

LEAD CONSULTANT | PROFESSIONAL CURRICULUM VITAE

Lars Østergaard Jørgensen

Senior Hydrology, Hydraulic Modelling & Drainage Specialist | 20+ years of international experience

ASSOCIATION	Proposed Lead Consultant / Key Expert, YonSen Group ApS
NATIONALITY / RESIDENCE	Danish / Denmark
CURRENT POSITION	Senior Chief Project Manager, Ramboll Danmark A/S
PROPOSAL CONTACT	contact@yonsengroup.com www.yonsengroup.com

Professional Profile

Senior project leader and specialist with more than 20 years of experience in hydrology, hydraulic modelling, sanitary and stormwater drainage, flood-risk management and climate adaptation. Lars has led and supported multidisciplinary teams through planning, feasibility, tender design, detailed design and construction support for major assignments in Europe, Asia, the Middle East and Africa. His portfolio spans airports, immersed and bored tunnels, bridges, urban drainage, flood early-warning systems, pump stations, basins, water-supply programmes and nature-based solutions.

Key Qualifications

- Integrated catchment studies, design hydrology, flood-risk assessment and climate-vulnerability analysis
- Coupled 1D/2D modelling of rivers, urban drainage networks and surface flooding
- Hydraulic and drainage design for airports, tunnels, bridges, ports, roads and urban infrastructure
- Stormwater networks, pump stations, basins, outfalls, channels and complex hydraulic structures
- CFD assessment and procurement, interpretation and quality assurance of physical hydraulic models
- Climate adaptation, cloudburst planning, blue-green infrastructure and nature-based solutions
- Project and discipline leadership, multidisciplinary coordination, QA/QC and client/stakeholder dialogue
- Delivery across feasibility, concept, tender and detailed design, including reports, drawings and coordinated 3D models

PROPOSAL USE NOTE. Project references in this CV describe Lars Østergaard Jørgensen's individual professional experience gained through current and previous employers and assignments. They are not presented as corporate references of YonSen Group ApS. Any appointment remains subject to availability, the agreed proposal scope and applicable approvals.

Education, Memberships and Training

YEAR	INSTITUTION / BODY	QUALIFICATION / STATUS
2004	Engineering College / Ingeniørhøjskolen Aarhus, Denmark	B.Sc. Civil Engineering / Diplomingeniør
Since 2001	Danish Society of Engineers (IDA)	Professional member
Since 2004	EVA - Exchange of Experience in Water Environment Technology	Professional network / wastewater committee
2023	Ramboll, Denmark	Financial Project Management training

Languages and Geographic Experience

LANGUAGE	READING	SPEAKING	WRITING
Danish	Native	Native	Native
English	Excellent	Excellent	Excellent
German	Good	Fair	Fair

Countries of project experience include Denmark, the Philippines, Bangladesh, Malaysia, Singapore, India, China, Viet Nam, Thailand, the Faroe Islands, Turkey, Iraq, Oman, Qatar, the United Arab Emirates, Saudi Arabia, Uganda, Rwanda, the Maldives, Morocco, Greece, the United Kingdom, Sweden, Norway, Italy, Venezuela, the USA and Canada.

Employment History

PERIOD	EMPLOYER	POSITION
2022 - present	Ramboll Danmark A/S	Senior Chief Project Manager
2020 - 2022	COWI A/S	Leading Project Manager
2016 - 2020	COWI A/S	Chief Specialist / Senior Specialist
2009 - 2016	COWI A/S	Specialist / Project Manager
2005 - 2008	COWI - Larsen Joint Venture, Oman	Group Leader & Engineer
2004 - 2005	COWI A/S	Engineer / Project Engineer

Technical Expertise and Software

- Hydrology: rainfall analysis, runoff estimation, catchment delineation, water balance, flood-frequency assessment and scour screening
- Hydraulic modelling: MIKE+, MIKE Urban, HEC-RAS, SWMM, SewerGEMS, Scenarify and InfoWorks; integrated 1D/2D workflows
- Advanced hydraulics: Computational Fluid Dynamics (CFD), physical model testing, drop shafts, sumps, outlets and high-capacity tunnels
- Drainage design: stormwater and wastewater networks, culverts, channels, pumping stations, basins, outfalls, airport and tunnel systems
- Digital delivery: coordinated 3D models, technical drawings, model review, QA/QC, method statements, design reports and tender documentation

Selected Project Experience

The following assignments are selected for their relevance to hydrology, hydraulic modelling, drainage design, climate adaptation and complex infrastructure. Client/authority and employer are identified separately.

