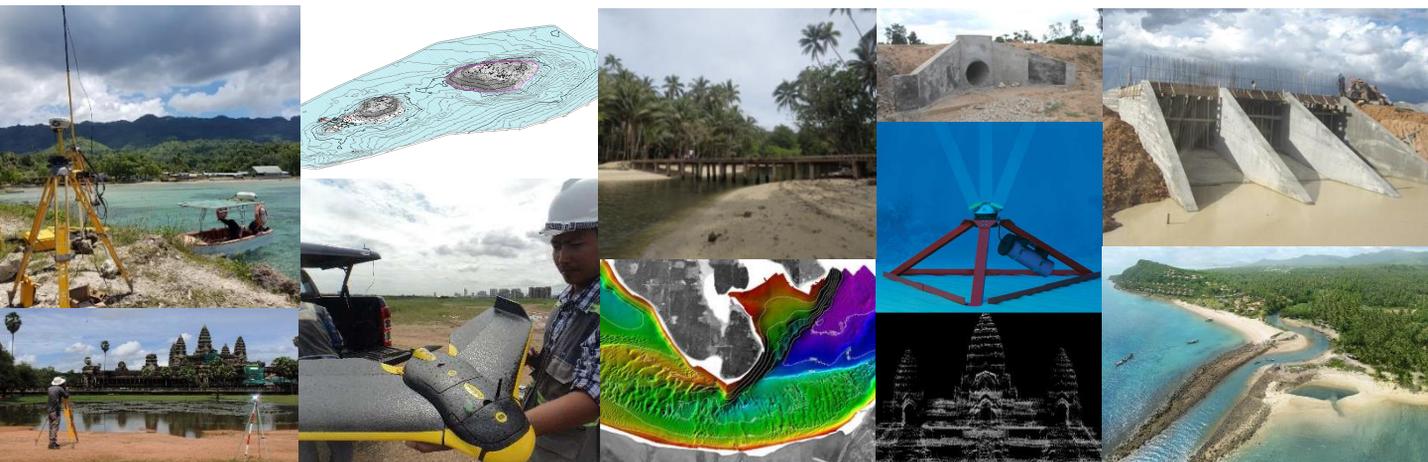


Hydrology and Flood Management Environmental Survey and Monitoring



**CIVIL ENGINEERING DEPARTMENT
ENVIRONMENTAL ENGINEERING DEPARTMENT**

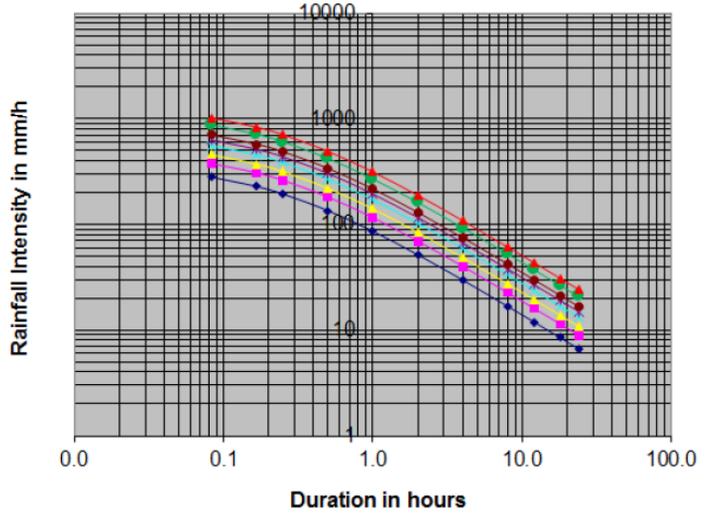
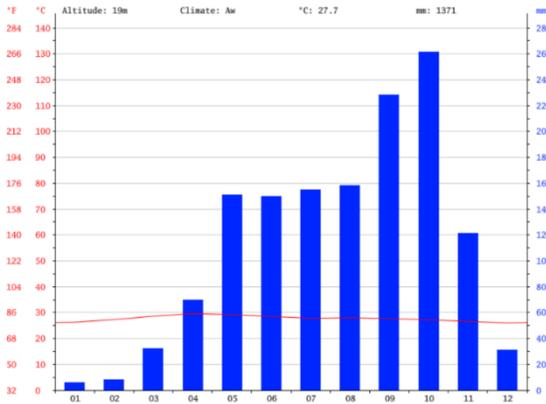
41, Corner Street 313 & 588
Sangkat Boeung Kok II
Khan Toul Kork
Phnom Penh, Cambodia
phone: +855 (23) 984284, fax: +855 (23) 987907,
email: info@inros-lackner.net, web: www.inros-lackner.kh

Hydrology

Inros Lackner Cambodia provides comprehensive Hydrologic Studies including:

- Rainfall Analysis,
- Identification of Recurrence Intervals,
- Infiltration Rates,
- Water Balances.

