendar days (from the date of signing a contract by both parties) |
| Implementation Schedule indicating breakdown and timing of activities/sub-activities | <input checked="" type="checkbox"/> Required |
| Names and curriculum vitae of individuals who will be involved in completing the services | <input checked="" type="checkbox"/> Required |
| Currency of Proposal | <input checked="" type="checkbox"/> United States Dollars for foreign companies with a legal address and bank account outside Uzbekistan <input checked="" type="checkbox"/> Local Currency UZS for local companies registered in Uzbekistan UN exchange rate on the date of opening the proposals will be used for conversion |
| Value Added Tax on Price Proposal ² | <input checked="" type="checkbox"/> must be exclusive of VAT and other applicable indirect taxes |

² VAT exemption status varies from one country to another. Pls. check whatever is applicable to the UNDP CO/BU requiring the service.

| Validity Period of Proposals (<i>Counting for the last day of submission of quotes</i>) | <input checked="" type="checkbox"/> 120 days In exceptional circumstances, UNDP may request the Proposer to extend the validity of the Proposal beyond what has been initially indicated in this RFP. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Proposal. | | | | | | | |
|---|---|----------------------------|---|---|---------|------------|--------|-------------------------------|
| Partial Quotes | <input checked="" type="checkbox"/> Not permitted | | | | | | | |
| Payment Terms | <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:25%;">Outputs</th> <th style="width:25%;">Percentage</th> <th style="width:25%;">Timing</th> <th style="width:25%;">Condition for Payment Release</th> </tr> </thead> </table> | | | | Outputs | Percentage | Timing | Condition for Payment Release |
| | Outputs | Percentage | Timing | Condition for Payment Release | | | | |
| | <p>For local companies registered in Uzbekistan.</p> <p>The payments shall be made to the banking account in the following order:</p> | | | | | | | |
| | Advance payment | 10 % from the total amount | 10 calendar days from the contract signature date | Signed contract | | | | |
| | Output # 1 | 20% from the total amount | Upon acceptance of Result 1 | Within twenty (20) calendar days from the date of meeting the following conditions: a) UNDP’s written acceptance (i.e., not mere receipt) of the quality of the outputs; and b) Receipt of invoice from the Service Provider. | | | | |
| | Output # 2 | 40% from the total amount | Upon acceptance of Result 2 | | | | | |
| | Output # 3 | 30% from the total amount | Upon acceptance of Result 3 | | | | | |
| | <p>For foreign companies with a legal address and bank account outside Uzbekistan.</p> <p>The payments shall be made to the banking account in the following order:</p> | | | | | | | |
| | 100% payment will be made from the date the following terms are completed: <ul style="list-style-type: none"> a) A written document of acceptance by UNDP of Outputs 1, 2; 3 b) Receiving of the invoice for payment of Vendor c) The signing by the parties of documents confirming the completion of the contractual obligations and the adoption of UNDP. | | | | | | | |
| | <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:25%;">Outputs</th> <th style="width:25%;">Percentage</th> <th style="width:25%;">Timing</th> <th style="width:25%;">Condition for Payment Release</th> </tr> </thead> </table> | | | | Outputs | Percentage | Timing | Condition for Payment Release |
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| | <table border="1"> <tr> <td>Output # 1</td> <td>30% from the total amount</td> <td>Upon acceptance of Result 1</td> </tr> <tr> <td>Output # 2</td> <td>40% from the total amount</td> <td>Upon acceptance of Result 2</td> </tr> <tr> <td>Output # 3</td> <td>30% from the total amount</td> <td>Upon acceptance of Result 3</td> </tr> </table> | Output # 1 | 30% from the total amount | Upon acceptance of Result 1 | Output # 2 | 40% from the total amount | Upon acceptance of Result 2 | Output # 3 | 30% from the total amount | Upon acceptance of Result 3 | <p>Within twenty (20) calendar days from the date of meeting the following conditions:</p> <p>a) UNDP's written acceptance (i.e., not mere receipt) of the quality of the outputs; and</p> <p>b) Receipt of invoice from the Service Provider.</p> | | | | | | | | | | | | |
|---|--|-----------------------------|---------------------------|-----------------------------|----------------------------------|---------------------------|-----------------------------|------------|---------------------------|-----------------------------|--|---|---|------|-----------|---|--|------|-----------|--|-------|------|------------|
| Output # 1 | 30% from the total amount | Upon acceptance of Result 1 | | | | | | | | | | | | | | | | | | | | | |
| Output # 2 | 40% from the total amount | Upon acceptance of Result 2 | | | | | | | | | | | | | | | | | | | | | |
| Output # 3 | 30% from the total amount | Upon acceptance of Result 3 | | | | | | | | | | | | | | | | | | | | | |
| Person(s) to review/inspect/ approve outputs/completed services and authorize the disbursement of payment | Project Manager | | | | | | | | | | | | | | | | | | | | | | |
| Type of Contract to be Signed | <input checked="" type="checkbox"/> Contract for Professional Services/Face sheet | | | | | | | | | | | | | | | | | | | | | | |
| Criteria for Contract Award | <input checked="" type="checkbox"/> Lowest Price Quote among technically responsive offers <input checked="" type="checkbox"/> Full acceptance of the UNDP Contract General Terms and Conditions (GTC). This is a mandatory criteria and cannot be deleted regardless of the nature of services required. Non-acceptance of the GTC may be grounds for the rejection of the Proposal. | | | | | | | | | | | | | | | | | | | | | | |
| Criteria for the Assessment of Proposal | <p><u>Technical Proposal</u></p> <table border="1"> <thead> <tr> <th>#</th> <th>Technical evaluation of proposal</th> <th>%</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Expertise of the Firm</td> <td>30%</td> <td>30 points</td> </tr> <tr> <td>2</td> <td>Methodology, Its Appropriateness to the Condition and Timeliness of the Implementation Plan</td> <td>34 %</td> <td>34 points</td> </tr> <tr> <td>3</td> <td>Management Structure and Qualification of Key Personnel.</td> <td>36 %</td> <td>36 points</td> </tr> <tr> <td></td> <td>Total</td> <td>100%</td> <td>100 points</td> </tr> </tbody> </table> <p>Contract will be awarded to the technical responsive offer proposed the lowest price. Offers are not received the minimum pass score of 70% for technical</p> | | | # | Technical evaluation of proposal | % | Score | 1 | Expertise of the Firm | 30% | 30 points | 2 | Methodology, Its Appropriateness to the Condition and Timeliness of the Implementation Plan | 34 % | 34 points | 3 | Management Structure and Qualification of Key Personnel. | 36 % | 36 points | | Total | 100% | 100 points |
| # | Technical evaluation of proposal | % | Score | | | | | | | | | | | | | | | | | | | | |
| 1 | Expertise of the Firm | 30% | 30 points | | | | | | | | | | | | | | | | | | | | |
| 2 | Methodology, Its Appropriateness to the Condition and Timeliness of the Implementation Plan | 34 % | 34 points | | | | | | | | | | | | | | | | | | | | |
| 3 | Management Structure and Qualification of Key Personnel. | 36 % | 36 points | | | | | | | | | | | | | | | | | | | | |
| | Total | 100% | 100 points | | | | | | | | | | | | | | | | | | | | |

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| | evaluation will be recognized as the proposal does not meet the technical requirements of the tender. |
| UNDP will award the contract to: | <input checked="" type="checkbox"/> One and only one Service Provider Sub-contracting is not allowed. Service Provider must perform the entire scope of work on their own, without the involving sub-contractors. |
| Annexes to this RFP ³ | <input type="checkbox"/> Form for Submission of Proposal (Annex 2) <input checked="" type="checkbox"/> General Terms and Conditions / Special Conditions (Annex 3) ⁴ <input checked="" type="checkbox"/> Detailed TOR |

³ Service Providers are alerted that non-acceptance of the terms of the General Terms and Conditions (GTC) may be grounds for disqualification from this procurement process.

⁴ This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was received.

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| <p>Documents to be submitted</p> | <ul style="list-style-type: none"> ☒ Duly filled in Form as provided in Annex 1, and in accordance with the list of requirements in Annex 1; ☒ Profile – describing the nature of business, information about the company (10 pages max.) confirming the field of expertise, practical experience of the Offeror in the required area; ☒ Company’s profile with detailed information (name of the company, address, contact details etc.) using form provided in Table 1 of Annex 2 ☒ Declaration of owners’ interest in other companies issued on company’s letterhead duly signed and stamped (Part 1, Annex2); ☒ At least 1 contract successfully performed in the last 5 years for supply of similar services namely, development of mobile application. ☒ Verified copy of Latest Business Registration Certificate and License; ☒ Verified copy of the page from company’s Charter where the information on company founders is provided; ☒ List of projects of similar to present tender nature the Company fulfilled during the last 3 years with description of scope of task, purpose and duration of such contracts, as well as contact details of customers; ☒ Financial statements for the last 2 years verified by independent third party such as auditors or similar as may be applicable ☒ Self-declaration confirming that the Company is not in the UN sanctions list 1267/1989 list, UN Procurement Division List or other UN Ineligibility List; ☒ Any information regarding any past and current litigation during the last five (5) years ☒ Signed by owners resumes and declaration of availability of involved specialists during contract implementation period ☒ Recommendations and list of corporate orderers/clients to whom such services were provided ☒ The service provider should provide a step-by-step concept and implementation scheme for the tasks/methodology with a work schedule (10 pages max.) for detailed information please see Annex 1, A. Proposed Methodology for the Completion of Services. |
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| <p>Eligibility Criteria</p> | <p><input checked="" type="checkbox"/> At least 1 contract for supply of similar services successfully performed for the last 5 years;</p> <p><input checked="" type="checkbox"/> Demonstrated availability of a permanent office reachable via landline telephone and permanent staff of at least 5 persons</p> <p><input checked="" type="checkbox"/> Strong financial position: (a) Liquidity ratio for the last two years not less than 1, if financial reports were presented, OR (b) Confirmation from bank regarding strong financial.</p> |
| <p>Contact Person for Inquiries (Written inquiries only)⁵</p> | <p><i>Procurement Unit</i> +998 71 1203485/ pu.uz@undp.org</p> <p>Any delay in UNDP's response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers.</p> |
| <p>Other Information (other requirements)</p> | <p>Offers submitted by two (2) or more Offerors shall all be rejected if they are found to have <u>any</u> of the following:</p> <ul style="list-style-type: none"> a) they have at least one controlling partner, director or shareholder in common; or b) any one of them receive or have received any direct or indirect subsidy from the other/s; or c) they have the same legal representative for purposes of this RFQ; d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or e) influence on the Offer of, another Offerer regarding this RFQ process; f) they are subcontractors to each other's Offer, or a subcontractor to one Offer also submits another Proposal under its name as lead Offerer; or an expert proposed to be in the team of one Offerer participates in more than one Offer received for this RFP process. This condition does not apply to subcontractors being included in more than one Offer. |

⁵ This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was received.

