Personal details:

Name:	Yasir Mohamed Omer Hageltom
Profession/Specialization:	Water resources engineering /Hydro-informatics specialist.
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Nationality:	Sudanese.
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Countries of work experiences:	Sudan, Ethiopia, and Netherlands

Education:

2015-2017	M.Sc. in Water Science and Engineering (Hydro-informatics), UNESCO-IHE Institute for Water Education, Delft, Netherlands.
2005-2010	B.Sc. in Civil Engineering (First class), University of Khartoum, Khartoum, Sudan.

Membership in professional societies:

- Member of the Sudan Engineering Council (2011 – up to now)
- Fellow, Sudan Engineering Society (SES)
- Member of the executive committee of IHE Delft Alumni of Sudan (May 2019 - now)

Key qualifications:

Yasir Hageltom is a civil engineer specialized in water resources engineering. He is currently working as a researcher at the Hydraulics Research Center (HRC-Sudan). During his career, he has served as a team leader/or technical expert on various assignments in the fields of hydrology, water resources planning and management studies, river morphology, remote sensing applications, hydrologic and hydraulic modelling. He also has good experience in fieldwork including bathymetric survey, flow measurements and calibration of hydraulic structures. Yasir is regularly involved in lecturing, capacity building, and on-the-job training during his assignments.

Yasir has received his Bachelor of Science degree in Civil Engineering (First class) from the University of Khartoum in 2010. He graduated from the M.Sc. program in Water Science and Engineering, specialization: Hydro-informatics, from UNESCO-IHE, Delft, Netherlands in 2017. His M.Sc. research topic titled "Simulation and Optimization of Tekeze Atbara Reservoir System".

Other skills:

- Conduction of research work, the output of these research projects includes published papers in journal, conferences, seminars, and workshops; articles in bulletins and reports.
- Member of Sudanese delegation in the technical negotiation between Sudan, Egypt and Ethiopia on the filling and operation of the Ethiopian Grand Renaissance Dam (Sep 2019 - now)
- Member of the Technical Support Team for the National Independent Scientific Research Group (Sudan-NISRG) to enhance the level of understanding and cooperation among the three countries: Sudan, Egypt, and Ethiopia with regard to the filling and operation of the Grand Ethiopian Renaissance Dam (May 2018 – Aug 2018)
- Team leading and planning, project Leader of IHE funded project: River basin simulation for improved transboundary water management in Tekeze-Atbara (2017-2019), consultancy work for the Permanent Joint Technical Commission for Nile Water: site selection of gauging station upstream High Aswan Dam (2018). Team leader of consultancy mission to investigate a suitable location of water intake for AlBagair thermal generating power station (2017).
- Skilled in specialized computer programs: ArcGIS, MATLAB, HEC-HMS, HEC-RAS, SOBEK, RIBASIM, MIKE Hydro Basin, Riverware, MIKE Urban, SWAT, MODFLOW...etc.
- Attended many training courses on river basin models including SWAT, Riverware, RIBASIM and MIKE Hydro organized by World Bank, University of Oxford, and IHE Delft.

- Participated and attended many training courses on water resources, hydrological, hydrodynamic modelling, and decision support systems for WR, IWRM, GIS & RS, and flood risk mapping organized by IHE Delft, eleaf and HRC-Sudan.
- Preparation of technical and financial research proposals for several studies, e.g. Assessment of hydrological measurements on the Nile reach of Tamaniat-Hassanab, system model for real-time operation of the reservoirs in Sudan.
- Coordinating and teaching of the training course of "Introduction to 1D and 2D Hydrodynamic modelling" for the staff of the Ministry of water resources, irrigation and electricity, Wad Medani, Sudan (Mar 2018).
- Lecturer of the course "Hydrological data processing and validation", given to the staff of Egypt-Sudan Permanent Joint Technical Commission for Nile Water (Dec 2018).