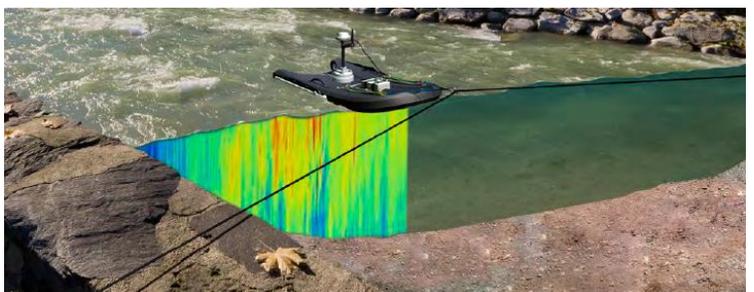
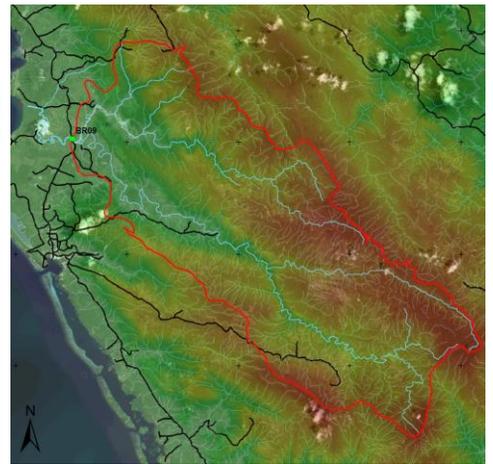
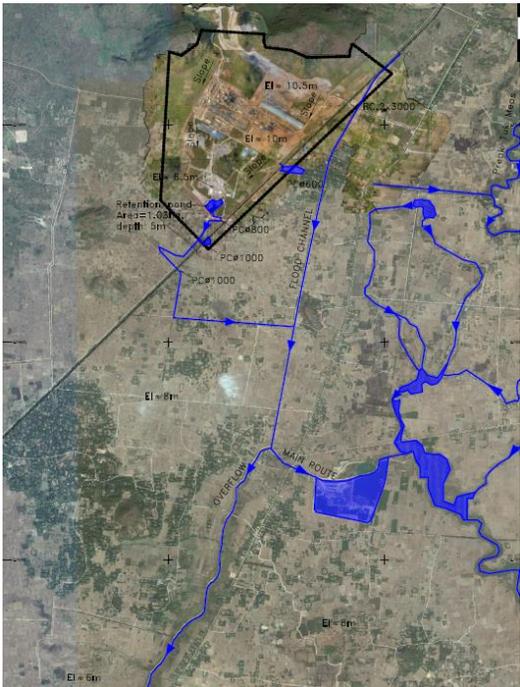
CLIMATE GRAPH PHNOM PENH



Hydrologic Measurements and Assessments

Within the Scope of Hydrologic Studies, Inros Lackner Cambodia carries out a wide Range of Hydrologic Measurements and Assessments, such as:

