

Wastewater management

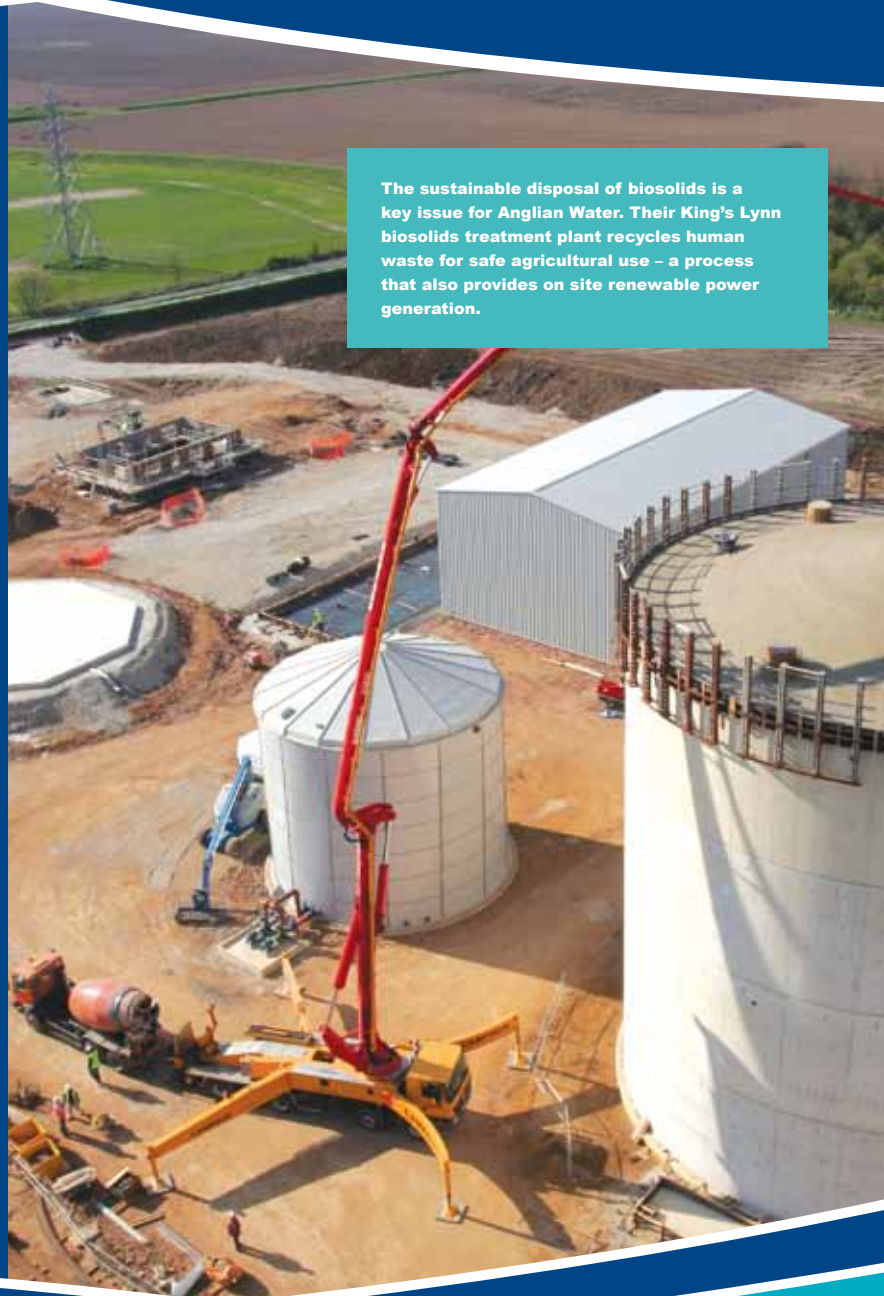
Delivering cost effective, environmentally sensitive and sustainable solutions in India

Mott MacDonald is a uniquely diverse global management, engineering and development consultancy. Our US\$1.7 billion business spans 140 countries with over 14,000 staff working in 12 core sectors.

Water scarcity and environmental issues are creating new challenges in manufacturing processes in various industries and also in public utilities. At Mott MacDonald we believe better, sustainable projects are achieved through built-in environmental care which is why we blend sustainable environmental solutions into the development process from day one.