Employment record:

From: April 2012 To: ongoing
Employer: Hydraulics Research Center (HRC-Sudan), Wad Medani, Sudan.
Positions held: Researcher

From: June 2014 To: September 2014
Employer: Eastern Nile Technical Regional Office (ENTRO), Addis Ababa, Ethiopia.
Positions held: Intern – Nile Cooperation for Results Project

From: October 2010 To: March 2012
Employer: DAR Consult Company, Khartoum, Sudan.
Positions held: Designer, Water and Wastewater Engineer.

Key research/consultancy projects:

Name of assignment or project: The Tekeze-Atbara (T-A) sub-basin: From river basin simulations towards cooperative approaches for transboundary water management
Year: May 2019 – ongoing
Location: Tekezze Atbara basin, Sudan and Ethiopia
Client: Ethiopian and Sudanese Ministries of Water Resources, Irrigation, and Electricity
Main project features:
This research project is a second phase of the project titled "River Basin Simulation of the Tekeze-Atbara River Basin". The main research focus is on designing options for institutional infrastructures that could lead to a more cooperative operation of the reservoir system in the T-A sub-basin. The research will be implemented by researchers from HRC-Sudan and Ethiopian Institute of Water Resources of Addis Ababa University (EiWR-AAU). Experts from IHE Delft, with support of resources persons from the region, will provide guidance and facilitation for effective project implementation.
Positions held: Project leader
Activities/task performed:

- Planning and leading a research team from different disciplines: law, political & engineering backgrounds, to achieve the purpose of the research project.
- Preparation of the inception workshop
- Delivering technical and financial annual report, and mid-year progress report to the project donors, i.e. DUPC2 & IHE Delft Netherlands.

Name of assignment or project: River basin simulation for improved transboundary water management in the Nile: Case study of the Tekeze-Atbara (T-A) sub-basin
Year: May 2017 – March 2019
Location: Tekezze Atbara basin, Sudan and Ethiopia
Client: Ethiopian and Sudanese Ministries of Water Resources, Irrigation, and Electricity
Main project features:
The project is funded by IHE Delft, under the DUPC2 program "South-South research". It is a research

project, based on river basin simulation model to be conducted jointly by researchers from Ethiopia (EiWR-AAU), and Sudan (HRC-Sudan). The main goal of this research project is to evaluate the costs and benefits of coordinated versus non-coordinated operation of the reservoirs system in the T-A sub-basin.
Positions held: Project leader/modeler
Activities/task performed:

- Data collection, Literature review, and extensive data analysis to process and prepare a reliable long-term hydrological dataset.
- A robust river basin simulation model was developed.
- Cost-benefit analysis to determine the most optimal operation strategy (ies)
- Organizing a regional conference to present the study output and other related studies on T-A sub-basin.
- Delivering technical and financial annual report, and mid-year progress report to the project donors, i.e. DUPC2 & IHE Delft Netherlands.

Name of assignment or project: Selection of the Nile gauging site upstream High Aswan Dam
Year: Mar 2018 – Jun 2018
Location: Northern state, Sudan
Client: The Egypt-Sudan Permanent Joint Technical Commission for Nile Water (PJTC)
Main project features:
It is a consultancy service aimed to find a suitable location of a discharge measuring station within the reach upstream of the High Aswan Dam and downstream Dal cataract. The study includes investigation on hydrology and morphology of the Nile river in the neighborhood of the proposed gauging site, as well as a bathymetric survey.
Positions held: Project leader/ Hydrologist
Activities performed:

- Data collection, literature reviews, land, and bathymetric surveys
- Hydrological analysis to estimate max and min water levels at the vicinity of the proposed locations.
- Developing a 1D hydrodynamic model to investigate the influences of the backwater curve of High Aswan Dam on the proposed sites.
- Series of satellite images were analyzed to detect morphological changes along the reach of the study.
- Preparing the final technical report, and the presentation of key finding results.