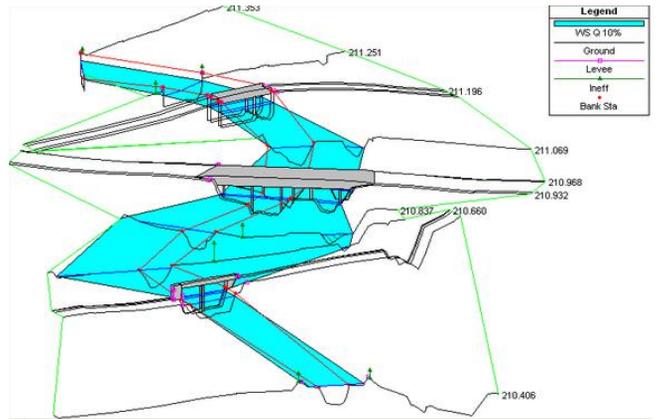
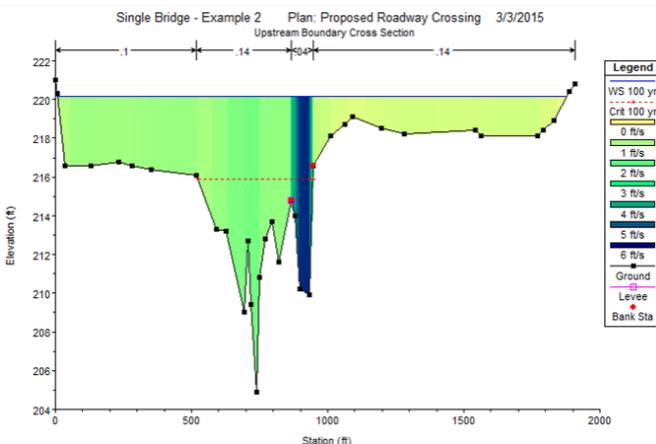
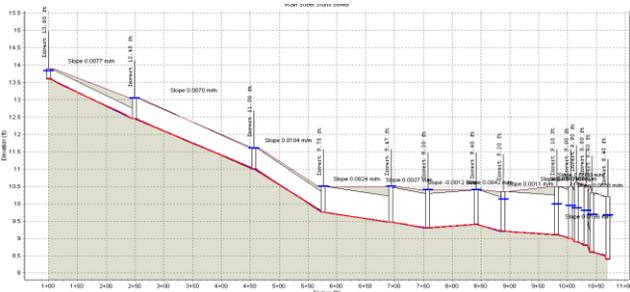
- DGPS Levelling,
- Discharge Measurements,
- Watershed Delineation,
- Flow Regime Assessments.



Numerical Modelling

Inros Lackner is experienced in setting up and running Numerical 1D, 2D and 3D Models of Watersheds, Drainage Networks, Streams, Rivers and Estuaries, which enable:

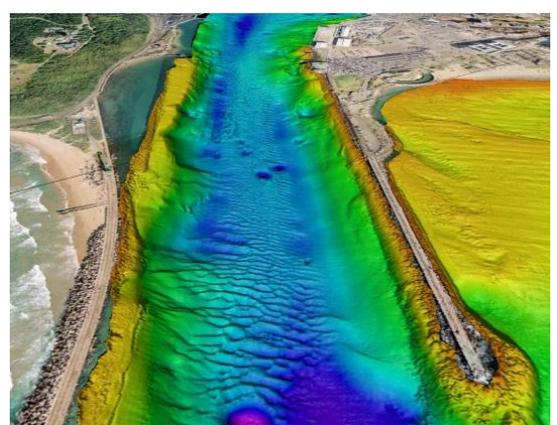
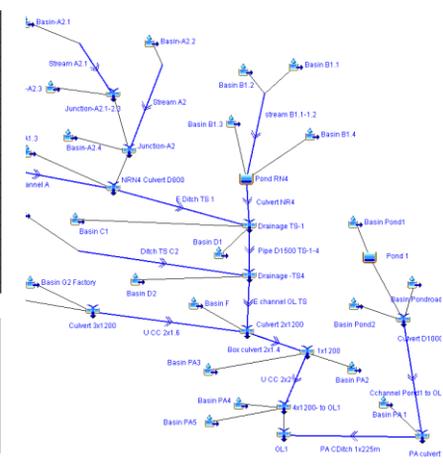
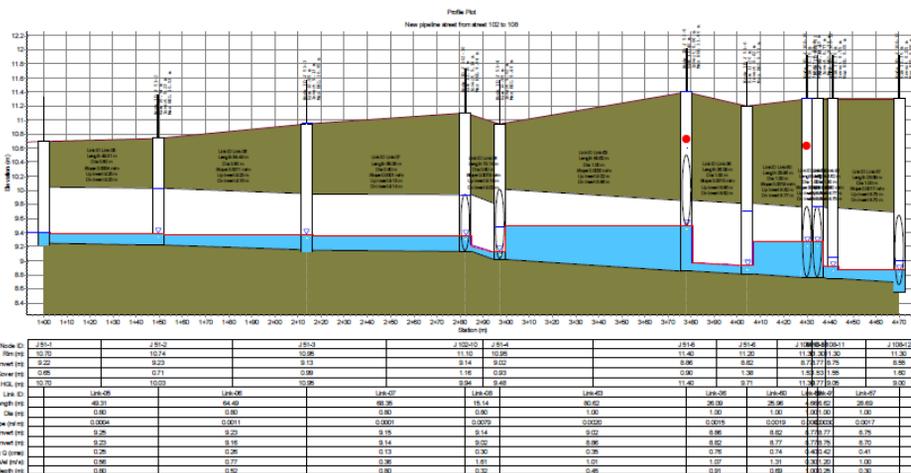
- Surface Runoff Calculations,
- Drainage Network Assessments,
- Flood Risk Assessments and Flood Area Mapping,
- Hydraulic Assessments of Water Crossing Structures (Bridges, Culverts, etc.).



