



ด่วน

บันทึกข้อความ

เลขที่เอกสารในระบบ E... ๙๖๖๐ (๗๓)๐๕/๒๖/๒๕๖๐

๙๖๖๐ ๗๒๓๓/๑๒๓๐๖๐

๙๖.๖๐.๔๗๙/๖๐

ส่วนราชการ ส่วนความปลอดภัยเขื่อน สำนักบริหารจัดการน้ำและอุทกวิทยา โทร ๒๔๐๗

ที่ สผค(๗๓)๐๕/๒๖/๒๕๖๐ วันที่ ๑๒ ตุลาคม ๒๕๖๐

เรื่อง ขอเชิญร่วมรับฟังการบรรยายหัวข้อ "Sediment arrangement and cleaning of water reservoirs"

เรียน ผส.บอ. ผ่าน ผปช.บอ.

เนื่องด้วยได้รับการประสานจากบริษัท Ferrostaal (Thailand) Co., Ltd. ซึ่งเป็นบริษัทนำเข้าผลิตภัณฑ์จากประเทศเยอรมัน ขออนุญาตนำเสนอข้อมูลผลิตภัณฑ์ในหัวข้อ "Sediment arrangement and cleaning of water reservoirs" ในวันอังคารที่ ๑๓ ตุลาคม ๒๕๖๐ เวลา ๑๓.๓๐ น. ณ ห้องประชุมส่วนความปลอดภัยเขื่อน ตามเอกสารแนบ

ส่วนความปลอดภัยเขื่อนเห็นว่า ข้อมูลที่บริษัทฯจะนำเสนอเป็นประโยชน์ด้านการจัดการตะกอนตลอดจนทำความสะอาดน้ำภายในอ่างเก็บน้ำ ซึ่งมีความเกี่ยวข้องกับหลายหน่วยงานของสำนักบริหารจัดการน้ำและอุทกวิทยา จึงขอเชิญผู้สนใจเข้าร่วมรับฟังการบรรยายในวันและเวลาดังกล่าว ทั้งนี้ขอให้ส่งชื่อผู้สนใจเข้าร่วมมายังส่วนความปลอดภัยเขื่อน ภายในวันจันทร์ที่ ๑๖ ตุลาคม ๒๕๖๐

จึงเรียนมาเพื่อโปรดพิจารณา

(นายจักรกริช นาควิโรจน์)

วต.บอ.

ผ่าน

๑๖ ก.ค. ๖๐

(นายธำรงค์ศักดิ์ นกราวงศ์)

ผบ.บอ. รักษาการในตำแหน่ง ผปช.บอ.

เรียน ผอ.ส่วน

เพื่อโปรดทราบ และแจ้งให้ผู้สนใจเข้าร่วมฟังบรรยาย โดยส่งรายชื่อให้ ผปช.บอ. เพื่อทราบภายในกำหนด

(นายสิริวิชญ กลิ่นกักดี)

ผส.จต. รักษาการแทน ผส.บอ.

12 ต.ค. 2560



jakkrit nakawirot <jakkritrid16@gmail.com>

DB-Sediment : Cleaning of water reservoirs.. (visit on October 17, 2017)

Songpon Sukontapong <Songpon@ferrostaal.co.th>
To: "jakkritrid16@gmail.com" <jakkritrid16@gmail.com>

Tue, Oct 10, 2017 at 9:58 PM

Dear Khun Jakkrit,

Nice to talk with you on today.

Again, my name Songpon from Ferrostaal company from Germany.

We are service providers of "sediment arrangement and cleaning of water reservoirs".

In attached,

For your information for our profile and sediment as shares to you in advance.

Let me general talking with you in Thai language.

See you on October 17, 2017 at after 1:30 pm.