Evaluation of Proposals

UNDP shall examine the Proposal to confirm that all terms and conditions under the UNDP General Terms and Conditions and Special Conditions have been accepted by the Proposer without any deviation or reservation.

The evaluation team shall review and evaluate the Technical Proposals on the basis of their responsiveness to the Terms of Reference and other documentation provided, applying the evaluation criteria, sub-criteria, and point system specified in the **RFP**. Each responsive Proposal will be given a technical score. A Proposal shall be rendered non-responsive at this stage if it does not substantially respond to the RFP particularly the demands of the Terms of Reference, which also means that it fails to achieve the minimum technical score indicated in the **RFP**. Absolutely no changes may be made by UNDP in the criteria; sub-criteria and point system indicated in the **RFP** after all Proposals have been received.

Evaluation forms for technical proposals are given below. The obtainable number of points specified for each evaluation criterion indicates the relative significance or weight of the item in the overall evaluation process. The Technical Proposal Evaluation Forms are:

Form 1: Expertise of the Company

Form 2: Methodology -Proposed Work Plan and Approach

Form 3: Management Structure and Key Personnel

| Technical Proposal Evaluation <u>Form 1</u> | | Points Obtainable | Company / Other Entity | | | | |
|--|--|-------------------|------------------------|---|---|---|---|
| | | | A | B | C | D | E |
| Expertise of the Company | | | | | | | |
| 1.1 | Reputation of Organization and Staff (Competence / Reliability): | 12 6 | | | | | |
| | <ul style="list-style-type: none"> • Successful work experience more than 3 years <ul style="list-style-type: none"> - More than 5 years – 6 points; - From 4 to 5 years – 4 points; - 3 years – 2 points; - Less than 3 years is not acceptable | | | | | | |
| | <ul style="list-style-type: none"> • Availability of Recommendations and list of corporate orderers/clients to whom such services were provided | | 3 | | | | |
| | <ul style="list-style-type: none"> • More than 1 similar works- development of mobile applications carried out by the Applicant for the last 5 years | 3 | | | | | |
| 1.2 | Technical capacity: | 18 18 | | | | | |
| | <ul style="list-style-type: none"> • Structure of company (For more information, see Annex 1- A. Service Provider Qualification) | | | | | | |
| | | | | | | | |
| Total Part 1 | | 30 | | | | | |

| Technical Proposal Evaluation Form 2 (For more information, see Annex 1- B. Proposed methods for performing services) | | Points Obtainable | Company / Other Entity | | | | |
|--|---|-------------------|------------------------|---|---|---|---|
| | | | A | B | C | D | E |
| Methodology – Proposed Work Plan and Approach | | | | | | | |
| 2.1 | Is the scope of task well defined and does it correspond to the TOR? Perfect – 10 points; Good – 8 points; Satisfactory – 6 points; Not acceptable – 0. | 10 | | | | | |
| 2.2 | To what degree does the Proposer understand the task and effective method of its provision? Perfect – 12 points; Good – 10 points; Satisfactory – 8 points; Not acceptable – 0. | 12 | | | | | |
| 2.3 | Does the provided methodology meet the requirements specified in the terms of reference? Perfect – 12 points; Good – 10 points; Satisfactory – 8 points; Not acceptable – 0. | 12 | | | | | |
| Total Part 2 | | 34 | | | | | |

| Technical Proposal Evaluation Form 3 (For more information, see Annex 1: C. Qualification of key personnel.) | | Points Obtainable | Company / Other Entity | | | | |
|---|--|-------------------|------------------------|---|---|---|---|
| | | | A | B | C | D | E |
| Management Structure and Key Personnel | | | | | | | |

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| 3.1 | Team Leader (general management of the team, implementation of interaction with project personnel and with relevant departments in the framework of the implementation of this TOR, preparation of reports and protocols); | | | | | |
| | University degree (masters or equivalent), preferably in Water sector and exploitation of hydraulic structures, management of natural resources, environmental safety and in similar sectors (copy of diploma, certificate and other documents which ensure of high education degree, can additionally be requested) | 1.5 | | | | |
| | Minimum of 5 years experience in the field of water management. Work experience in the field of training and preparing of water specialists. Work experience in the field of management and realization of projects. Good knowledge on the standard office software Microsoft (MS Word, MS Excel и MS Power Point). Knowledge of other software would be an asset. | 2.5 | | | | |
| | Language skills: Russian or Uzbek | 0.5 | | | | |
| | Subtotal | 4.5 | | | | |
| 3.2 | Chief specialist in water management (drawing up the structure and filling in the platform); | | | | | |
| | University degree (masters or equivalent), preferably in Water sector and exploitation of hydraulic structures, management of natural resources, environmental safety and in similar sectors (copy of diploma, certificate and other documents which ensure of high education degree, can additionally be requested). | 1.5 | | | | |

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| | <p>Minimum of 3 years work experience in the field of water sector or Scientific Research Institute and Higher education Institutes related to water management.</p> <p>Knowledge on modern water management system and water consumption in Uzbekistan.</p> <p>Good knowledge on the standard office software Microsoft (MS Word, MS Excel и MS Power Point). Knowledge of other software would be an asset.</p> | 2.5 | | | | | |
| | Language skills: Russian or Uzbek | 0.5 | | | | | |
| | Subtotal | 4.5 | | | | | |
| 3.3 | Specialist in water management (platform development); | | | | | | |
| | University degree (masters or equivalent), preferably in Water sector and exploitation of hydraulic structures, management of natural resources, environmental safety and in similar sectors (copy of diploma, certificate and other documents which ensure of high education degree, can additionally be requested). | 1.5 | | | | | |
| | <p>Minimum of 3 years work experience in the field of water sector or Scientific Research Institute and Higher education Institutes related to water management.</p> <p>Good knowledge on the standard office software Microsoft (MS Word, MS Excel и MS Power Point). Knowledge of other software would be an asset.</p> | 2.5 | | | | | |
| | Language skills: Russian or Uzbek | 0.5 | | | | | |
| | Subtotal | 4.5 | | | | | |
| 3.4 | Specialist in editing and translation (text editing and translation) | | | | | | |
| | University degree (masters or equivalent), preferably in Water sector and exploitation of hydraulic structures, management of natural resources, environmental safety and in similar sectors (copy of diploma, certificate and other documents which ensure of high education degree, can additionally be requested). | 1 | | | | | |

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| | <p>Minimum of 3 years work experience in the field of water sector or Scientific Research Institute and Higher education Institutes with linguistic basis and linguistic related to terminology of water management.</p> <p>Translation and editing experience of publications analysis reports, lectures, regulatory and policy papers on water resource management (Confirming documents can additionally be requested).</p> <p>Good knowledge on the standard office software Microsoft (MS Word, MS Excel и MS Power Point). Knowledge of other software would be an asset.</p> | 2 | | | | | |
| | Language skills: Russian or Uzbek | 0.5 | | | | | |
| | Subtotal | 3 | | | | | |
| 3.5 | Senior Database Engineer (My SQL or PostgreSQL) | | | | | | |
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |
| | <ul style="list-style-type: none"> • Minimum of 3 years work experience in the field of database administration • Knowledge on OC Linux. • Work experience in MySQL и PostgreSQL. • Work experience in creating the architecture of database fail-safe. • Knowledge on dimensional principles and database administration. | 1.5 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| | Subtotal | 3 | | | | | |
| 3.6 | iOS developer (Swift); | | | | | | |
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |

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|-----------------|---|----------|--|--|--|--|--|
| | <ul style="list-style-type: none"> • Minimum of 3 years work experience in the field of iOS development. • Work experience in development of mobile applications under iOS • Knowledge on Swift • Knowledge on architectural patterns and ability to use them (MVC, MVVM) • Experience in library CocoaPods • Experience in database (CoreData, SQLite, Realm) • Experience in working with methods REST/JSON API. Ability to impose via Interface Builder and code • Experience in working with control systems, preferable Git • English language on the level of reading technical documents. | 1.5 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| Subtotal | | 3 | | | | | |
| 3.7 | Android developer (Java, Android Studio, Firebase, RESTful API's, JSON/ XML) | | | | | | |
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |
| | <ul style="list-style-type: none"> • Minimum of 3 years work experience in development under platform Android. • Experience in Kotlin /Java programming • Knowledge of Android SDK (API level 16+) • Experience in working with methods REST/JSON API • Knowledge on Clean Architecture principles • Ability to develop a user-interface • Designing of user-interfaces under Material guidelines • Experience in working with control systems, preferable Git • Knowledge on requirements for release applications in the Google Play | 1.5 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| Subtotal | | 3 | | | | | |
| 3.8 | Full stack programmer (Codelgniter, Angular 2, JavaScript) | | | | | | |

| | | | | | | | |
|-----------------|--|------------|--|--|--|--|--|
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |
| | <ul style="list-style-type: none"> • Minimum of 3 years work experience in the field of programming of the section "Client-Server" • Work experience in PHP 5.6/7 • Knowledge on RESTful API • Knowledge and understanding of OOP, project patterns • Knowledge on Angular, JavaScript, TypeScript. Experience in working with RxJS и NgRX is asset • Ability to use of HTML5, CSS3 • Knowledge on designing of user-interfaces (UI/UX) • Experience in working with Git | 1.5 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| Subtotal | | 3 | | | | | |
| 3.9 | Designer, image video editor, media animation expert | | | | | | |
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |
| | <ul style="list-style-type: none"> • Minimum of 3 years working experience in the field of video and image editing and animation • Experience in web designing and designing of mobile applications • Existence of portfolio • Knowledge on Sketch, Adobe Photoshop, Adobe Illustrator • Ability to develop a design under variety platforms | 1 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| Subtotal | | 2.5 | | | | | |
| 3.1 0 | QA expert (Java or Python, Appium, Gitflow, REST, Git, Jira) | | | | | | |
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |

| | | | | | | | |
|--------------------------|---|------------|--|--|--|--|--|
| | <ul style="list-style-type: none"> • Minimum 3 years work experience in the field of web testing • Knowledge on QA instruments and methods • Experience in computer-aided testing, including test planning, report preparation according to defects • Experience in development of programmes in Java или Python • Work Experience with Appium or similar test automation applications • Understanding of HTTP, REST • Ability to test API (curl, postman) | 1 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| Subtotal | | 2.5 | | | | | |
| 3.1 1 | SEO, ASO, PR Digital marketing expert | | | | | | |
| | University degree (bachelor or equivalent) in the field of information technology (copy of diploma, certificate and other document certifying higher education, can additionally be requested). | 1 | | | | | |
| | <ul style="list-style-type: none"> • Minimum 3 years work experience in the field of digital marketing • Knowledge on working with applications in the mode of online and offline • Understanding of work features of search systems Yandex and Google • Experience in working with Yandex.Metrica and Google Analytics • Knowledge of search engine optimization and ability to use in practice | 1 | | | | | |
| | Language skills: Technical English | 0.5 | | | | | |
| Subtotal | | 2.5 | | | | | |
| Total Part 3 | | 36 | | | | | |
| Total Parts 1,2,3 | | 100 | | | | | |

The overall evaluation score will be based on a combination of the technical score and the lowest price quote. The evaluation method that applies for this RFP shall be as indicated in the **RFP**.