Name of assignment or project: Investigation of the suitable location of AlBagair water intake
Year: Sep 2017 – Oct 2017
Location: Khartoum South, Sudan
Client: Sudanese Thermal Power Generating Company (STPGC)
Main project features:
The main purpose was to provide technical advice to STPGC to recommend the most suitable location of the water intake of AlBagair power generating plant, which subjects to minimum morphological changes. The study also provides additional information to support the conceptual design of the intake that includes; variation of water level, type of soil in the area, and conceptual design of the pump house.
Positions held: Project leader
Activities performed:

- Planning and leading a team for the topographical and bathymetric surveying of the project site.
- Conducting the hydrological analysis of the study area and estimating the frequency (Max and Min) of water level at the pumping station site.
- Assessment of the historical morphological changes near the station using remote sensing techniques.
- Preparation of the final technical report, and the presentation of key finding results

Name of assignment or project: Simulation and Optimization of Tekeze Atbara Reservoirs system
Year: October 2015-April 2017 (6 months)
Location: Sudan, and Ethiopia
Client: M.Sc. Thesis/ UNESCO-IHE, Delft, Netherlands
Main project features: This study was conducted on the Tekeze Atbara (T-A) basin, which is experiencing a new development of dams for hydropower and irrigated agriculture purposes, both in Ethiopia and Sudan. The main objective of this research is to investigate the effect of the new development projects in the basin; and how to optimally operate the existing system to maximize benefits both at national and basin levels. The specific objectives of this study can be listed as follows:

- To evaluate the effects of the new dams in the T-A basin on the water availability for hydropower and irrigation.
- To develop and recommend optimal operation reservoir operation rules for the existing cascade dams in Sudan.
- To quantify the benefit of the different operation policies in Sudan.

Positions held: M.Sc. candidate
Activities/task performed:

- Data collection, Literature review, and extensive data analysis to process and prepare a reliable long-term reliable hydrological dataset to be used in the simulation model.
- A robust river basin simulation model was developed to simulate and evaluate the performance of reservoirs system operation under various scenarios.
- Evaluation of different operation rules considering two main sectors: irrigated agriculture and hydropower generations.

Name of assignment or project: On-farm Water Management in Gash Agricultural Scheme Phase I - Data analysis
Year: Feb 2015 - April 2016
Location: Kassala, Sudan
Client: International Fund Agriculture Development (IFAD)
Main project features:
The project is part of IFAD funded research project titled “From Africa to Asia and Back Again: Testing Adaptation in Flood-based Farming Systems”. The research aims to evaluate the performance of the existing conventional irrigation system in the Gash Agricultural Scheme on farm level and to introduce a newly effective irrigation scheduling instead of the current one.
Positions held: Hydrologist, fieldwork team leader
Activities performed:

- Leading a team to conduct fieldwork activities including land survey, flow measurements, and moisture contents measurements at selected and representative sampling points.
- Processing and analysis of collected data and participating in the preparation of the data collection report.
- Hydraulic analysis to determine water availability and water balance in the root zone.
- Simulation and evaluation of surface irrigation systems using WinSRFR model.

Publications:

Journal papers:-
Amira A.A. Mekawi, **Yasir Hageltom** and Younis A. Gismalla “Calibration of turbidimeter for measuring suspended sediment concentrations in the Blue Nile and Atbara River systems in Sudan” Published in Sudan Journal of Agricultural Research (2015),25,111-122. ISBN 1561-770X

Conference papers:-
Yasir Hageltom, Yonas Girma, “River Basin Simulation for Improved Transboundary Water Management in the Nile Tekeze-Atbara”, presented at the regional conference of Tekeze-Atbara water related studies, Khartoum, 24 March 2019.

Yasir Hageltom, "Simulation and Optimization of Tekeze-Atbara reservoirs system", presented at the inception workshop of IHE funded project of Tekeze-Atbara study, Upper Atbara Complex Dam, Gadaref, 22 May 2017.

Books:-
Yasir Hageltom "Hydrological Data Analysis in Gash River" LAP LAMBERT Academic Publishing (2017), ISBN 978-3-659-68952-9

Researches and technical reports:-
Yasir Hageltom et. al. "River Basin Simulation for improved transboundary water management in the Nile: Case study of the Tekezze-Atbara sub-basin", Technical report, March 2019.