With best regards,

Songpon Sukontapong
Country Sales Manager
Industrial Solutions

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2 attachments



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Industrial Solutions

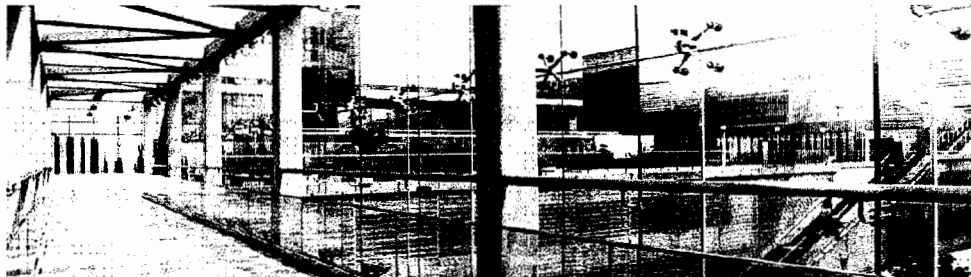
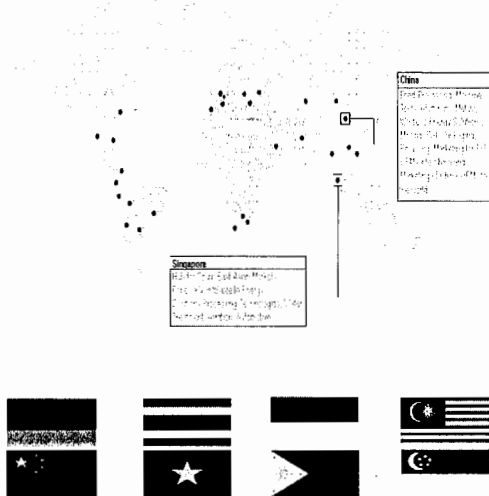
Ferrostaal (Thailand) Co., Ltd. under Ferrostaal Trading GmbH, has been in business in Thailand for more than 35 years providing customers with innovative solutions and dedicated customer services.

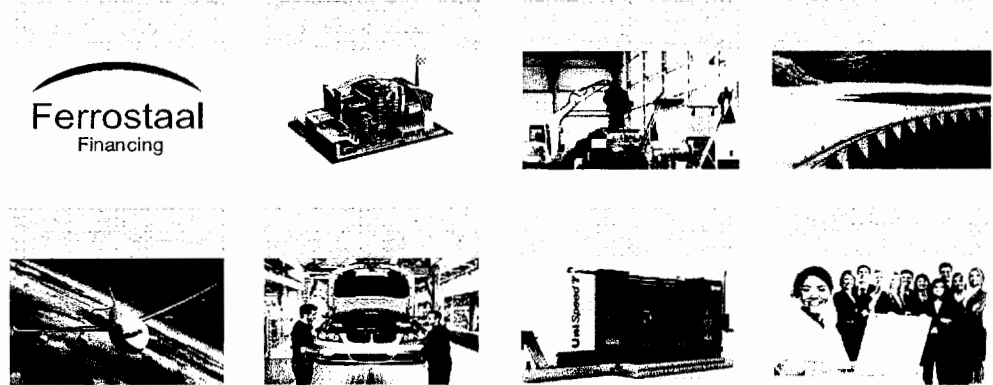
The foundation of our business is formed by our solid local presence with over 70 employees in our headquarter office in Asoke, Bangkok and warehouse in Sinsakhon Industrial Estate. Our focus are in providing our customers in renewable energy, environmental technologies and recycling with profound expertises and offering top-class suppliers, equipment, and technical provider.

It is our vision to Turn your Ideas into Reality...

Our advantages:

- ▶ Customized solutions of products and services
- ▶ Independent supplier business approach
- ▶ Use of best cases and competences from our network of subsidiaries to endeavour and explore new business