Sibu Cloudburst and Integrated Infrastructure Masterplan, Stage 2 and 3

MALAYSIA | 2024-2025 | TEAM LEAD / DISCIPLINE LEAD FOR HYDRAULIC MODELLING

Client / authority: Government of Sarawak / Land Custody and Development Authority (LCDA) | Employer at time of assignment: Ramboll Danmark A/S

Project background. Cloudburst and urban-infrastructure masterplanning for Sibu and Bukit Assek, where low terrain, high groundwater, nearby rivers, soft ground and settlement combine to intensify flood risk across an approximately 21 km² catchment.

Contribution. Reviewed studies and data, defined survey requirements, led the modelling team and developed coupled 1D river and urban-drainage models with 2D surface-flood modelling. Assessed 100-year events, cloudburst control, nature-based measures and optimisation of 11 major pumping stations with retention basins.

Tengah Project 2 - Forest Lake Park, Retention Pond and Conveyance Channel

SINGAPORE | 2022-2029 (ongoing) | QA/QC FOR HYDRAULIC MODELLING

Client / authority: Housing & Development Board (HDB) | Employer at time of assignment: Ramboll Danmark A/S

Project background. Hydraulic planning for a 700 ha green and smart town expected to accommodate approximately 42,000 dwelling units. The scheme integrates a 14 ha retention pond and a 22-45 m wide conveyance channel within the Forest Lake Park landscape.

Contribution. Reviewed studies and design guidelines, advised the modelling team and quality-assured HEC-RAS models and reports. Assessed downstream backwater effects for dry- and wet-weather conditions, including climate-change scenarios, and supported client dialogue.

Peer Review of Flood Risk Analysis - China IDC Project, Zhuozhou

CHINA / SINGAPORE | 2024 | SENIOR CATCHMENT SPECIALIST / PEER REVIEWER

Client / authority: Zidane One Pte. Ltd. | Employer at time of assignment: Ramboll Danmark A/S

Project background. Independent review of flood risk for a data-centre site in the Zhonghan Yun Intelligent Industrial Park after Typhoon Doksuri. The catchment includes major rivers, flood-diversion areas and reservoirs with substantial storage capacity.

Contribution. Reviewed hydrology, hydraulic scenarios, climate projections and event interpretation; related observed impacts to design return periods and a scaled 100-year scenario; and held technical discussions with the client and report authors.

Baguio City Smart Flood Warning, Information and Mitigation System

PHILIPPINES | 2023-2024 | QUALITY ASSURANCE AND SENIOR CATCHMENT / HYDROLOGY SPECIALIST

Client / authority: Asian Development Bank (ADB) / Baguio City Government | Employer at time of assignment: Ramboll Danmark A/S

Project background. Development and consolidation of a flood early-warning system for a mountainous city exposed to frequent tropical storms, flash flooding and rapidly changing river conditions. The system combines real-time observations with forecast-driven hydraulic simulation in four river basins.

Contribution. Provided senior hydrology and hydraulic QA, reviewed calculations and model outputs, supported the design lead and collaborated with ADB, the city government and local agencies during pre-monsoon, monsoon and post-monsoon system assessments.

Urban Climate Resilient Infrastructure Project - Feasibility Studies for Sirajganj, Gaibandha and Islampur

BANGLADESH | 2022-2024 | SENIOR SPECIALIST / HYDRAULIC MODELLING QA

Client / authority: KfW / Local Government Engineering Department (LGED) | Employer at time of assignment: Ramboll Danmark A/S

Project background. Feasibility studies for climate-adapted urban development and infrastructure, including climate-vulnerability assessment, integrated stormwater management plans, investment screening, design and costing, environmental and social studies and disaster-risk assessment.