FORM FOR SUBMITTING SERVICE PROVIDER'S PROPOSAL⁶

(This Form must be submitted only using the Service Provider's Official Letterhead/Stationery⁷)

[insert: *Location*].

[insert: *Date*]

To: Procurement unit

We, the undersigned, hereby offer UNDP the following services in accordance with the requirements specified in RFP/004/2019 and all its annexes, as well as the General Terms and Provisions of UNDP contracts. We confirm that we have read, understood and accept the requirements and terms of the terms of reference describing our duties and responsibilities under this RFP, as well as the general UNDP terms and conditions under the contract.

We agree to abide by the terms of this commercial offer within **120 calendar** days from the deadline specified in the request for the submission of the offer; it remains binding and can be accepted at any time before the expiration of this period. We hereby declare that:

(a) All information and statements presented in this tender offer are true, and we agree that any incorrect information contained in it may lead to our disqualification;

(b) At present, we are not included in the UN register which includes companies that are not entitled to supply, and other similar lists of other UN agencies, and we are in no way connected with any companies or persons included in the UN Security Council Committee Consolidated List 1267/1989.

(c) We are not at the stage of unfinished bankruptcy and we have no lawsuits or claims that could adversely affect our work as an operating enterprise;

(d) We do not employ people who work or have recently worked for the UN or UNDP, and we do not plan to hire such persons.

We are aware that your organization reserves the right to accept or reject any of the proposals received, is not responsible for such actions and does not undertake to inform the supplier of their reasons without a request from us:

A. Qualifications of the Service Provider

⁶ This serves as a guide to the Service Provider in preparing the Proposal.

⁷ Official Letterhead/Stationery must indicate contact details – addresses, email, phone and fax numbers – for verification purposes

The Service Provider must describe and explain how and why they are the best entity that can deliver the requirements of UNDP by indicating the following:

a) Profile – describing the nature of business, information about the company (10 pages max.) confirming the field of expertise, practical experience of the Offeror in the required area.

b) The company’s charter should include the right and other permits to provide the service, Registration Papers, Tax Payment Certification, etc.

c) Recommendations and list of corporate orderers/clients to whom such services were provided

d) A copy of Latest Business Registration Certificate and License verified by signature of authorized person and stamp.

B. Proposed Methodology for the Completion of Services

The service provider should provide a step-by-step concept and implementation scheme for the tasks/methodology with a work schedule (10 pages max.), describe how it will meet the RFP requirements with a detailed description of the main performance characteristics of the work, reporting mechanisms and quality assurance, and rationale for the proposed methods in the context of local conditions and the type of work.

C. Qualifications of Key Personnel

If required by the RFP, the Service Provider must provide:

- a) Names and qualifications of the key personnel that will perform the services indicating who is Team Leader, who are supporting, etc.;*
- b) CVs demonstrating qualifications must be submitted if required by the RFP; and*
- c) Written confirmation from each personnel that they are available for the entire duration of the contract.*
- d) Copy of diplomas, certificates, as required by UNDP.*

D. Cost Breakdown per Deliverable*

| FOR LOCAL COMPANIES REGISTERED IN UZBEKISTAN: | | | |
|--|---|-------------------------------|--|
| Outputs | Activity/Output | Payment Structure | Price ____ (indicate currency) (The total amount) |
| Advance payment | 10 calendar days from the contract signature date | 10 % | |
| #1 | Development of a detailed work plan and timetable for the implementation of work on this term of reference, including an analysis of all related source and current information, including the collection of necessary data, interviews, etc. | 30% including advance payment | |

| | | | |
|---------------|--|-------------|--|
| #2 | <p>Presentation/performance of the following reports and products:</p> <ul style="list-style-type: none"> • a report on the implemented work according to the TOR, including the structure of the platform, refined based on the discussion held with relevant specialists and users of the “system” (provision of a discussion protocol, signed by the discussion participants); • launching the first version of the platform in a demo mode for receiving comments and recommendations for improvement. | 40% | |
| #3 | <p>Presentation of developed product (soft), all platforms features, content areas, integrations, water glossary, calculations and all other features at a seminar with the participation of interested parties</p> | 30% | |
| Total: | | 100% | |

| FOR FOREIGN COMPANIES WITH A LEGAL ADDRESS AND BANK ACCOUNT OUTSIDE UZBEKISTAN: | | | |
|--|--|-------------------|--|
| Outputs | Activity/Output | Payment Structure | Price ____ (indicate currency) (The total amount) |
| #1 | <p>Development of a detailed work plan and timetable for the implementation of work on this term of reference, including an analysis of all related source and current information, including the collection of necessary data, interviews, etc.</p> | 30% | |
| #2 | <p>Presentation/performance of the following tasks reports and products:</p> <ul style="list-style-type: none"> • report on the implemented work according to the TOR, including the structure of the platform, refined based on the discussion held with relevant specialists and users of the “system” (provision of a discussion protocol, signed by the discussion participants); | 40% | |

| | | | |
|---------------|--|-------------|--|
| | <ul style="list-style-type: none"> launching the first version of the platform in a demo mode for receiving comments and recommendations for improvement. | | |
| #3 | Presentation of the developed product (soft), all platforms features, content areas, integrations, water glossary, calculations and all other features at a seminar with the participation of interested parties | 30% | |
| Total: | | 100% | |

**This shall be the basis of the payment tranches, whether there are discrepancies between the total amount specified in tables D and E, in that case the price rate indicated in table (D) will be prevalent.*

E. Cost Breakdown by Cost Component:

| Description of Activity | Remuneration per Unit of Time | Total Period of Engagement | No. of Personnel | Total Rate |
|--|-------------------------------|----------------------------|------------------|------------|
| I. Personnel Services | | | | |
| 1. Services of attracted Expertise | | | | |
| a. Expertise Services 1 | | | | |
| b. Expertise Services 2 | | | | |
| 2. Services from Overseas (if required) | | | | |
| a. Expertise Services 1 | | | | |
| b. Expertise Services 2 | | | | |
| II. Out of Pocket Expenses | | | | |
| 1. Travel Costs | | | | |
| 2. Daily Allowance including accommodation | | | | |
| III. Other Direct Related Costs (translation, printing and other) | | | | |
| IV. Overhead expenses (no more 3,5%) | | | | |

Name and signature of authorized person]

[Position]

[Date]

[Stamp of the company]

Part 2: DECLARATION OF INTEREST

Dear Sir/Madam,

We/I, _____ (Name and Title), as Director/Founder of _____ Company, declare that:

(a) Have no financial and other interests in, association or relationship with, are not employed and do not have relatives (i.e. spouse, parents, children or siblings) employed by the United Nations Development Programme (UNDP) or the Government of Uzbekistan that announced the tender; and do not have access to information about, or influence on the selection process for this tender;

(b) Have no common controlling partner, director, shareholder, legal representative for the purposes of this tender with any other entity submitting its Quotation under this tender; are not subcontracting or are subcontractors to other entities for the purposes of this tender; and that the experts proposed in the team do not participate in more than one Quotation for this tender;

(c) Are not involved in activities that could have an impact on the objectivity and independence of the Contractor's team in carrying out its duties under the contract or can affect the image of the United Nations and the Government of Uzbekistan.

We certify that the information stated is true, correct and complete to the best of our knowledge and belief. We are obliged to comply with all requests for additional information, documentation, clarification and/or verification concerning the Declaration of Interest statement.

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the tender.

We declare that we are not in the UN Security Council 1267/1989 List, UN Procurement Division List or other UN Ineligibility List.

Name and signature of authorized person]

[Position]

[Date]

[Stamp of the company]

Part 3: COMPANY PROFILE

| | | |
|---|---|---------------------------------------|
| Part 3: COMPANY PROFILE 1. Offeror's Legal Name [insert Offeror's legal name] | | |
| 2. In case of Joint Venture (JV), legal name of each party: [insert legal name of each party in JV] | | |
| 3. Actual or intended Country/ies of Registration/Operation: [insert actual or intended Country of Registration] | | |
| 4. Year of Registration in its Location: [insert Offeror's year of registration] | | |
| 5. Countries of Operation | 6. No. of permanent staff in each Country | 7. Years of Operation in each Country |
| 8. Legal Address/es in Country/ies of Registration/Operation: [insert Offeror's legal address in country of registration] | | |
| 9. Value and Description of Top three (3) Biggest Contracts for the past five (5) years | | |
| 10. Latest Credit Rating (Score and Source, if any) | | |
| 11. Brief description of litigation history (disputes, arbitration, claims, etc.), indicating current status and outcomes, if already resolved. | | |
| 12. Offeror's Authorized Representative Information Name: [insert Authorized Representative's name] Address: [insert Authorized Representative's Address] Telephone/Fax numbers: [insert Authorized Representative's telephone/fax numbers] Email Address: [insert Authorized Representative's email address] | | |
| 13. Are you in the UNPD List 1267.1989 or UN Ineligibility List? <input type="checkbox"/> YES or <input type="checkbox"/> NO | | |

Name and signature of authorized person]

[Position]

[Date]

[Stamp of the company]

PART 4: PERFORMANCE OF SIMILAR CONTRACTS. *

| Name of delivered goods | Terms of the contract (year, month) | Cost of work | Customer (Company name, full name of the contact person, telephone) |
|-------------------------|--|--------------|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

*Requires at least two similar contracts during last 3 years on supply of machinery (including field and sport equipment).

[Name and signature of authorized person]

[Position]

[Date]

[Stamp of the company]

Terms of Reference (TOR)

Technical Capacity Building component of the Programme on “Sustainable Management of Water Resources in rural areas in Uzbekistan”

Subject: **RFP/004/19** Development a software on water database “Suv-info” with mobile application
Introduction

The EU program "Sustainable Water Management in Rural areas of Uzbekistan" is aimed to providing further assistance in the water sector of the Republic of Uzbekistan and consists of three interrelated components:

- Component 1 - "Basics of the National Policy on Water Resources Management and the Integrated Water Resources Management System (IWRMS)".
- Component 2 - “Building Technical Capacity”.
- Component 3 - "Raising Public Awareness."

The proposed program focuses on water efficiency with a focus on the use of water in agriculture. Within these three components, as well as at various levels, the program aims to strengthen institutional and technical capacities in the field of water management at the national, basin until farmer levels, while at the same time raising public awareness about the rational use of water and its associated resources.

UNDP in Uzbekistan will be responsible for the implementation of Component 2 - “Technical Capacity Building” (hereinafter referred to as the project), which will focus on capacity building in the field of efficient use of water resources in rural areas. The project aims to strengthen the institutional structure and technical capacity in the field of water management at the rural areas of Uzbekistan, farmers and AIS, as well as basin level, water user associations and while raising public awareness about effective water management.