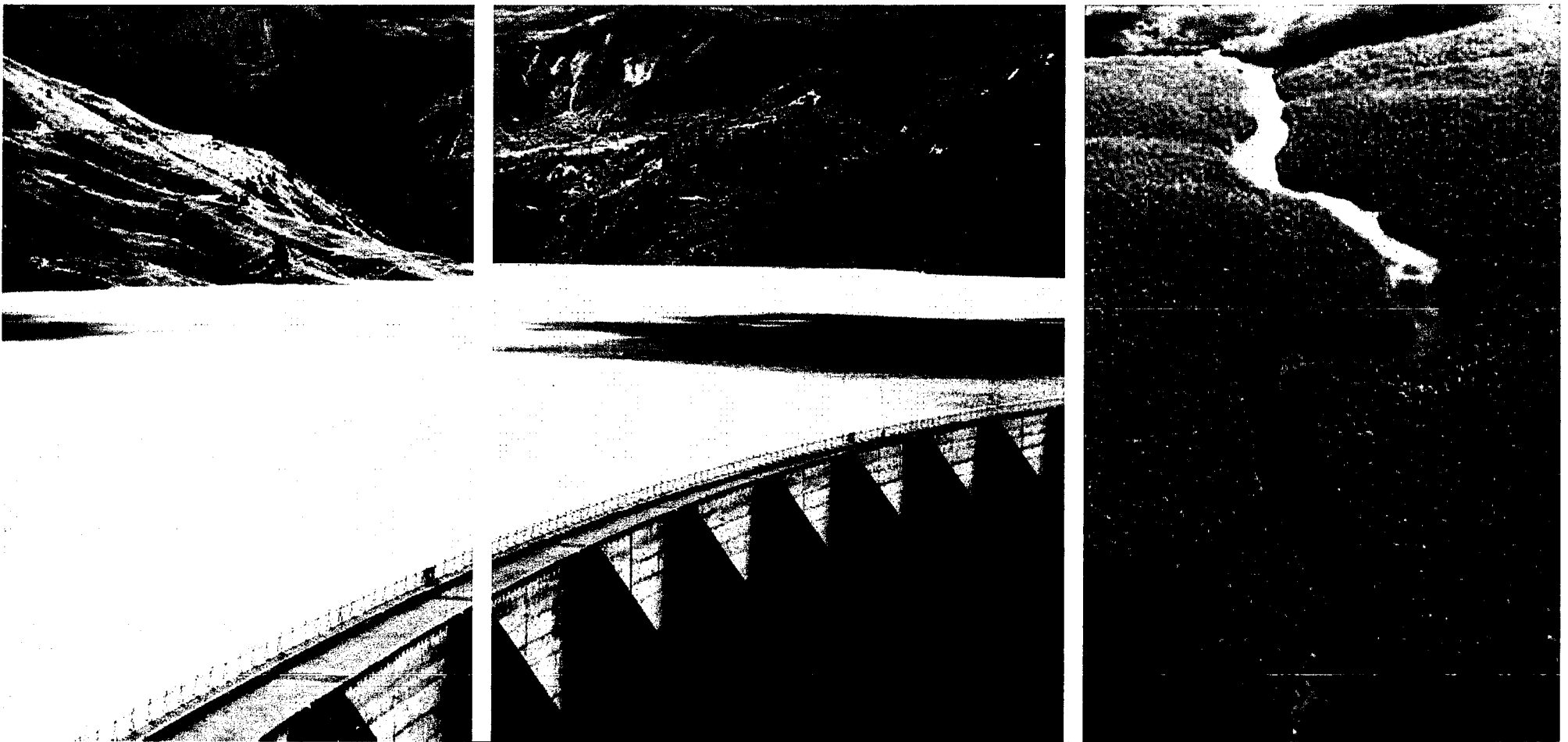
What we do:

- ▶ Financing Solutions
- ▶ Flexible Export Financing
- ▶ Waste to Energy
- ▶ Sorting & Shredding
- ▶ Waste management
- ▶ Environmental Technologies and Recycling
- ▶ Ecological, Economical, System Solutions.
- ▶ Equipment and Related Products
- ▶ Machinery and Tools

Our services are based on internationally accepted standards

• ISO 14001	• ISO 9001	• Project Management Certificates of IPMA (International Project Management Association)	• High standards for compliance • Mandatory regulations for the entire Ferrostaal Group
• OHSAS 18001	• ASME (Engineering)		
• SCC	• ISO TS 16949 (Automotive)		