Hydraulic Design

With the Help of Numerical Models and in Cooperation with the Structural Departments, Inros Lackner Cambodia does Conceptual and Detailed Designs of Water Crossings and Delivery Structures like:

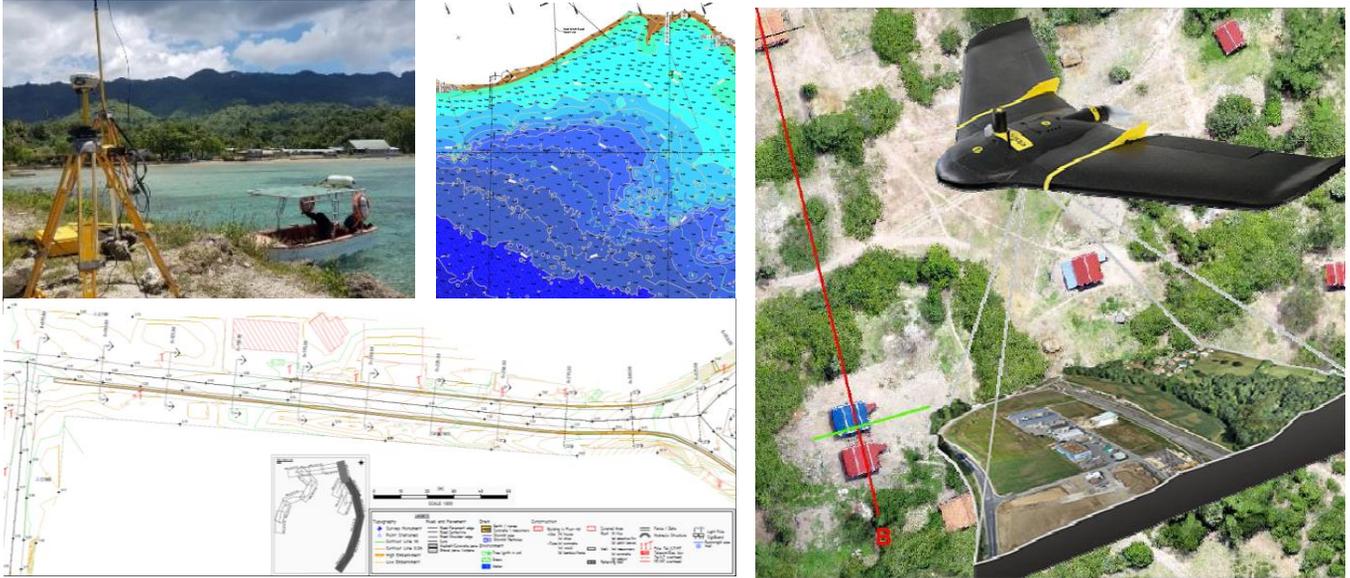
- Drainage,
- Culverts,
- Channels,
- Bridges.



Topographic and Hydrographic Surveys

Inros Lackner Cambodia is equipped for and experienced in the following survey techniques:

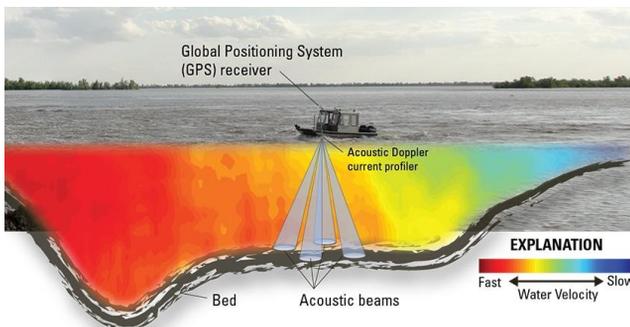
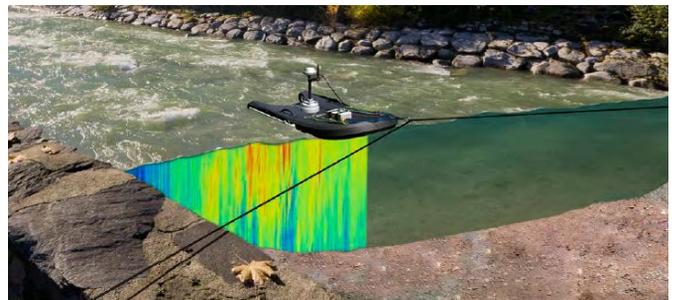
- Land Survey (DGPS, Tachymeter),
- Sea-, River-Bed Survey (Echo Sounder),
- Lidar and Aerial Survey (Photogrammetry).