1.1 Purpose

The purpose of this assignment is to create a single reference database called the “**Suv-info**” (hereinafter referred to as the “system”), intended for use by water specialists, irrigation and melioration experts, water user associates (WUA’s), farmers in their work to accelerate the necessary hydraulic and other calculations, simplify the process of searching and obtaining information, as well as disseminating knowledge related to all aspects water management, and use of water resources.

The platform will help to increase the knowledge and awareness of interested parties and organizations in technical issues of water management. The platform will also be a useful tool for academics, young scientists and students of specialized educational institutions. It is expected that the creation of an electronic reference database as well as a mobile application (Android & iOS versions) will contribute to strengthening research and development programs in the water sector and modernizing the means to support the educational process of colleges / lyceums and higher educational institutions.

The purpose of this document is to give a detailed description of the requirements for the system. It will illustrate the purpose and complete declaration for the development of system. It will also explain sub system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team.

1.2 Document Conventions

International and local government-based Software Requirements Specifications has been developed in accordance with the standards described in the following regulatory documents:

- **IEEE Std 830-1998** IEEE Recommended Practice for Software Requirements Specifications conventions
- **O'z DSt 1987:2010** Information technologies. Terms of reference for the development of an information system
- **O'z DSt 1047:2003** Information technologies. Terms and definitions
- **O'z DSt 1985:2010** Information technologies. Types, completeness and designation of documents for creation of information systems
- **O'z DSt 1986:2010** Information technologies. Information Systems.
- **O'z DSt ISO/ IEC 12207:2007** Information technologies. The processes of software life cycle

1.3 Product Scope

The scope of the “system” was to create an innovative, modern, latest technologies based interactive environment which will be accessible from anywhere via web browser and from most common used mobile devices. It will be accessible even with limited internet bandwidth areas.

The application shall be available as a native application for the Android & iOS platforms and as a web-based application which will be accessible on all platforms.

The scope of work includes the development of the platform, which is created to simplify hydraulic calculations and the process of finding and obtaining the necessary information, as well as disseminating knowledge related to all aspects of water management, water resources management and use, as well as developing new comprehensive glossary on water management.

This work will be based on the results of the analysis of existing software products, as well as the analysis of the situation that determines the need for this product and include the following elements:

- Creation of a structured unified “**Suv-info**” database and knowledge related to all aspects of water management, water resources management and use;
- Development of a digital innovative comprehensive glossary on water management;
- Development of a web portal and its backend content management system (CMS)
- Development mobile application on iOS and Android platforms, integrated with unified reference information database, glossary and latest level of modern software technologies;
- Hosting of the website, including in the Tas-X zone
- Publication the application to the general access to the App Store and Google Play platforms
- Complete intrastate support

In general, the result of these work is following systems:

- A single knowledge base “Suv-info” dynamic database, which will be pool for all sub platforms as well as integrated glossary on water management as well as mobile applications;
- Backend CMS to control and manage all sub systems

- Front-end: Web application (web portal)
- Android mobile application which will run on Android OS enabled mobile devices
- Mobile application for iOS enabled mobile devices as well as iPads
-

The content and structure, as well as the criteria and requirements for the operation and further technical support of the platforms are to be agreed upon in the process of accomplishing this task with the project implementation team.

The following results should be provided after completion of the assignment:

1. Development of a detailed work plan and timetable for the implementation of work on this term of reference, including an analysis of all related source and current information, including the collection of necessary data, interviews, etc.
2. Presentation/performance of the following reports and products:
 - a. a report on the implemented work according to the TOR, including the structure of the platform, refined based on the discussion held with relevant specialists and users of the “system” (provision of a discussion protocol, signed by the discussion participants);
 - b. launching the first version of the platform in a demo mode for receiving comments and recommendations for improvement.
3. Presentation of developed product (soft), all platforms feature, content areas, integrations, water glossary, calculations and all other features at a seminar with the participation of interested parties

To achieve these results, the following tasks must be performed:

Analysis of the situation:

- Study and assessment of the need for reference information on water and water management at all levels of water resources management and use (based on interviews with the independent households and farm enterprises, associations of water consumers, experts of water management organizations, as well as with citizens and other interested parties);
- Based on the assessment, study of the state and identification of the problem of using information in the water sector at all levels of water resources management and use;
- Study and analysis of available international and local information resources (technical reference books in the field of water management (hydraulics, hydrology, hydraulic structures, irrigation canals, land reclamation, pumping stations and energy saving, etc.), publications, reports, internet resources, etc.) on water managements.

Compilation, coordination of the WTG structure and its content:

- Compilation of a detailed WTG structure;
- Receiving and studying the opinions and suggestions of intended users on the WTG structure;
- Making WTG structure with considering received proposals;

- Collection and systematization of existing information related to water resources (management, accounting and use of water, construction and operation of hydraulic structures, ensuring the safety of hydraulic structures, the activities of water management organizations and WUAs, water-saving technologies, etc.);
- Collection and systematization of existing legal and regulatory and technical documents related to water use, the activities of water management organizations and WUAs, as well as the norms and rules in the field of water use;
- Preparation of the first version of the glossary.

Coordination and approval:

Obtaining approval from the project and the MoWR for the final version of the system.

Preparation of proposals for the operation, technical support and further development of the platform.

1. Project implementation

The implementation team will consist of a team of water management specialists, IT specialists and a specialist with knowledge of technical documents, who will be mobilized as one team in the following areas:

1. Team Leader (general management of the team, implementation of interaction with project personnel and with relevant departments in the framework of the implementation of this TOR, preparation of reports and protocols);
2. Chief specialist in water management (drawing up the structure and filling in the platform);
3. Specialist in water management (platform development);
4. Specialist in editing and translation (text editing and translation);
5. Database engineer (My SQL or PostgreSQL)
6. iOS developer (Swift);
7. Android developer (Java, Android Studio, Firebase, RESTful API's, JSON/ XML);
8. Full stack programmer (CodeIgniter, Angular 2, JavaScript);
9. Designer, image video editor, media animation expert;
10. QA expert (Java or Python, Appium, Gitflow, REST, Git, Jira)
11. SEO, ASO, PR Digital marketing expert

All the above specialists must comply with the requirements specified in Form 3 of the tender document.

The team of the Contractor will perform this task under the direct supervision of the Project Manager. The overall responsibility for the quality of the result of the work and meeting the deadlines lies with the Contractor.

2.1 Product Perspective

Context and origin of the system being specified in this SRS. is a not follow-on member of a system family, or replacement for certain existing systems, its a new, self-contained stand-alone system. Its assumed that this system will be integrated into "big" system or database of MoWR in the future. All technical aspects are considered to flexible in the future with any systems.

In the Figure 1, proposed system overview architecture that whole picture of the system will be.

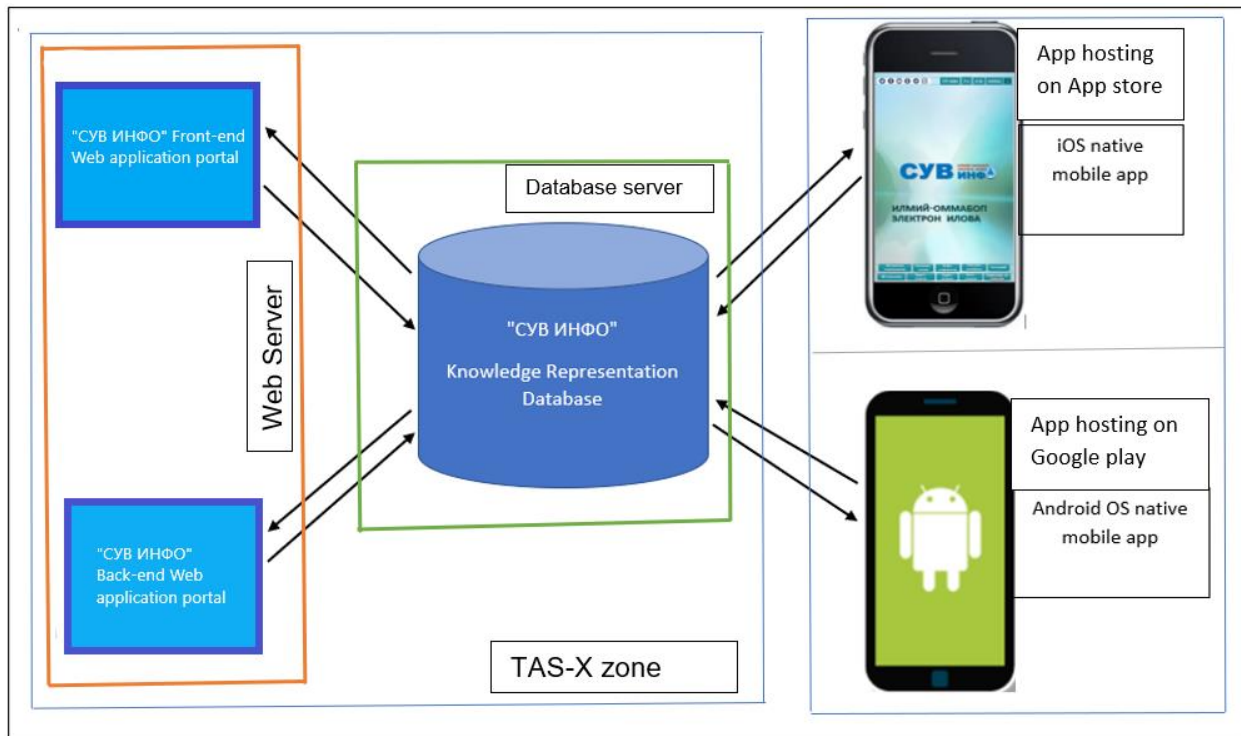


FIGURE 1 SYSTEM OVERVIEW BASIC ARCHITECTURE

- System will be an independent product that does not require additional hardware or software interfaces to function other than specified here.
- When released, the final product would be the first version of the software.
- As its shown Figure 1, there will be four complex, integrated systems under one big platform **“Suv-info”**.
- Every sub system is automatically synchronized with main database.
- It is designed as a secured system, which could be accessed by the any authenticated user. Nonetheless, the system restricts access to its various components, to users with varied characteristics.

Requirements for developing a mobile application:

- Testing and testing demo versions and getting feedback from experts and users;
- Finalization of the demo version considering the feedback received and preparation of the final version of the program and mobile applications;
- Distribution of the final version of the program and mobile applications for public use.

2.2 Product Functions

In this section we will only summarize the major functions the system must perform or must let the user perform. More details will be provided in Section 3, so here only a high-level summary will be written as a bullet list. All functions are organized to make them understandable to any reader of the SRS. A picture of the major

groups of related requirements and how they relate, such as a top-level data flow diagram or object class diagrams are will be created in next steps of the project.