Ferrostaal DB Sediments GmbH

Short introduction of the concept

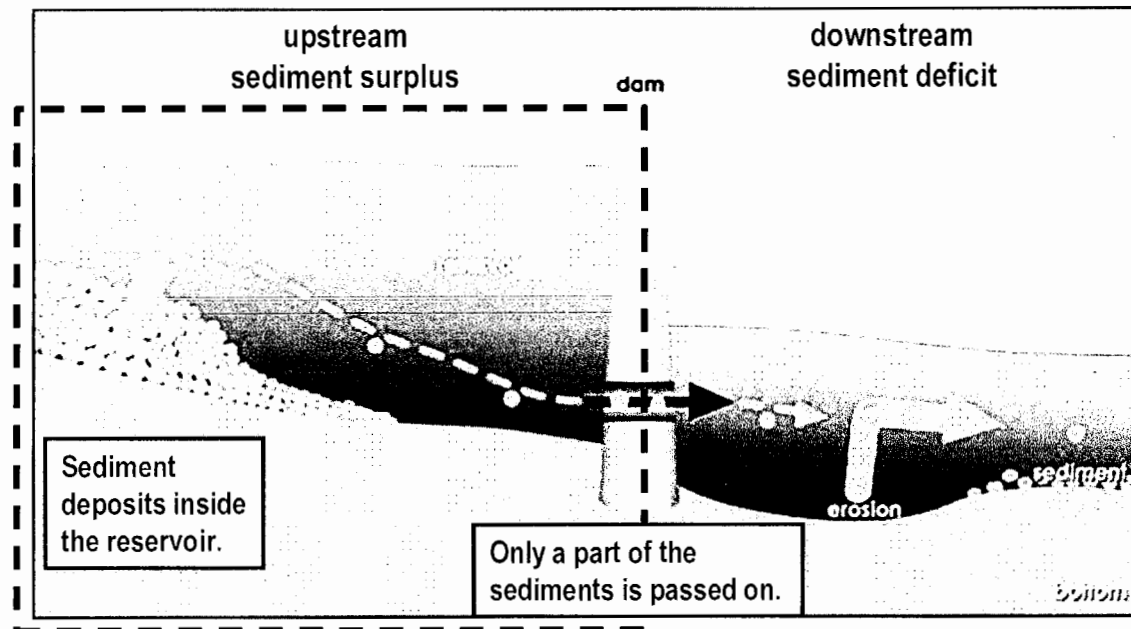

Ferrostaal DB Sediments

Executive Summary

- **Every hydro installation faces sediment aspects.** Many of them suffer from severe sediment problems. The worldwide sedimentation rate accounts for 0.8% per year.
- Nearly every reservoir can **improve the performance significantly by minimizing sediment volume and maximizing storage capacity.**
- **Increasing sediment volumes affect the profitability of reservoirs significantly by...**
 - ... **Loss of storage capacity**
→ Loss of revenue
 - ... **Disruption of the natural sediment conditions**
→ Damages to reservoir facilities and downstream erosion leading to safety problems
- The majority of **conventional techniques** coping with “desedimentation” only **create temporally solutions**, but do not provide sustainability.
- **Our Continuous Sediment Transfer solution (ConSedTrans) solves sedimentation problems during reservoir’s operation, regaining former profitability in a unique sustainable way**

The average sedimentation rate in Asia accounts for 0,79% p.a.*

The reduced storage volume causes fundamental problems in power generation, food production as well as flood protection



Reduced storage volume

Till 2025:

70% of different used reservoirs' (e.g. drinking water) capacity will be silted*

Till 2035:

80% of hydropower reservoirs' capacity will be silted*

*Basson, 2009

Financial gains (1)

To better understand our approach:

The financial effects in a realistic business case showing the advantages and benefit of our ConSedTrans solution

