

PIANC Workshop
13-14th September 2011



Project Reviews and their value in realizing innovations

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THE NETHERLANDS

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Introduction



Many innovations are
developed worldwide

However often not realized

Why ?

- Unknown
- Uncertain

How to solve that ?



To know what is possible
an easy accessible overview can help.

To know the certainty of solutions
experience from actual projects can help.

A possible answer:

Project Reviews

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Benefits of Project Reviews



- Possible solutions
- Chances and risks
- Time and money
- Learn by mistakes of others
- It works, so it's easily accepted



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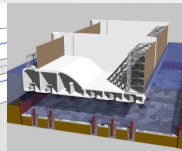
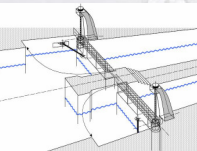
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Project Reviews in Report 106



- Selection of 56 projects worldwide
- Innovative features / unusual aspects.
- Show type of innovations and level of today's technology.
- Facts / Photographs / techn drawings



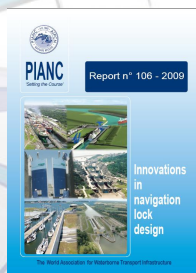
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3 steps to get your information:



1. Summary Table (= 1 page)
2. Summary in the report (= Chapter 2)
3. Case studies on DVD. (=750 pages, 65 MB)

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1 - Summary table

Project Reviews		Hydraulics		O & M			Environmental		Design / Construction								Misc.					
		Filling and Emptying Systems	Water Management (Water Saving Basins)	Energy Management	Life Cycle Cost	Maintenance	Vessel Operations and Impact	Silt and Debris Mitigation	Environmental Concerns	Salt Water Intrusion	Ice Control	Fish Mitigation	Design Guidance	Lock Size, Cycle & Capacity ; Vessel Geometry, Lock cycle	Struct Systems – Fills, Lock Walls, approaches	New Materials	Gates – materials, systems, type	Construction Means and Methods	Renovation, Rehab & Size Modifications	Lock Equipment	Communications – 3D modeling	Public Safety – Terrorism, Public Access
1	1-01 Kallø Sea Lock					PT	PT					PT						UT	UT			
2	1-03 Self-Propelled Floating Lock																AC					
3	1-04 High-Rise Navigation Lock	AC															AC					
4	1-05 Van Cauwelaert Lock						PT												PT			
5	2-01 Tucerui Lock			PT									PT									
6	2-02 Lajeado Lock		PT										PT									
7	3-02 Grand Canal		PT										PT									PT
8	3-04 Jinjitan		PT																			PT
9	3-05 Mengli		PT																			
10	3-06 Qiaogong		PT																			PT
11	3-08 Three Gorges		PT																			
12	4-01 Juankoski Canal					PT		PT					PT	PT			PT			PT		
13	4-02 Kettle		PT			PT	PT	PT					PT	PT								
14	4-03 Saarikoski																		PT			
15	4-04 Saimaa											PT										
16	5-01 Composite Miter Gates - Gobey					PT	PT	PT	PT			PT					PT			PT		
17	5-02 Composite Vertical Lift Gate							NC									PT		PT			
18	5-03 Gate Protection - Rhone lock																NC	PT				
19	5-04 Horizontal Translation Gate			PT				PT				PT		PT			PT					
20	5-05 Rhone Chautagne et Belley											PT										
21	5-06 Rhone Locks Stoplogs Protection							PT				PT									PT	
22	5-07 Seine-Nord Europe		PT	PT		PT											PT	UT				
23	5-08 Rhone Fish Ladder Lock		PT								UT											

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1 - Summary table – Example Lith

Project Reviews		Hydraulics		O & M		Environmental		Design / Construction				Misc.										
		Filling and Emptying Systems	Water Management (Water Saving Basins)	Energy Management	Life Cycle Cost	Maintenance	Vessel Operations and Impact	Silt and Debris Mitigation	Environmental Concerns	Salt Water Intrusion	Ice Control	Fish Mitigation	Design Guidance	Lock Size, Cycle & Capacity ; Vessel Geometry, Lock cycle	Struct Systems - Fills, Lock Walls, approaches	New Materials	Gates - materials, systems, type	Construction Means and Methods	Renovation, Rehab & Size Modifications	Lock Equipment	Communications - 3D modeling	Public Safety - Terrorism, Public Access
25	6-01 Bolzum	PT												PT								
26	6-02 Doornvelden													NC								
27	6-03 Hohenwarthe													PT								
28	6-04 Uelzen II	PT												PT	PT	PT	PT					
29	6-05 Kaiserschleuse Bremerhaven	NC					PT							PT		NC				PT		
31	7-02 Lith Lock							PT						PT					PT			
33	7-04 Oranje Locks																	PT				
34	7-05 Suspended Miter Gate																	PT	PT			
35	7-06 Zuid-Willemsvaart												PT							PT		
36	7-07 Spiering lock - Composite Miter Gate							UT									UT	UT				
37	8-01 Panama - New Locks	UT	PT		PT	PT	UT	PT	PT			PT	UT	UT	UT							

2 - Summary

Areas of innovation

Hydraulics	Operations & Maintenance	Environment	Design / Construct	Misc
A	B	C	D	E

Categories

PT:	Proven technology
UT:	Unproven technology
NC:	New Concept
AC:	Advanced concept

A: Filling and emptying, water saving.
 B: Energy, LCC, Vessel ops & impact.
 C: General, salt water, ice control, fish migration
 D: Structure, materials, gates, construction methods.
 E: Lock equipment, communic, 3Dmod, public safety

PT	¹ Proven Technology (PT) – The feature has been built and validated by time and experience
UT	² Unproven Technology (UT) – The feature has been built but it has not yet been validated by time and experience.
NC	³ New Concept (NC) – The feature is currently in the design process, but has not yet been built.
AC	⁴ Advanced Concept (AC) – the feature is been evaluated and/or tested in the research stage.