Main top-level functions of sub-systems

Database

- It should act as a main core platform which is core for all systems.
- All inputs from sub systems will be always collected in the database automatically and sub systems will pool out data back. Basically, database will be hub for all operations, and contents
- It will consist of all tables, joins, logic of all sub systems
- System information's, encryptions, backend, frontend, Android, iOS all contents will be saved in the database

Backend

- Its main sub system with will take care of all logic and control of the system
- It will help to administrate the whole system dynamically
- Login features
- User authentication features
- Add/update/delete/submission of articles
- Add/update/delete of categories, tags, and all media

Frontend web application

- It will be main sub system where end users and other targeted parties will be involved
- It's a web business view of entire system
- Search engine optimized, google indexed meta information's
- On and Off page SEO features
- All main social media integration
- Best, optimized, high level of human interaction design
- Proposed minus, submenus, categories
- Water moment, irrigation. hydrological terminology glossaries,
- Demanded all common calculations
- Pointed dynamic maps of all relevant entities
- All pages of the system should be accessible from any page
- Whether information as per user locations
- Feedback forms from users
- Quick content correction advice forms
- All content will be shown as per design
- Showing articles, videos, pictures, graphs, animations, tables all will be functional
- Basic and advance filtered text searching capabilities
- Disable user friendly environment as per WCAG 2.0 instructions
- Text to voice feature will be developed
- Easily-navigated site map
- Testimonials from users
- Water statistics sliders

- Help, info manuals about how to use the system
- Search features, maps, all will be part of this application

Android & iOS application

- Quick screen shots which will guide users about main features of the app will be shown at the very first start of app. User will have a chance to skip or move into next steps
- Almost all web features will be available except big tables or content which are not possible to show on mobile view
- Calculator for all targeted level of users
- Text search feature by given index
- Video, picture, animation galleries
- Push notifications
- Rating the app features
- Contact forms
- Maps, Whether information's
- Water statistics as per guidelines
- Simplicity in design
- Performance is the key
- Help, info windows

2.3 User Classes and Characteristics

System will have various user classes that anticipate using this system. User classes may be differentiated based on frequency of use, subset of system and its functions used, technical expertise, security or system, privilege levels. In the next phases system will be smart enough to show contents-based user professional backgrounds.

Specific characteristics of each user class. Certain requirements may pertain only to certain user classes. We will make distinguish the most important user classes for this product from those who are less important to satisfy.

Database

The users of this system is system administrator or database administrator

The administrators of the system to have more knowledge of the internals of the system and can rectify the small problems that may arise due to browsing fails, or power failures and other catastrophes to maintain the system

Web application (front end), Android app, iOS app

- The users of the system are water specialists, irrigation and melioration experts, water user associates (WUA's), basin level experts, AIS employees, farmers, students, young scientist, teachers, water technologies experts, government organizations, and all third parties applications moderators who and the administrators who maintain the system.
- The users are assumed to have basic knowledge of the computers and internet browsing, mobile application installations from google or app store.
- The user interface (UI) should be easy to manipulate without additional training.

- The user should be able to interact with the system in any of the languages available in the language menu.
- The pages should use a best graphical environment, it should be built with a good sense of color and contrast, and should be printable, using keys.
- The proper user interface, user's manual, online help and the guidelines to install and maintain the system must be enough to educate the users on how to use the system without any problems. Besides that, training procedure guide - a guide to teach new users how to use application will be provided as helpful page in the app as video.
- This guide outlines the best practices for training a new user on how to use the system and its components.

2.4 Operating Environment

Overview of the hardware and software requirements necessary for system. While planning the infrastructure, we need to consider how many users will be accessing the system "Suv-info" web portal. We should estimate how many peak visitors we have, to get the maximum number of browsers simultaneously making requests to access. Users are counted from their first page request until the connection is closed. Storage requirements vary depending on how many files and other resources we want to store in "Suv info" platform.

Android and iOS applications will not have any hosting limitations. All services will be provided by google play and app store.

Minimum hosting information (Renting)

1. Its strongly suggested to use cloud hosting solutions but for TAS-X zone not yet in use.
2. If cloud not possible, recommended to sue renting a physical server or renting virtual server.

Minimum parameters.

- Virtual Server (VDS)
- VDS 200 SSD
- Operating system: Windows/Linux
- OS Version: Linux (Debian, CentOS7) or Windows Server 2016 R2 (64 bit)
- SSD capacity (GB): 200
- Size of RAM (GB): 4
- Number of processor cores: 4
- Minimum CPU processor speeds of 2500 MHz
- Number snapshot: 1
- Number of additional IP addresses: 1
- In both cases a 64-bit environment is strictly required.
- Java Run Time Environment (JRE) version 1.8<

3. Using shared hosting is not good solution

2.5 Design and Implementation Constraints

Database

- MySQL
- SQL Server 2008 R2 Service Pack 1 or later,
- SQL Server 2012 x64, or SQL Server 2014 x64

- Operating system—64-bit Windows
- Processor—2 Xenon with 2 GHz (recommended that you use 4 Xenon with 3 GHz or better)

Backend:

- Backend is the server part of the system, within which all business logic and processes take place.
- CodeIgniter v.3.1.10 will be used as the php-framework
- Firewall for iptables and fail2ban;
- PHP 7 with GD, mcrypt and pgsql;
- nginx 1.13 and php-fpm.

REST API Service

Communications with backend occur by referring client applications to the REST API service. Integration with third-party systems is also performed through the service API.

API service will be written in CodeIgniter v.3.1.10

Web application

- A web application is a client part of the system for interacting with end users. The method of consumption and production of information by the user, through interaction with the website of the navigation system.
- The site and the administrative part of the system are independent components of the web application.
- CodeIgniter v.3.1.10 will be used as the php-framework
- CentOS 7;
- Firewall for iptables and fail2ban;
- PHP 7 with GD, mcrypt and pgsql;
- nginx 1.13 and php-fpm.

Android OS

- Minimum: KitKat
- Maximum: Android 9 Pie (Latest version at this moment)
- RAM: Minimum 1 GB.
- Internet Connectivity

OS iOS

- Minimum: iOS 10.
- Maximum: iOS 12 (Latest version at this moment)
- RAM: Minimum 1 GB.
- Internet Connectivity
- The system shall operate in a mobile environment and utilize certain operations on mobile devices.
- The iOS version of the product shall operate on the iOS mobile operating system.

- The iOS app shall receive user input via the device keyboards

Other general Implementation Constraints

- Users for both the Android and iOS app and the Web Browser application are expected to have consistent and stable internet connections
- iOS devices are assumed to have updated, apple supported systems
- Publication of iOS into apple store will be on behalf of MoWR. If MoWR will not cooperate publication of iOS on behalf of MoWR will not be possible
- Publication of Android into Google play will be on behalf of MoWR. If MoWR will not cooperate publication of Android on behalf of MoWR will not be possible
- Web application will not be designed to be responsive. Both mobile applications are considered replication of the responsive feature
- Parties should agree on system maintainable in advance
- If there is delay in the system performance, if it's because of infrastructure third parties companies fault system software implement team will not be responsible

2.6 User Documentation

- List of user documentation components (such as user manuals, on-line help, and tutorials) will be delivered via online web application (front end) and it will be readable on Android and iOS platforms.
- All user manuals will be provided with in 1 month of delivering the system
- All user manuals and training materials will be possible to manipulate/moderate via admin panel (CMS⁸) by MoWR organization authorities

3. External Interface Requirements

3.1 User Interfaces

Android and iOS

Mobile applications will be developed on both platforms using the following technologies:

- iOS 10.x - 12.x - using Swift / Objective-C
- Android 4.4 – 9.0.0 - using Java
- This application is intended for use on a smartphone, in a portrait orientation mode by default.
- JSON requests are used to handle the communication between the app and server.
- This application works in online mode and as per user reading progress content will be saved automatically into offline mode.
- Push notifications are handled by Firebase or Onesignal.
- Firebase and Onesignal analytics will be used to collect different analytics and data.
- Applications will be developed further after the v1.0 publication.

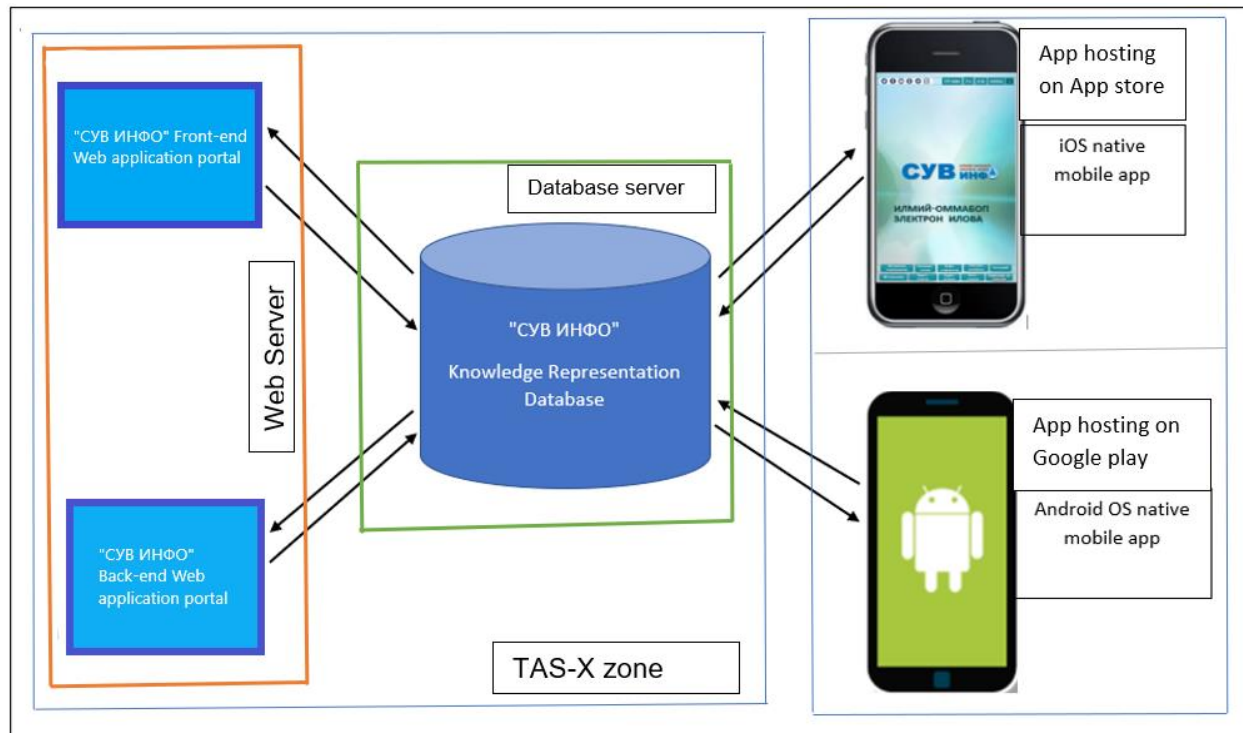
⁸ CMS- Content Management System

- Applications will be published on App Store and Google Play, using the MoWR accounts.