Sample calculation

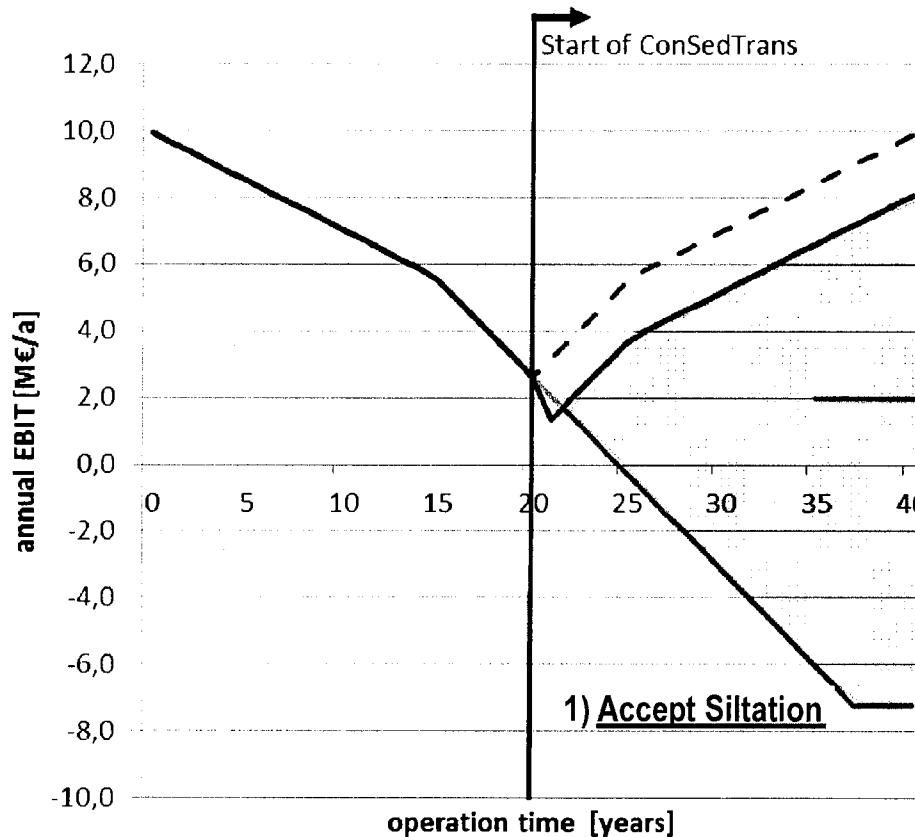
Following basic data are considered:

- **Hydro Storage** with a storage volume of **3,425 Mm³**,
an installed capacity of **400 MW** and a design production of **1,226 GWh/a**
- The envisaged **EBIT** amounts to **9.9 M€/a**
- **92,466 m³/a Sediment retention**
- Initially projected utilization period: **40 years**
- After **20 years** of usage **more than 50 %** of the storage volume is already **lost because of siltation** reducing the profitability/EBIT significantly

Financial gains (2)

Continuous Sediment Transfer enables a sustainable regain of profitability, the annual cost of our ConSedTrans solution is comparable low to the overall financial gain.

Development of EBIT over operation time



2) Implemented ConSedTrans solution

annual Sediment transfer cost

- ConSedTrans
- - - ConSedTrans without Sediment Transfer Cost

EBIT growth through ConSedTrans

Sustainable, secured usage of the reservoir
– endless life time

Sample calculation

Financial gains (3) ... ten years down the line

After 10 years of operation our ConSedTrans solution shows significant differences

	1) Accept Siltation	2) Late Sediment Transfer
Net Storage Volume:	0.651 Mm ³	2.500 Mm ³
Facility Operation Time:	30 year(s)	30 year(s)
Beginning of sediment transfer:		after 20 years
usable storage volume:	19 %	73 %
Sediment Volume:	2.774 Mm ³	0,925 Mm ³
Type	Year	Year
season peak production:	733 GWh	1.024 GWh
offpeak production:	500 GWh	209 GWh
sum:		
peak income:	36.7 M€	51.2 M€
offpeak income:	7.5 M€	3.1 M€
annual income sum:	44.2 M€	54.3 M€
annual cost:		
plant O&M	-24.0 M€	-24.0 M€
sediment transfer	0.0 M€	-1.8 M€
interest rate (40a)	-23.3 M€	-23.3 M€
annual EBIT:	-3.2 M€	5.2 M€