Discharge and Current Velocity Measurements

Current Velocities and Discharges can be measured in Streams, Rivers, Estuaries and Offshore. Inros Lackner Cambodia offers Measurements with the following devices:

- Flow Meter for small Streams,
- ADCP for various River-Sizes and at Sea,
- Long-Term Measurements with Bottom- or Horizontal-ADCP.



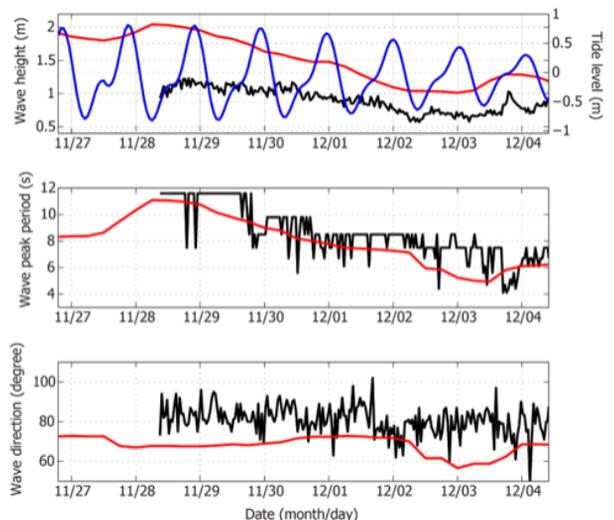
Monitoring of Groundwater and Surface Water for Environmental Testing

Inros Lackner Cambodia is experienced in the installation of Groundwater Wells and Surface Water/Groundwater Monitoring including measurements of Water Levels, Water Quality Parameters (pH, Conductivity, Oxidation-reduction potential, Oxygen Demand and Temperature) and works together with a Laboratory for chemical analysis.



Tide and Wave Measurements

Inros Lackner Cambodia carries out Measurements of Currents at Sea and Wave Parameters, necessary for various design purposes.



Long-Term Measurements of Climate Data

Inros Lackner Cambodia installs, maintains and runs Web-Based or Offline Climate Stations can include Measurements of the following Parameters:

- Wind Speed,
- Wind Direction,
- Temperature,
- Barometric Pressure,
- Rainfall.



Surface-Water and Ground-Water Level Monitoring

Inros Lackner Cambodia carries out Short- and Long-Term Measurements of Water Levels in Streams, Rivers, Estuaries, Lakes and Offshore, as well as Ground-Water-Levels and is experienced in Installation and Maintenance of Web-Based or Offline Data-Loggers.

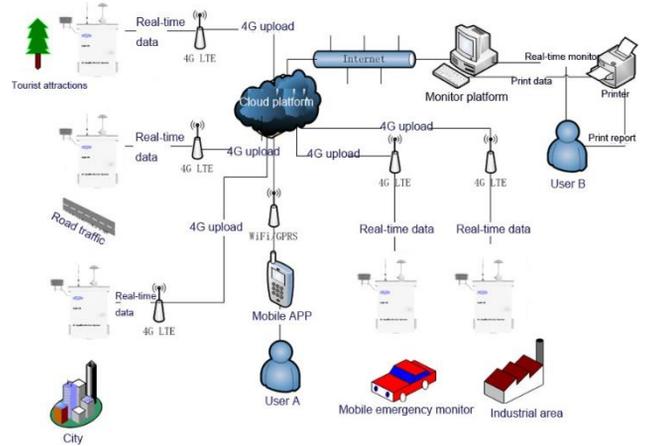


Air Quality Monitoring

Inros Lackner Cambodia installs, maintains and runs Air Quality Monitor Systems to measure the following Parameters:

- Particulate matters PM2.5, PM10, TSP
- Noise

The applications for the use of this system include but are not limited to pollution control on construction sites and in traffic environments, urban, industrial or rural air quality monitoring, short-term atmospheric environmental impact assessment.



Vibration Monitoring

Inros Lackner Cambodia has the equipment and expertise to record and monitor vibrations caused by construction activities such as pile driving or dynamic compaction, machines on production sites, oil & gas exploration, demolition works and much more. A Triaxial Geophone is used to measure ground vibration in three planes in compliance with international industry standards.