Our experience ranges from introducing appropriate on site sanitation facilities in poorer urban and rural environments to planning and implementing major automated wastewater treatment plants and water reclamation plants for domestic and industrial effluent.

The sustainable disposal of biosolids is a key issue for Anglian Water. Their King's Lynn biosolids treatment plant recycles human waste for safe agricultural use – a process that also provides on site renewable power generation.





The improved sewerage and wastewater treatment plants in Mangalore and Udipi have had a big impact on the quality of coastal waters and is part of Karnataka five coastal town urban infrastructure developments.



We are providing design and project management for over 100 contracts in five towns, tackling drinking water supply, sewerage and solid waste disposal, and management of stormwater run-off.

Our services

Investigation/surveys

- Reconnaissance
- Site investigation
- Topographical surveys
- Geotechnical investigations

Studies

- Techno-economic feasibility studies
- Economic and cost modelling
- Financial modelling
- Tariff modelling
- Due diligence
- Technology evaluation
- Documentation/validation

Planning

- Concept planning
- Master planning
- Utility planning
- Project planning
- Stakeholder consultation
- Socio-economic development plans
- Sustainable development planning
- Infrastructure development
- Environmental impact assessment

Design

- Preliminary/concept design
- Detail design
- Design assistance
- Civil engineering
- Structural engineering
- Process engineering
- Network modelling
- Mechanical/electrical engineering

Tender and bid preparation

- Tender advice
- Bid process management
- Bill of quantities/cost estimation
- Preparation of tender documents
- Bid evaluation

Construction supervision/project management consultancy

- Project management
- Construction supervision
- Contract procurement
- Monitoring and evaluation
- Programme management
- Procurement advice

Our track record

Sewage disposal project, Mumbai The sewage disposal project aims at increasing the quality and reliability of wastewater collection, treatment and disposal through affordable and sustainable technologies to 437sq km area generating 2583Mld sewerage to provide a healthier and clean environment for the people of Mumbai. We are undertaking planning, designing, construction supervision and project management of improvements to the wastewater systems. These include rehabilitation of 39km of trunk sewers, 21km of replacement tunnelled sewers, replacement of seven pumping stations with capacities from 750-1726Mld, rising mains up to 3m in diameter, seven sewage treatment plants with capacities from 85 to 1726Mld and a 3km long marine outfall.

Underground drainage system phase II, Ahmedabad The project aimed at providing a 42.5km long underground drainage system for the city of Ahmedabad. We assisted in the preparation of techno-feasibility report, detailed project report, project progress reports, construction supervision, project monitoring and quality control and assurance during project implementation. We also undertook detailed engineering design of collection and conveyance system, 1200-1800mm dia main sewer line, 600-1100mm dia secondary sewer system and 100Mld pumping station.



Mott MacDonald has been awarded design and supervision of infrastructure for the **US\$1.6 billion Dilmunia Health Island medical centre and resort in Bahrain**. Built on 125 hectares of reclaimed land, it will house a diagnostic centre, and centres for nutrition and diabetes, cosmetic surgery, aesthetic medicine, women's health, paediatrics, alternative medicine and sports medicine, spas, boutique hotels, residential clusters, commercial facilities and recreational amenities.



Mott MacDonald played a major role in the reconstruction of Vilufushi Islands in the Maldives post tsunami.

City development project, Mysore For Karnataka urban infrastructure development project phase I, Mott MacDonald conceptualised and designed the sewerage network for the city of Mysore. The project aimed at expanding the 28km long sewerage collection network and facilitating construction of 30, 60 and 67Mld capacity sewage treatment plants each based on facultative aerated lagoon system. The city's drainage system improved post addition of a 37km long stone pitched storm water drains.

Vilufushi sewerage system, Maldives Working with the British Red Cross, we played a major role in the reconstruction of Vilufushi, Maldives, after the 2004 tsunami destroyed over 90% of the island's buildings and infrastructure. Water supplies, sewage collection and treatment, and power generation and distribution infrastructure have been provided, serving 250 new houses and a secondary school. We designed an underground sewerage network, sewage treatment plant, sea outfall, tertiary treatment, sludge drying beds, elevated service reservoir and underground sump for groundwater recharge, and a sustainable operation and maintenance mechanism with 10 year life cycle cost.



