



Terms of reference

Developments in the automation and remote operation of locks and bridges

1 Background

Since the publication of the Report 96 in 2008, technology has advanced significantly and at an ever increasing pace. Today, there are a lot more waterways that have implemented or in the process of implementing remote operation technology. At the same time, events around the world have led to a much tighter security posture for marine transportation. Both of these have a significant impact on remote operation of locks and bridges and were not fully addressed in the 2008 report.

2 Objective

The main objective of this Work Group is to update the 2008 Report on Developments in the automation and remote operation of locks and bridges to reflect technological advancement and new considerations related to remote operation in the last 10 years.

3 Earlier reports to be reviewed

Besides the report of InCom WG 96, the following PIANC reports also contain sections related to the scope of this Work Group:

Report 138 - 2014	Mechanical and Electrical Engineering Lessons Learnt from Navigation Structures
Report 18 - 1996	Advanced and Automated Operation of Locks and Bridges - Exploitation par Télécommande et Automatisme des Ecluses et Ponts Mobiles
Report 25 - 2006	Maintenance and Renovation of Navigation Infrastructure

4 Scope

The Working Group shall collect recent development and case studies from different countries on remote operation of structures. The standards, guidelines and best practices in this field shall be reviewed critically and recommended if and when appropriate as part of the final report. The matters that shall be investigated include:

- New development in remote operation of structures
- Physical security including perimeter protection, intrusion detection technology, video analytic and access control
- Network security including protection of data, intrusion prevention/detection (hackers), etc.
- Integration of SCADA and Process control with other systems such as traffic management, RIS, ERP
- Scanning & video technology including High Definition cameras, thermal cameras and advanced image processing such as facial recognition
- Human Factor Engineering
- Simulation technology for training & certification of operators
- Big Data Analysis
- Self-learning technology

5 Intended product

The Work Group will publish a comprehensive summary of lessons learnt and best practices that can be incorporated into future design of remote operation of locks and bridges. The report will include a summary of relevant guidance documents from different countries. Case studies on application of new technologies and innovative designs should also be included.

6 Recommended members

The desirable expertise of Working Group members includes the following profiles:

- Facility owners and operators with experience in remote operations and/or marine security
- Consultants designing this type of system
- IT Professionals
- Suppliers of specialized equipment such as simulation, intrusion detection
- Field operators or managers
- Research institutions
- Young professionals willing to specialize in the field of the Working Group

7 Relevance for Countries in Transition

The benefits of the proposed update to the existing document will be to assist those owners/operators who are approaching the upgrade of their security posture or to implement remote operation of their structures with industry best practice and to leverage the experience gained by other organizations.