Front-end web application

- All pages of the system are following a consistent theme and clear structure.
- The occurrence of errors should be minimized by using checkboxes, radio buttons and scroll down to reduce the amount of text input from user.
- JavaScript and PHP implement in HTML to provide a Data Check before submission.
- HTML tables to display information to give a clear structure that easy to understand by user.
- Error message should be located beside the error input which clearly highlight and tell user how to solve it.
- If system error, it should provide the contact methods.
- The page should display the project process in different color to clearly reflect the various states that user done.
- Each level of user will have its own interface and privilege to manage and modify
- The System should provide a feedback form for all users to give comments or asking questions.
- It should provide a FAQ to minimize the workload of system administrator.

3.2 Hardware Interfaces



External hardware communication interface use case diagram

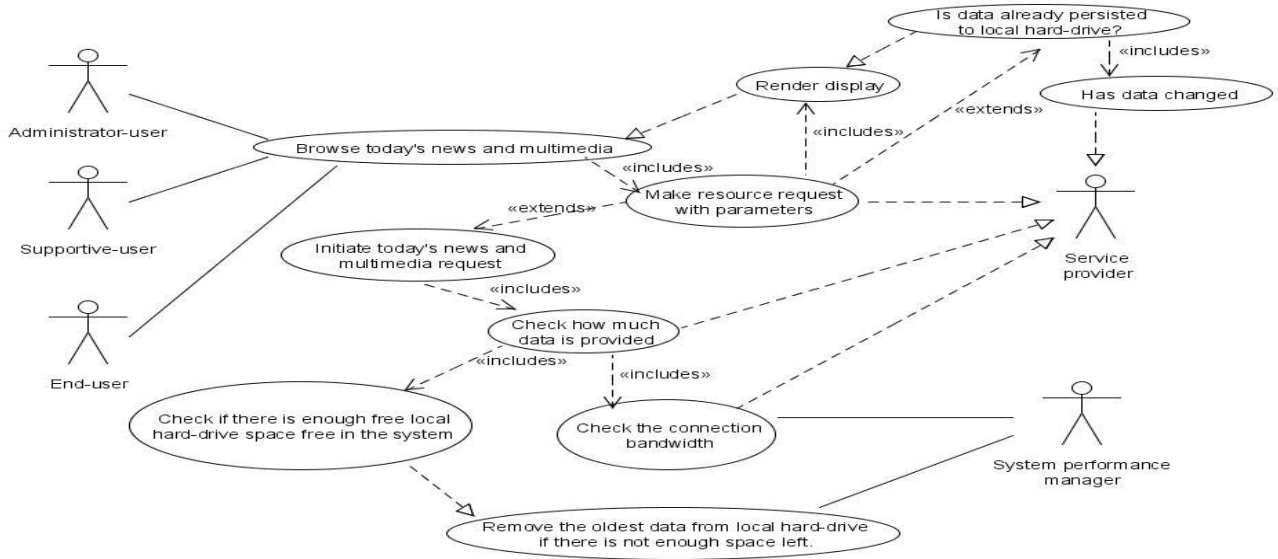


FIGURE 2 EXTERNAL HARDWARE COMMUNICATION INTERFACE USE CASE DIAGRAM

3.3 Software requirements



FIGURE 3 ILLUSTRATED SPLASH VIEW OF MOBILE APP

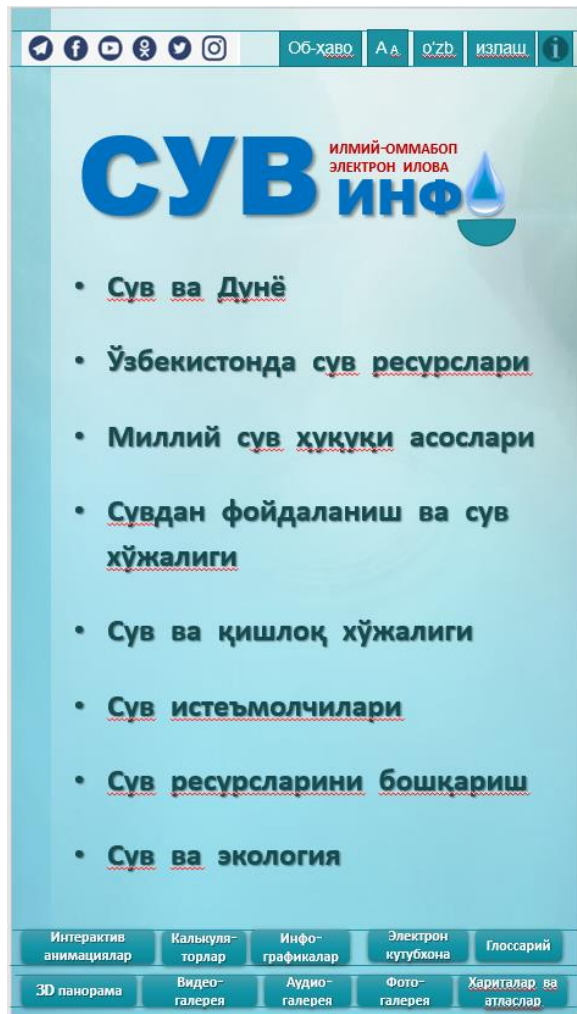


FIGURE 4 ILLUSTRATED CONTENT LIST FOR ONE OF THE ENTITIES

Above pictures are only illustration of mobile applications. After collecting and getting public opinions it might be different. All other sub child screens are also will be designed as per the MoWR approval

Backend (CMS)

- The web application will be hosted on one of the rented Linux servers and connecting tone of the database server. The web server is listening on the web standard port, port 80
- The production server will serve data to the application and website live - for end users
- The test server will be used for development and testing. It will allow to test changes before deploying them on the production server.

Android and iOS

Communications interfaces in in this system will be:

- Making users feedback forms internally in the app

- Feedback forms, users direct contacts to MoWR experts
- All users messages will be replied directly into their given emails
- Replying google review messages
- Replying App store review messaging
- Besides that, in the applications there will be push notification feature. Which will make very attractive to inform users with new updates, urgent notices.
- Disaster recovery notifications can be sent via app

3.4 User Requirements

This section describes the Internet Browsers required to use the system. It is strongly recommended to use the latest stable and tested version of the Internet browser that all platform's features can work correctly.

Browser suggestions

- Google Chrome (50.0 and higher)
- Mozilla Firefox (52.0 and higher)
- Opera (34.0 and higher)
- Internet Explorer (IE 11 and higher)

3.5 Communications Interfaces

This section includes all the communication interface requirements such as the service providers and protocols used in the system. Here is presented major communication requirements regarding server and services associated with the systems

- The HTTP protocol will be used to facilitate communications between the client and server.
- The system requires HTTP to communicate with server. The system can be configured to be accessed via any available port.
- The web-based UI is the only means of communication between the user and the system.
- The system is accessible through all popular web browsers that interact with HTML pages.

Android and iOS

Communications interfaces in in this system will be:

- Making users feedback forms internally in the app
- Feedback forms, users direct contacts to MoWR experts
- All users messages will be replied directly into their given emails
- Replying google review messages
- Replying App store review messaging
- Besides that, in the applications there will be push notification feature. Which will make very attractive to inform users with new updates, urgent notices.
- Disaster recovery notifications can be sent via app
- As per user based, user oriented, user localized push notifications

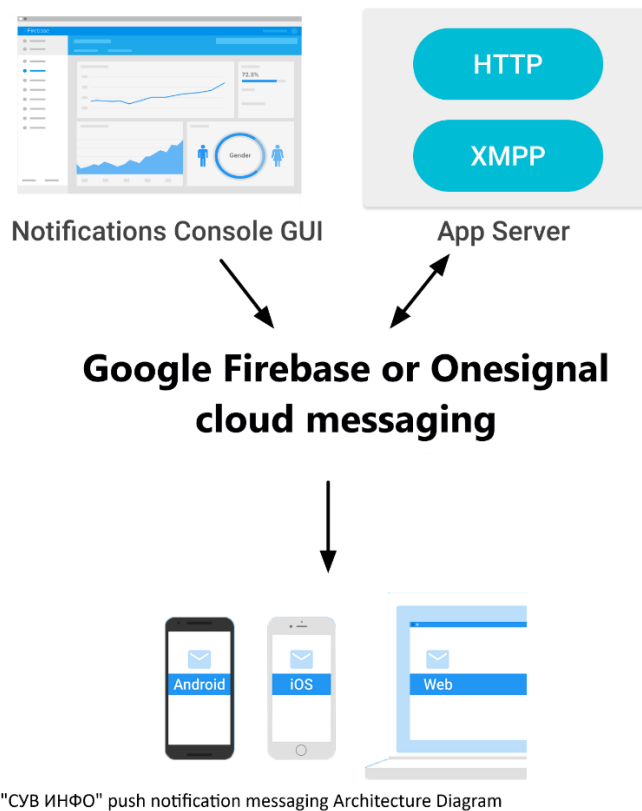


FIGURE 5 MESSAGING ARCHITECTURE DIAGRAM

Figure below is example of push notifications.

4. System Features



4.1 Android and iOS applications features

General:

1. Content will be filled as per Annex
2. Water glossary terminology. User friendly designed
3. Water calculations
4. Infographics
5. Virtual library
6. Video, Picture, Animation galleries
7. Basic and advance text search options
8. Searching by categories/Topics
9. Rate the app feature
10. App share features
11. Interactive gif user help manuals
12. Structured articles
13. About project page

14. Privacy and Terms and conditions as per international and local standards
15. Push notifications to end user devices as per user presetting's
16. Night mode options to read articles at night with dark mode
17. Save your internet feature for limited internet rural areas. Basically, this mode will enable them reading texts only. Pics, videos will not be shown
18. Favorite list
19. Later read list
20. Whether information (actual whether info as per user locations)
21. Water statistics as slider
22. On the first launch of the application, the user is presented with several screens with text and graphics that allow a user to better know and understand the idea behind the app
23. The user can skip the screens by tapping the 'Skip' button 2.
24. The user is asked to share location with the application to locate nearest objects.
25. Search function enables the user to perform two kinds of search: basic search and advanced search. In basic search, the user types a query in a textbox and clicks on "Search" button. In advanced search, the user can constrain the search by one or more attributes that are available to choose from
26. The entry is searched as a case insensitive substring.