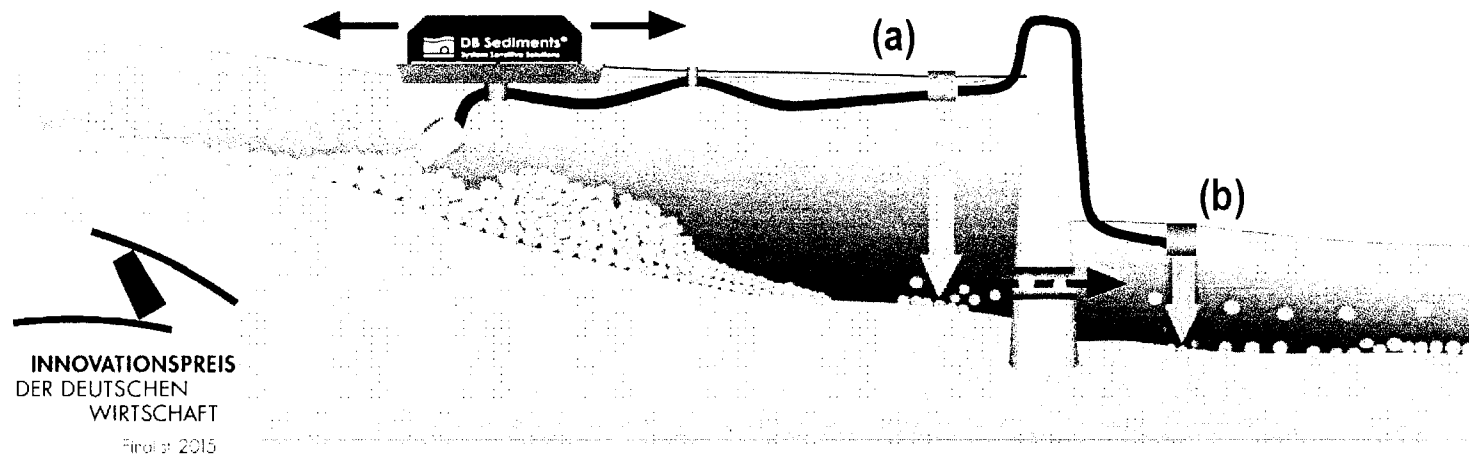
Sample calculation

Conventional dredging and disposal
each 20 years → 92.5 M€ per period
plus plant shutdown
(not considered in this business case)

- Sediment Transfer is associated with costs but also with significantly higher revenues
- Already 10 years after implementation the EBIT amounts to 5.2 M€
- After further 10 years 9 M€ out of initial envisaged 9.9 M€ can be sustainably gained

How does a solution look like and what do we offer?

We offer different implementation options for every situation



Our technology

- Innovative technology **without interruption** of power generation or any other use
- **Avoiding any other cost** e.g. for dumping or transportation of dredged material
- Fulfilment of highest **ecological standards**

Our Solution to you

- **Our Solution as a provision as services** starting with a feasibility study, providing technical information for service execution merging with a continuous operation
- **With a long-term agreement**
- **Regular monitoring assuring the measures' effectiveness**

Developing customised solutions for reservoir sedimentation problems



Ferrostaal DB Sediments a Joint Venture...

Ferrostaal Equipment Solutions GmbH:

- Best partner for technical industrial solutions and distributor for best class machinery
- Services include consulting, financing and maintenance
- Global network in more than 40 countries
- Long track record of successfully completed projects

DB Sediments GmbH:

- Patent holder of innovative continuous sediment transfer (CoSedTrans) technology
- Services include consulting, research and sustainable solutions on sediment issues
- Management team provides more than twenty years of experience in renewable energies, international energy utilities and hydro-electric engineering
- Established in 2009