Contribution. Led and supported hydraulic modellers, identified data and survey gaps, developed 1D river and drainage models coupled to 2D surface-flood modelling, prepared vulnerability assessments and contributed to workshops, reporting and investment documentation.

Hydrological Study and Conceptual Drainage Design for a 30 MW Solar PV Plant

MOROCCO | 2021-2022 | DISCIPLINE LEAD / HYDRAULIC DESIGN TEAM LEAD

Client / authority: GPM Holding S.A. / Engine Energie SA / AMEA Power LLC | Employer at time of assignment: COWI A/S

Project background. Hydrology and conceptual drainage design for a utility-scale photovoltaic plant situated in a flood-prone setting. The assignment required development of rainfall inputs and comparison of drainage alternatives under a 100-year design event.

Contribution. Managed the project and hydraulic team, reviewed previous studies, developed design rainfall, performed 1D/2D modelling and flood-risk screening, and prepared the conceptual drainage strategy and technical documentation.



Khor Al Zubayr Immersed Tunnel - Detailed Design

IRAQ | 2021-2022 | DRAINAGE DISCIPLINE LEAD

Client / authority: Daewoo Engineering & Construction Co. Ltd. | Employer at time of assignment: COWI A/S

Project background. Detailed design of an approximately 2.5 km immersed road tunnel with cut-and-cover sections beneath Khor Al Zubayr. Drainage interfaces covered portal areas, ramps, tunnel systems and coordinated underground utilities.

Contribution. Led the drainage discipline, reviewed existing studies, managed portal-area drainage and specialist tunnel/ramp inputs, and coordinated the 3D drainage-network design with the wider multidisciplinary model.

Fehmarnbelt Fixed Link

DENMARK / GERMANY | 2020-2022 | DRAINAGE SENIOR SPECIALIST

Client / authority: Femern Link Contractors (FLC) | Employer at time of assignment: COWI A/S

Project background. Drainage design for the 18 km immersed road-and-rail tunnel between Lolland and Fehmarn, including tunnel and portal areas, alignments and complex hydraulic structures within one of Europe's largest infrastructure projects.

Contribution. Provided senior specialist support for ramp and tunnel collection and conveyance systems, technical reports, drawings and coordinated 3D models, supported 1D hydrodynamic modelling and reviewed CFD analyses for tunnel drainage.

Noida International Airport - Airside Drainage and Flood Risk

INDIA | 2020-2022 | DISCIPLINE LEADER FOR AIRSIDE DRAINAGE

Client / authority: TATA Projects Limited | Employer at time of assignment: COWI A/S

Project background. Pre-bid and preliminary engineering for a major new international airport near Jewar, Uttar Pradesh. The drainage scope addressed airport-wide hydrology, flood pathways, erosion risk and coordinated design interfaces.

Contribution. Led review of existing studies, hydrological and hydraulic simulations, flood-risk and erosion assessment, and preliminary/detailed drainage development, including coordination of the drainage design within 3D project models.

Gabiro Farms Irrigation Scheme - River Intake and Pumping Station

RWANDA | 2019-2020 | PROJECT MANAGER / HYDRAULIC DESIGN LEAD

Client / authority: Remote Partners Ltd. | Employer at time of assignment: COWI A/S

Project background. Basis, outline and detailed design for an intake from the Akagera River, desilting basin and pumping station with peak capacity of 11 m³/s, together with structures along an approximately 20 km irrigation canal.

Contribution. Managed the overall assignment and led hydraulic design across widely varying river conditions up to the 100-year event. Coordinated intake and compound design, canal structures, CFD modelling and interfaces with structural engineering.