Main features of all content's articles, videos, pictures screens

1. Title of the articles will be bold, separated with other color than normal text
2. All article formats will be coded as reading local device settings formats
3. Articles will be categories
4. It might be linked or not linked (clickable or not clickable)
5. Searching from the article will be possible 
6. Searched and found object will be highlighted
7. Disable friendly content, black and white options
8. Text to speech feature for Latin alphabets 
9. User can make text of the article bigger or smaller (-) (+)
10. Converting into Uzbek Latin alphabet feature
11. Sharing button into social media
12. Sharing by SMS, Bluetooth, Shareit
13. Content sharing into friends
14. Number of read statistics
15. Adding articles into my favorites list
16. Save this to later read options (bookmarks)
17. Disable friendly content
18. Possibility to add pics, videos, animations, tables anywhere in the article
19. Copy/Share/Select all of texts possibilities
20. Automated text translating into any another language (google translator integrated)
21. Select any text and automated search from google. Search from google will be integrated
22. If there will be main picture it will be shown on the top
23. Articles will have tags
24. At the end of every article there will be showing related articles based on tags and categories

4.2 Functional and non-functional Requirements

User Management

User Authentication to backend

Database

Not access will be provided to the database, except given white list of user and IPs. Only allowed people will have access

Backend

- System will be used via a web browser.
- Each user must be logged in to the server to access see contents.
- Hence, first-time users must be complete registration process.
- To register to the system, user must specify some information asked during registration.
- There will be enabled security feature Google CAPTCHA
- Validation process will start, and user will be evaluated to be eligible to the system or not. Always, as per guidelines of MoWR
- After validation, registration will be completed, and user will be informed.
- There will be a login page so that user can type into his login information, and login to the system.
- Login information will be username or e-mail address and password specified in registration process.
- Server let through the user if the given username and password are matched with the ones in database saved in registration.
- If specified information is not matched, an error dialog will be shown.
- Otherwise, user will be redirected to his personal workspace.
- When user forgets his password, he can request new one from the system by specifying his username or e-mail.

Administration user

- This user will have fully access into all system components and can make edit, update, delete, add etc all operations
- This is user will have access into back end system via logging into the system by given credentials.
- If administration user will not be authorized by the database privileges, then login scenario will be failed
- None authorized users are not allowed using the backend system

Supportive user

- Supportive user is not much advanced technical person as administrative user, but he can make updates, creating new profiles and new roles
- Supportive user is mostly trained user

End user

- End user does not have access into backend system, but he will be fully accessible to web application
- End user can connect to moderator (super user) or to administrator user by using special web forms

Backend (CMS) general user privileges

1. SYSTEM shall be applied to end-user mode.
2. SYSTEM shall be applied to supportive-user mode.
3. SYSTEM can be applied to administration-user mode.
4. SYSTEM shall be passive system, meaning that it shall not suggest anything to users, it will just wait for user to make actions.
5. SYSTEM shall have minimum amount of desktop/web paradigm GUI components, such as menu bars and popup menus. These components shall only be applied in situation where there is no other natural way to present options.
6. SYSTEM shall have the whole display controlling areas in both lower corners of the display.
7. SYSTEM shall be able to be controlled completely when using either lower corner controlling areas.
8. Changing pages, activating multimedia and moving in the SYSTEM shall be easy to perform with touch interfacing.
9. The system shall require an internet connection to download content and multimedia from server.
10. Content and multimedia can only be updated and downloaded from server.
11. Downloaded content and multimedia shall be persisted to local hard-drive.
12. When accessing content and multimedia that is already persisted to local hard drive system shall first make query from server if the data has changed.
13. If data has changed since last download the data shall be downloaded again until it's displayed.
14. The system shall have built-in multimedia player that can play following multimedia: video, sound and picture files.
15. The system built-in multimedia player shall be able to play following video file formats: avi and swf.
16. The system built-in multimedia player shall be able to display following picture file formats: jpeg, jpg, gif and png.
17. The system built-in multimedia player shall be able to play following sound file formats: m, wav and wma.
18. The system shall be able to display following web-page formats: HTML, DHTML and XHTML.
19. The system shall display content and multimedia files within web-page formats described.
20. Web-pages formats described shall have capability to be styled with cascading stylesheet technique (CSS).
21. The system shall use only up to 1 TB for persisted articles and multimedia.
22. When that capability is exceeded the system shall archive them and content and multimedia from hard-drive that has the oldest date-tag until the limits are met again.

Backend - Administration-user mode

1. Administration-user mode has highest privileges in using the system.
2. Administration-user mode interface can be developed as CMS.
3. This mode is meant for administrative users who will configure the system.

4. Administration-user mode shall be accessed with classic login system that has username and password credential checking.
5. In administration-user mode user shall be able to change any system options and configurations.
6. Additional administrator-user accounts can only be created and modified in administration mode.
7. Additional supportive- and accounts can be created and modified in administration mode.
8. Administrator-user can logout the system and the system shall go to default end user state (with default user-profiles).

Backend Supportive-user- Moderator

1. Supportive-user mode has very limited privileges in the system.
2. Supportive-user mode shall be implemented like the end-user mode using the SYSTEM paradigm. Supportive-user mode is meant for users who will support end-users in using the system.
3. Supportive-user mode can be accessed with login system.
4. Software Requirements Specification for Touch Newspaper Page 13
5. Additional supportive- and end-user accounts can be created and modified in supportive mode.
6. While supportive-user mode is still in use and an end-user login the system, the
7. currently used user-profile will be persisted to end-user's profile whose is about the make login.
8. When supportive-user login the system and the last login user was an Admin his/her profile will stay activated on the system.
9. Supportive-user can logout the system and the system shall go to default end user state (with default user-profiles).

Frontend End-user Mode

1. End-users are the main users in the system
2. End-user mode is for the end-users and it shall be implemented in the web.
3. The end-user mode has the least privileges in using the system. In this mode the user may only browse content and multimedia. No adjustments or system configurations can be done in this mode.
4. These requirements deal with features associated with the main end-user mode.
5. Each requirement has periodization number from 1-5, in which 5 is the highest priority and 1 is the lowest priority.
6. End-user mode shall be the default mode and doesn't require any login.
7. In end-user mode user shall not be able to adjust any configurations.
8. No account modification can be made in this end-user mode.
9. End-user mode can be accessed by any end-user who login the system by using the fingerprint reader.
10. End-users are not required to login the system to be able to use it.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

System should:

- written in the language of the last stable release optimized for heavy loads and work with virtualization
- written according to all the canons of modern development using modern programming libraries, with priority on "open source"
- consider that the maximum critical time for displaying the result does not exceed 1 seconds for ordinary operations, such as displaying a map, objects, and outputting information on objects and no more than 5 seconds for complex calculations, such as generating reports;
- components/ modules will be coded as extensible;
- Scalable (clustered, considering server virtualization).

To help the developers understand the intent and make suitable design choices System performance manager shall be able to determine what data the system should request in one second the system should be able to download the data in respect of time. To increase the performance of the system the timing factor should be main important paradigm for the system.

Depending on the connection bandwidth and communication speed the system performance manager shall decide what data the system should request within given limited time and accordingly to this given time the performance of the system can be known which make developer easy to make the system. When browsing newest content with the system the downloading shall be done within the fraction of second to make end user feels to use this kind of features. Login the system shall take short period. It should take seconds of time to enter the page that the end user wants to visit.

Response Time

The Splash Page or Information page should be able to be downloaded within 1-2 seconds. The information is refreshed every two minutes. The access time for a mobile device should be less than a minute. The system shall respond to the user in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time when doing large processing jobs.

Administrator/Moderator

The system shall take as less time as possible to provide service to the administrator or the moderator.

Throughput

The number of transactions is directly dependent on the number of users, the users may be the administrator, farmer, irrigator, and students or teachers.

Capacity

The web client (front end) system is capable of handling 500K users at a time.

5.2 Safety Requirements

The possibility of harm, loss, or damage from the use of the application are highly improbable being that the product is intended for use in what is assumed to be controlled environment. Additionally, the intended use of the product does not present any foreseeable scenarios where a user would have to encounter harm of any kind to fulfill the maximum utility of the product.

Those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product is like overloading data.

The system must be able to download and fetch the data seamlessly from the provider and because not every internet connection bandwidth is the same, the system must be able to determine which data fetching would overload the department bandwidth too much so such a overloading data s should be ignored. There are some senior citizens who may not be familiar with the technical skills so some time they may not log out the system so which is not the safety way to preserve his own profile. This kind of problem there should be system that alerts the user to log out to keep them working with safety site.

5.3 Security Requirements

Administrative user shall have its own specific profile with unique user name and password so that it differentiates from different level of the user.

The data created by the system shall be kept in the database to keep the data safe.

Database is a subsystem of the main system which manages the login procedures and contains all user-profiles and user privileged data. The most important user authentication the unique password. There shall be policies bounded in between the service provider and the system regarding the security.

The application will also maintain secure and unique connections, to avoid unauthorized users from controlling other devices. To create a viable offering for the user we will have to build a simple, transparent system that can be understood and trusted by the people that are using it.

To build trust with the users of our system, the system can make use of the following strategies:

- Anonymization & aggregation, so that route information may be shared safely without disclosing personal information.
- Encryption, for all data that is privacy sensitive, but must be persisted on the server for basic functionality
- Open source / disclose security policies & practices
- Permit the use of unverified (anonymous) avatars / aliases

5.4 Multi lingual Support

The system should be cross-language, since a prime goal of the overall project will be nationwide. Default language of the system will **Uzbek language** with **Cyrillic alphabets**. Considering continues development, moderation of the system in the next phases, system should be smart enough to integrate other languages and alphabets.

5.5 Software Quality Attributes

System will have quality characteristics that will be important to either the customers or the developers. It should be: adaptable, available, correct, flexible, interoperability, maintainable, portable, reliable, reusable,

testable, and usable. At the least, the relative preferences for various attributes, such as ease of use over ease of learning.

With regards to the intended number of users in Uzbekistan, the projected load scenarios, the intention is for the system to be able to serve 5m queries / day (in large part during the peak traffic hours).

Availability

- The entire system should be available round the year, except for a periodic maintenance. The maintenance period should be pre-scheduled and short. The users should be reminded of the unavailability period, well in advance.
- The system is available 100% for the user and is used 24 hrs. a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.
- Mean Time Between Failures (MTBF) - The system will be developed in such a way that it may fail once in a year.
- Mean Time to Repair (MTTR) - Even if the system fails, the system will be recovered back up within an hour or less.

Adaptable

Web application and mobile applications should work adaptable whether and regional crop and water information as best as we get.

RELIABILITY

The system should work reliably, with automatic backup and recovery features. In case of unexpected termination of a session, the unsaved data should be recovered without loss and displayed to the respective users for saving into the system or continuing with the work. At any time, audit file and all DB, and mailing information are required to be updated in the backup.

The system must be very reliable due to the importance of data and the damages incorrect or incomplete data can do.

Accuracy

The accuracy of the system is limited by the accuracy of the speed at which the users of the the system.

Access reliability

The system shall provide 100% access reliability.

Security

The system, at any time, should be accessed only by the authenticated users. Network communications should use cryptographic protocols such as SSL. Automated responses should be restricted using CAPTCHA. The system is required to end the session automatically, when an open session is not used for a specific period.