Yasir Hageltom et. al. "Selection of the Nile gauging site upstream High Aswan Dam", Technical report, June 2018.

Yasir Hageltom et. al., "Investigation of the suitable location of Al Bagair water intake", technical report, consultancy service for the Sudanese Thermal Power Generating company, October 2017.

Yasir Hageltom, "Simulation and optimization of Tekeze-Atbara resevoirs system", M.Sc. thesis, IHE delft, Netherlands, April 2017.

Amira A.A. Mekawi, **Yasir Hageltom** and Ahmed A. Alamin, "On-farm Water Management in Gash Agricultural Scheme – Phase I data analysis", Technical report, IFAD funded research project titled "From Africa to Asia and Back Again: Testing Adaptation in Flood-based Farming Systems", April 2016.

Yasir Hageltom, "Hydrological analysis and data validation: White Nile and Main Nile Rivers", HRC-Sudan technical report, part of HRC-Sudan research project titled "Assessment of the impacts of the Grand Ethiopian Renaissance Dam on the downstream hydrology and water resources", May 2015.

Yasir Hageltom and Al Nour Eltayeb, "Bathymetric Survey of Merowe Dam Reservoir", HRC-Sudan fieldwork report, January 2015.

Yasir Hageltom, "Irrigation Water Management System for Eastern Nile Basin Countries", Technical report, result of internship program as part of Nile Cooperation for Results Project (NCORE), Eastern Nile Technical Regional Office (ENTRO), September 2014.

Yasir Hageltom, Amira A.A. Mekawi, and Younis A. Gismalla, **"**The Use of Turbidimeter in Suspended Sediment Measurements", technical report, Hydraulics Research Center, April 2014.

Younis A. Gismalla, Abdelnasir Khidir, and **Yasir Hageltom**, "The Gash Flood Early Warning Tool", Interim report, The 'Smart ICT-Africa' Project funded by the International Fund for Agricultural Development (IFAD), June 2013.

Yasir Hageltom, "Hydrological Data Analysis in Gash River", research study, part of HRC-Sudan and UNESCO-IHE sponsored project titled "Spate Irrigation for Rural Economic Growth and Poverty Alleviation in Sudan", January 2013.

Training courses and workshops:

- Online training course on RESCON (Reservoir Conservation Model), organized by the World Bank office. 2019
- Participated in workshop training on precipitation estimation from remotely sensed information using Artificial Neural Networks, organized by UNESCO Regional Office for Eastern Africa in Mekerere University Kampala, Uganda. 2018
- Online training course on the use of remote sensing for water resources management, organized by the World Bank office. 2018
- Training course on SWAT modelling program, organized by the World Bank office in Khartoum, Sudan. 2017

- Hydrological and environmental systems modelling, the South Florida Water Management District, Florida, USA. 2016
- Training course on RiverWare program, organized by the University of Khartoum in cooperation with the University of Oxford, Khartoum, Sudan. 2015
- Geographic Information System (GIS) and Remote Sensing (RS), Hydraulics Research Center, Wad Medani, Sudan. 2014
- Revisiting Water Management in Irrigation Systems in Sub-Saharan Africa, organized by UNESCO-IHE and the Hydraulics Research Center, Wad Medani, Sudan. 2013
- Training workshop on Smart ICT for Weather and Water Information and advice to Smallholders in the Gash, Kassala, Sudan. 2013
- Spate Irrigation and Water Management under Drought and Water Scarcity course, UNESCO-IHE, Delft, Netherlands. 2012
- 6 months training period on the monitoring and operation of El Selah Eltibi hospital wastewater treatment plant, Omdurman, Sudan. 2011

References:

Prof. Yasir A. Mohamed

- Minister of Irrigation and Water Resources of the Republic of Sudan (Sep 2019 – up to now)
- Director General of Hydraulics Research Center, Ministry of Water Resources, Irrigation and Electricity, Wad Medani, Sudan (2012 - 2019).
- Associate Professor of Water Resources Management at IHE Delft Institute for Water Education, Delft, Netherlands.

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