Jebel Ali Stormwater and Groundwater Tunnel

UNITED ARAB EMIRATES | 2017-2020 | DISCIPLINE LEADER / HYDRAULIC DESIGN TEAM LEAD

Client / authority: PORR-SIX CONSTRUCT Joint Venture | Employer at time of assignment: COWI A/S

Project background. Hydraulic design of a 10 km tunnel with 10 m internal diameter, four drop shafts and a shoreline pumping station. The system receives stormwater and groundwater from approximately 490 km² with total inflow up to 110 m³/s.

Contribution. Managed the hydraulic team and design of tunnel, shafts and connection chambers. Integrated numerical modelling, CFD and two scaled physical models to assess large shaft drops, air-water behaviour and conveyance performance.

Svanemølle Stormwater Tunnel, Copenhagen

DENMARK | 2016-2022 | HYDRAULIC SENIOR SPECIALIST

Client / authority: HOFOR | Employer at time of assignment: COWI A/S

Project background. Hydraulic development of an approximately 8 km cloudburst tunnel with diameters of 2.5-5 m, eight shafts and an outlet structure, designed to convey up to 42 m³/s from flood-prone areas of Copenhagen.

Contribution. Developed hydraulic design method statements, procured physical-model testing and quality-assured specialist reports. Reviewed CFD and physical-model results for shafts, tunnel operation and the outlet structure.

Silvertown Crossing - Tunnel and Ramp Drainage

UNITED KINGDOM | 2018-2021 | DRAINAGE SPECIALIST

Client / authority: Ferrovial Agroman | Employer at time of assignment: COWI A/S

Project background. Tender and detailed design for a 1.4 km twin-bore road tunnel beneath the River Thames, linking Silvertown with the Greenwich Peninsula in East London.

Contribution. Undertook hydrological analysis and drainage design for tunnel and ramp areas, including two ramp sumps and one deep tunnel sump, and supported the design through tender and detailed-development stages.

Lateral Interceptor Sewers LIS-02 - Inner Doha Resewerage Implementation Strategy

QATAR | 2015-2016 | HYDRAULIC DISCIPLINE LEAD

Client / authority: Qatar Building Company | Employer at time of assignment: COWI A/S

Project background. Detailed design of approximately 20 km of microtunnelling and about 70 temporary and permanent shafts as part of the conversion of Doha South's pumped wastewater network to a gravity system.

Contribution. Led the hydraulic design team and InfoWorks modelling, and coordinated advanced CFD and physical-scale testing for special structures where conventional network calculations were insufficient.

Entebbe International Airport Expansion

UGANDA | 2014-2018 | DRAINAGE DISCIPLINE LEADER

Client / authority: China Communications Construction Co., Ltd. / Uganda Civil Aviation Authority | Employer at time of assignment: COWI A/S

Project background. Preliminary and detailed design for major airside and landside expansion, including runway upgrading, taxiway and apron works, terminal and cargo facilities, utilities, drainage and airfield lighting.

Contribution. Managed the drainage team and led airside and landside drainage design, including catchment studies, stormwater and wastewater network modelling, design coordination and delivery of tender and detailed-design documentation.

Muscat and Salalah International Airports

OMAN | 2005-2010 | GROUP LEADER FOR STORMWATER DRAINAGE

Client / authority: Ministry of Transport and Communications, Sultanate of Oman | Employer at time of assignment: COWI - Larsen Joint Venture

Project background. Concept, preliminary and detailed design of stormwater and sewerage systems for expansion of two international airports, including runways, taxiways, aprons, terminals, service areas and highway access.

Contribution. Led the stormwater team and designed airfield drainage from concept through detailed design. Work included catchment studies, hydraulic modelling, flood-risk assessment and three major Muscat outlets to the Bay of Oman with combined capacity of approximately 500 m³/s.

Additional Project Portfolio

The table below records additional assignments from Lars's source CVs. Together with the detailed references above, it presents the breadth of his individual project experience.