Maintainability

- The document should be easy for the users who execute the system day to day, for the developers who wish to edit or develop further, and for the personnel who oversees the maintenance.
- The end user should also be provided with some kind help tool to let the user to know to maintain the system.

Portability

The system should support new versions of the related browsers. The administrative and server technologies should be standard and supported by most platforms.

Usability

The GUI should be easy to learn and use by users of any technical background. A built-in help feature should be available in all pages, to guide the users with the available functions on that page. An easy to understand documentation should be provided with the system. System should support main local language (Uzbek) and main letter Cyrillic.

Scalability

The application shall be developed and tested to ensure that there is minimal latency in the background processes that occur during the use of the application. The application shall be designed to ensure that the user is able to quickly acclimate to the user Software Requirements Specification for system five interface and is able to quickly learn how to navigate through the application be able to use all the functions of the application with ease.

Flexibility

- In context of user, it is most important to know what kind of flexibility the user has with the system that they are using.
- End-user mode shall be the default mode and doesn't require any login. In end-user mode user shall not be able to adjust any configurations so this kind of flexibility should be built in the system to make user easy.

Correctness

- The system should be correct with the data that is to display on the screen board so that user don't get difficulty in reading with the news.

Verifiable

- The system should be verified before bringing it into the hand of user. It should go through some testing process so that it can be error free.

Run and test:

- Development of a software product that includes an electronic version of the system and its mobile application in a test mode for receiving comments and recommendations for improvement;
- Finalization of the first version of the system, as well as the on the website and the mobile applications, considering the comments and suggestions received;
- Preparation of the final version of the system is integrated on "Suv-info" and mobile application.

Application maintainers

The application maintainers (administrators) will maintain the application but are assumed to have no knowledge about Java Android programming, and PHP web programming. These users might have to interact with system in a different way from the users. The interaction may consist of editing files on a server, running a different special designed edit application to edit

5.6 Business Rules

The application shall be used as an main application to assist in the operations of any organization involved in business, government, education, etc. Latest implementations will allow the application to be used as an educational tool and as an application used for research. The domain of use for this application shall fall in the realm of consumer leisure and entertainment as it will be used as an application by users, which are assumed to have little to no scientific or technical knowledge

6. Contribution for the Project

This requirements specification document and all associated documents were produced for UNDP Tashkent.

Appendix A: Abbreviations

| Abr. | Expansion /Description |
|-------------|--|
| CAPTCHA | Completely Automated Public Turing test to tell Computers and Humans Apart |
| CSV | Comma Separated Value |
| DB | Data base |
| DBMS | Database management system |
| GUI | Graphical User Interface |
| HTML | Hyper Text Markup Language |
| HTTP | Hypertext Transfer Protocol |
| IEEE | Institute of Electrical and Electronics Engineers |
| QR Code | Quick Response Code |
| URL | Unified Resource Locator |
| SEO | Search Engine Optimization |
| ASO | App Store Optimization |
| SOA | Service-oriented architecture |
| UI | User interface |
| MTBF | Mean Time Between Failures |

Appendix B: Terms & Expansions

| Terms | Expansion /Description |
|-------------------------|--|
| Activity Log | Database in which records of certain operations are stored for further analysis and reporting |
| Administrator | Special user that maintains the application. |
| Administrator Interface | Web View Administrative Panel |
| Android | Android is a mobile operating system. |
| API | An application programming interface (API) is a particular set of rules and specifications that a software program can follow to access and make use of the services and resources provided by another particular software program that implements that API. |
| Application Store | An installed application on mobile phone which helps user to find new compatible applications with mobile phone platform and download them from Internet |
| Asset | Equipment (Computer, Keyboard, Monitor, Mouse, etc.), furniture (table, chair, grad seats, etc.), and software |
| Backend | The main software and hardware of the system |
| Bulk | More than one data |
| CMS | Information system used to provide and organize a collaborative process of creating, editing and managing content |
| Create | To make a new data in the database |
| External Resource | Information maintained by third parties |

| | |
|-----------------|---|
| Group | Combine more than one entity |
| Import | Add data to the system from a file |
| Interface | An equipment or program for communication or interaction |
| Inventory | All items (asset/license/person) that exists in the university |
| Level | A hierarchy among the users |
| License | Legal instrument governing the usage or redistribution of software |
| Permission | The ability of the users to view the contents or make changes to the contents of the system |
| Person | A person who has access to the system |
| Profile | Collection of personal data associated to a specific user |
| REST | API service A web service that provides access to the software interface of the system via the HTTPS protocol |
| Role | User's designation like Student, Dean, Professor, IT administrator, etc. |
| System | The Unified University Inventory System |
| System Database | Internal System Database |
| User | A person who interacts with the system as a consumer of services and information. |
| Web-Portal | A web application which present special facilities for users |
| | |

Appendix C: Content list for the app and web site

Following list are our proposal for the content. They are all draft, and can be modified accordingly

“Suv-info” ilmiy-ommabop elektron dastur

1. Water and the world
2. Water resources in Uzbekiston
3. The principles of national water law
4. Water usage
5. Complex of water management
6. Water and agriculture
7. Water costumers
8. Water resources management
9. Hydraulic and melioration
10. Water and ecology

1. Water and the world

- **Water of the world**
 - **Basic concepts related to water**
 - Surface waters
 - glaciers, oceans, seas, lakes, basins, wells, swamps and rivers
 - hydrotechnical constructions: dams, dumps and hydroelectric power stations
 - Ground waters
 - Recycled water
 - Quality of water
 - Quality of drinking water
 - Quality of surface waters
 - Quality of ground waters
 - Recycled water quality
 - **Distribution of natural water resources in all over the world**
 - Asia (central Asia)
 - Africa
 - Europe
 - North America
 - South America
 - Australia
- **Water of the world**
 - **International water basins**
 - Asia (central Asia)
 - Africa
 - Europe
 - North America
 - South America
 - Australia
 - **Transboundary water resources**
 - Transboundary surface water resources
 - Asia (central Asia)
 - Africa

- Europe
- North America
- South America
- Australia
- Asia (central Asia)
- Africa
- Europe
- North America
- South America
- Australia
- **The most famous hydrotechnical constructions in the world**
 - Asia (central Asia)
 - Africa
 - Europe
 - North America
 - South America
 - Australia
- **International law of water and politics**
 - International law of water
 - “the convention on the usage and protection of international Lakes and Transboundary arteries”
 - “convention on the right to use international watercourses without borders”
 - **International water organisations**
 - International water council
 - network of international basin organizations
 - International commission on irrigation and drainage
 - Bureau of international water resources
 - A network of Islamic countries for water resources management and development
 - Association of international water resources
 - International commission of large dams
 - International fund for saving the Island
 - Interstate water coordination commission

- **World and international water forums**
 - 4th world water forum
 - 5th world water forum
 - 6th world water forum
 - 7th world water forum
 - 8th world water forum
 - Asian and Pacific Ocean forum
- International cooperation on water issues
- Water and economic growth
- Water and energy
- Water and environment
- Diplomacy of water
- **Additional databases and useful links**

2. Water resources in Uzbekistan

- The Aral sea basin
- The Amudarya river basin
- The Sirdarya river basin
- The Zarafshan river basin
- The Karadarya river basin
- The Chirchik river basin
- Additional databases and useful links

3. National water and land fundamentals

- Agreements of water usage
- Legislation on environmental law
- National legislation on water and land
- Presidential and Governmental decision on water and land usage
- Ministerial decrees, normative documents and guidelines
- Additional databases and useful links

4. Water usage and water economy

- **Water costumers**
 - **Water supply**
 - Drinking water supply
 - Communal-economic water supply

- Industrial water supply
- Agricultural water supply
- **Hydropower**
- **Fishing**
- **Water transport**
- **Water economy**
 - Ministry of water resources
 - National organizations
 - territorial organizations
 - Atlas of water resources
- **Additional databases and useful links**

5. Water and agriculture

- **Agriculture**
 - Watering of agricultural
 - Irrigation zones and regime of agricultural crops
 - Methods of determining the demand for agricultural crops
 - Determination of the duration and standards of irrigation of crops using tensometer

Land reclamation

- Water-physical properties of soils
- Characteristic of Soil Mechanical Composition
- Density and volume of soils
- Water solubility, capillary and porosity properties of soil
- Ways to increase soil porosity and fertility
 - Principles of hydromelioration
 - Irrigation systems of agricultural crops
 - Modern irrigation technologies
 - Economical methods of irrigation of agricultural crops
 - Irrigation on the surface
 - Rainwater Irrigation
 - Irrigation from the soil
 - Drip irrigation
 - Irrigation under the soil
 - Sprout irrigation methods

Methods of determination of water economy

- Methods of determination of water economy
- Water distribution and accounting in irrigation systems
- Organization of water distribution among farms and application for water
- Use of Water Consumption and Measuring Instruments
- Water consumption
- Thomson spillway
- Chipoletti spillway
- HOUSEHOLD HEATING HOSE DRIVER

- Leveled parabolic tube
- Unstable flow
- Measurement of water consumption without measuring devices.
- Determination of water flow velocity
- Determination of water flow morphometric characteristics
- Methods and means for determining flow velocity
- The "claw" method for calculating the average velocity of the stream
- Determine the flow velocity by calculating the number of rotation cycles
- Determine the velocity of flow using the paced body speed
- The method of speed pressure determination
- Determination of the amount of water used for irrigation of agricultural crops
- Accounting for water from the farm
- Use of underground, collector, drainage and disposal water for irrigation of agricultural crops
- Use of simple water extraction and measuring equipment in the farm
- Use of modern reclamation techniques
- Water economy objects, their repair and construction works
- Irrigation network
- The collector-dennage network
- Hydraulic structures
- Pumping stations
- Electricity transmissions
- Transformer stations sections
- Water holding posts
- Repair and construction of water facilities and their maintenance
- **Salinity of the soil and desertification**
 - Salinity of the Earth
 - Desertification
 - Prevention of soil salinization

Additional database and useful links

6. Water infrastructures

(consumers are repeating)

Governmental organizations

- **Farms**
- Dehkan farms
- Water Consumers Associations
- Land plots
- Population's water needs
- Water culture and ethics
- Additional database and useful links

7. Water resources management

- Water Management Structure in Uzbekistan
- Transboundary river basin management in the region
- Water management organizations and their organizational structures

- Water accounting and management
- Water economy and finance
- Additional database and useful links

8. Water and Ecology

- Global climate change
- Air temperature removal
- Melting of ice
- Signs of the future climate change (Which are scarier? With respect to scenarios)
- Water and Climate Change
- Additional database and useful links

9. All about water

- Interesting information about water
- Water figures
- Most, most ... water
- The wise are about water
- Additional database and useful links

10. Additional databases and useful links

- Interactive animations
- Calculators
- 3D panoramas
- Video gallery
- Audio gallery
- Photo gallery
- Maps and atlases
- Infographics
- Electronic library
- Glossary