2 – Summary – Example Lith

2.3.31 Lith Lock (PR 07-02 The Netherlands)

Areas of Innovation

Hydraulic	O & M	Environ	Design / Construct	Misc
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Lock Dimensions

Length:	200.0 m	Lift:	5.55 m
Width:	18.5 m	Depth:	4.7 m

Project Description

A new lock chamber has been build to replace a small existing lock. Innovative features are:

- The lock heads have been constructed as a pneumatic caisson as described in PR 07-01.
- The chamber walls consist of concrete deep walls provided with prefab concrete slabs and fixed with grout anchoring system.



3 – Case Study (DVD)



- Status

- Who

- When


- Innovations

- Where

- Contact

- Map

6 pages
of info

Lock Project Review – Lock Lath, NL		PIANC - WG29	p.1
1- PROJECT NAME : Lock Lath, Netherlands			
Project Status: This project was completed in 2001 It's a newly build lock next to an existing lock.			
Project Owner: Organization in charge of operation : Ministry of Transport, The Netherlands Construction Company : Conurbation Heijmans BV / Philip Heijmans AG Design: Ministry of Transport, The Netherlands			
Period of Construction: Taken in Operation: 1996 to 2001 Estimated Cost of Entire Project: € 60.000.000,- (year of 1996)			
Fields of Innovation (see Section 3): Construction means or methods (lock heads) Structural System (lock chamber) Environmental concerns			
Location: Country: Netherlands City/Region: Lath, Noord Brabant Relevant river: Maas			
Contact Address(es) (additional contact information): Name: Rijkswaterstaat Boudendienst (dept of Civil Engineering), The Netherlands Address: P.O. Box 20.000, 3502 LA Utrecht Email: geert.uns@rws.nl, erwin.pedro@rws.nl			
			

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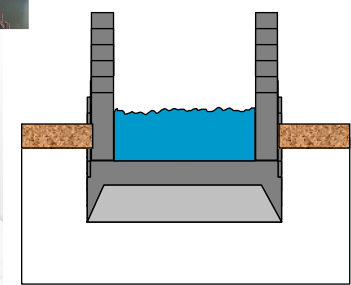
3 – Case Study – Example Lath



Caisson method



1. temporary mound of soil
2. Construction of lock head
3. Excavation under lock floor
4. Pneumatic submersion
5. Fill-up of basement with concrete
6. Finishing works



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Reasons for innovation

- lack of construction space
- Piling causes damage
- reduce environmental impact

Lessons learned

4. EXPERIENCES

Apart from the other advantages, the use of concrete deep walls in combination with the reinforced concrete front walls was expected to be noticeable cheaper than a regular U-shaped concrete chamber.

However, during detail design it turned out to be just as expensive, because the thickness of the concrete deep walls needed to be thicker than expected.

Furthermore the innovations mentioned in this document gave no significant problems during development and appliance. As far as is known today there are no problems at all concerning the resulting structure.

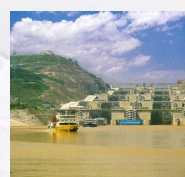
- No significant problems afterwards
- Chamber walls: Neutral cost balance compared to regular techniques.



So what do we have ?

Project Reviews in Report

- a lot of useful information
- valuable source for ideas
- gives confidence in the feasibility



But ... there are limitations

- No updates
- Not complete:
Many more locks
- Not interactive compared
to other modern media

How to use this effectively
for the future ?



So what should we need

- Database > What are its criteria?
- Easy accessibility
- Easy exchange of ideas and solutions
- Use of new media

An online PIANC database
with Wikipedia features ??



How can a database look like ...



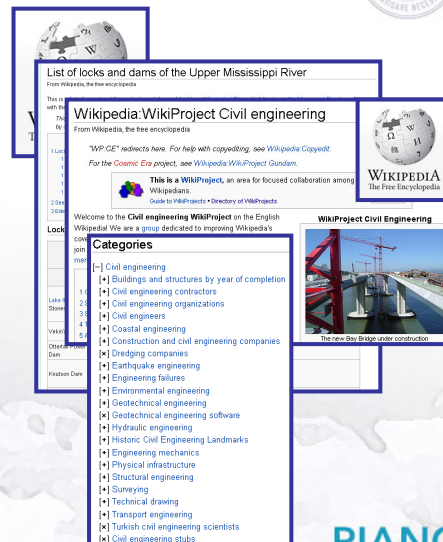
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What already exists for technology



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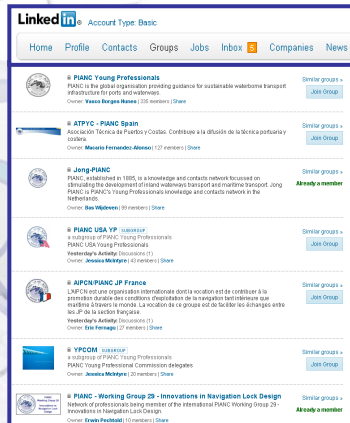
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.... and for the people network



• The PIANC network !



Could the Internet help
to share our questions,
discussions
and findings ?

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What can be done ?



projects



people



countries

Our challenge for tomorrow ...

facts



ideas



results

New Working group ?

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