PERIOD	COUNTRY	ASSIGNMENT / CLIENT	ROLE
2022-2024	Denmark	Reduction of Sewage Overflow, Frederikssund Novafos A/S	Senior Specialist / Modelling QA
2022-2024	India	EKF Green Advisory Pool - Sustainable Water Supply Ministry of Foreign Affairs of Denmark	Project Manager
2022-2023	India	Partnership Project - Non-Revenue Water and Leakage Optimisation, Pune Ministry of Foreign Affairs of Denmark / Larsen & Toubro	Project Manager
2019-2024	Philippines / ASEAN	Southeast Asia Urban Services Facility - ASEAN Smart Cities Initiative Asian Development Bank	Senior Specialist / Hydrology QA
2019-2020	Greece	THPA Pier 6 Expansion Thessaloniki Port Authority S.A.	Drainage Senior Specialist
2019-2020	Rwanda	Rugarama Social Housing Civil Consultancy - 27 ha / 2,000 units Remote Partners Ltd.	Discipline Lead / Project Manager
2018-2019	India	Mumbai Trans Harbour Link Larsen & Toubro / MMRDA	Bridge Drainage Specialist
2018	Uganda	Oil Roads Package 1 - Tangi River Crossing China Communications Construction	Hydraulic Specialist

PERIOD	COUNTRY	ASSIGNMENT / CLIENT	ROLE
2017-2019	United Kingdom	Lower Thames Crossing Technical Partner Highways England	Drainage Specialist / Reviewer
2017	Denmark	Analysis of Industrial Stormwater Drainage Network, Fredericia Carlsberg Supply Company Denmark A/S	Hydraulic Discipline Lead
2016-2017	Uganda	Kampala Northern Bypass Ministry of Finance	Hydraulic Discipline Leader
2015-2017	Denmark	CRSH Sydhavnen Metro Metroselskabet I/S	Tunnel Drainage Specialist
2015	Denmark	New Bridge across Storstrømmen Danish Road Directorate	Hydraulic / Bridge Drainage Specialist
2015	Maldives	Gan International Airport - Detailed Design MT Højgaard A/S	Drainage Discipline Leader
2014-2018	Qatar	Doha Metro, Red Line North CIO Joint Venture	Tunnel and Station Drainage Specialist
2014-2017	Denmark	Stage Plan for Catchment to Aulum Wastewater Treatment Plant Herning Vand A/S	Project Manager
2014-2017	Denmark	Separate Sewerage of Vorup Randers Spildevand A/S	Hydraulic Discipline Lead
2014	Denmark	Turnkey Advisory - Decommissioning of Billund Wastewater Treatment Plant Billund Spildevand A/S	Hydraulic Discipline Lead
2014	Denmark	Decommissioning of Ålum Wastewater Treatment Plant Randers Spildevand A/S	Hydraulic Discipline Lead
2012	Denmark	Decommissioning of Seven Wastewater Treatment Plants in the Videbæk Catchment Ringkøbing-Skjern Forsyning A/S	Hydraulic Discipline Lead
2011-2013	Faroe Islands	Vágar Airport Expansion	Airside Drainage Discipline Leader
2011-2012	Denmark	Separate Sewerage of Risskov Brdr. Møller A/S / Aarhus Vand	Drainage Specialist / Hydraulic Lead
2010-2013	Bangladesh	Hazrat Shahjalal International Airport Taxiway Rehabilitation Munck Asfalt A/S	Airside Drainage Discipline Leader
2010	Denmark	Gasværksvej Sewer Rehabilitation, Aabenraa Aabenraa Forsyning	Hydraulic Discipline Lead

Assignment Coverage

- Project stages: strategy and masterplanning, feasibility, climate-risk assessment, concept design, tender design, detailed design, construction support and independent technical review
- Infrastructure: airports, road and rail tunnels, immersed tunnels, bridges, roads, ports, utility tunnels, pumping stations and irrigation structures
- Urban water: stormwater and wastewater networks, sewer separation, treatment-plant decommissioning, overflow reduction, flood early-warning and non-revenue-water programmes
- Delivery responsibilities: project management, discipline leadership, model development and review, technical reporting, client workshops, stakeholder coordination and quality assurance