We are providing planning, design and project management consultancy services to this **750MLD pumping station located at Versova in the state of Maharashtra** and is a part of the Mumbai sewerage disposal project II.

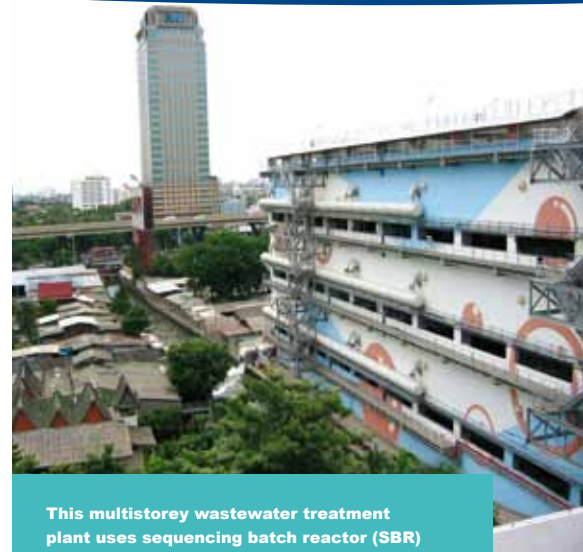
Sewerage and solid waste management, Shillong ADB assisted sewerage and solid waste management project aims at implementing an investment programme for better urban infrastructure facilities in the north east capital cities – Agartala, Aizwal, Gangtok, Kohima and Shillong. We are providing detail engineering design, construction supervision and management support and beneficiary awareness during the implementation of the sewerage system and solid waste management components for the city of Shillong. We are also providing capacity building and financial management assistance for strengthening urban institutions.

Sewerage system for six towns, Tamil Nadu World Bank assisted Tamil Nadu urban development project phase II conceived an improved 491km long sewerage system for six towns – Komarapalayam, Gobichettipalayam, Pudukottai, Sathyamangalam, Udumalaipet and Villupuram in the state of Tamil Nadu. The major components of the project include 11 sewage pumping stations, 28 pumps with a flow capacity ranging from 359lpm to 17126lpm.

Landmark global projects

BMA4 Wastewater project, Bangkok, Thailand The project encompassed trunk sewers and pumping stations to transport sewage flows to a treatment plant. We were involved in the design and construction supervision of the project covering a densely populated area of 33sq km in the northern Bangkok. The dry weather flow was designed to 200Mld capacity and the interceptor system with 1000Mld capacity.

Integrated sanitation and sewage infrastructure project, Egypt The project aimed to improve the lives of 1.2 million people and community health through provision of improved sanitation and sewerage services in the project area. We formulated out the investment plan in the first phase, undertook the feasibility study and helped prepare the project implementation manual, procurement plan and bidding documents for the first phase of the project.



This multistorey wastewater treatment plant uses sequencing batch reactor (SBR) technology and is part of a scheme to improve water quality in the canals and rivers around Bangkok, Thailand.

Brighton and Hove wastewater treatment, UK

Mott MacDonald undertook site selection, feasibility study and planning for the project aimed at wastewater treatment of the Brighton and Hove catchments area. We provided complete engineering design, project appraisal and technical services to the entire procurement process. The project comprised of lamella primary settlement and biologically activated flooded filter (BAFF) secondary treatment waterworks. The sludge recycling centre produced a dry pellet product for soil conditioning. The plant was designed for a flow to full treatment (FFT) of 233Mld to cater to 0.3 million people. Other associated infrastructure works comprised of four TBM 10km tunnels, three transfer pumping stations and a sea outfall.

Shanghai sewerage project III, China

Mott MacDonald provided design review, procurement assistance and construction management services to the World Bank funded Shanghai urban environment project. The wastewater collection system covered an area of 167.7km² and 134km long collection sewers, nine pumping stations and 9.5km trunk sewers. The wastewater was treated in a 500,000m³/day capacity plant located at Zhuyuan in the Pudong district of Shanghai. The treated effluent is discharged into the Yangtze River through twin outfall pipes.



As technical advisor to the lead arrangers, Mott MacDonald provided support throughout the development of the new 31,800 m³/hour Harnaschpolder wastewater treatment plant in the Netherlands.

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