



ESTONIAN METEOROLOGICAL AND HYDROLOGICAL INSTITUTE

Phare project:  
“Development of the National  
Hydrometric network to EU  
standards”  
Estonia

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# Aim of the project

- **Estonia implements WFD requirements (Art. 4, 6, 8, 16) at the part of estimation of surface water monitoring**
- Short-term:
  - Development of National hydrometric network (integration with others environmental monitoring networks, technical optimisation as well as increasing in density);
  - Creation of Hydrological Information System (HIS). Real-time data transfer via Internet for improvement quality of hydrological forecast and timed-out flood warning, increasing of efficiency of client servicing;
  - Providing of environmental projects with required hydrological data for fulfillment of international conventions



# Problems



Lack of National and International standards

National hydrometric network is insufficient integrated with WFD

Insufficient fulfilment of Transboundary Convention and HELCOM requirements

Insufficient public warning system

Insufficient customer service

Insufficient level of hydrological forecast

Insufficient data dissemination system

Insufficient data transfer system

Inconvenient data exchange

Digital database absence

Lack of experience

Real-time data absence

Telecommunicational system is worn-out

Insufficient database

Insufficient integration between water quality and quantity monitoring

Low priority for hydrology

Specialists in new technologies are absent

Instruments are worn-out

Hydrometric network density is less than the minimum recommended

# Project contracts

- Contract 1 – **Twining light** (for institutional framework assessment and training)
- Contract 2 – **Works Contract** – Construction of hydrometric stations infrastructure
- Contract 3 – **Technical Assistance** for developing HIS, trainings and seminars
- Contract 4 – **Supply** – Automatic stations, hardware and software, installation; factory based training; customer service for 3 years.



# Project implementation



# Contract 1

**Twinning-light for institutional framework assessment and training**

**Phare, 38 400 EUR, 3 months**

MS Project Leader 3 working days over 1 consecutive month

- STE 1 for 1 working month
- STE 2 for 5 working days
- STE 3 for 5 working days
- EU Member State Admin Costs
- International Transportation Costs
- Other costs (seminar materials, translation)
- Audit certificate
- Reserve



# Activity applied

## Report

“Assessment of existing institutional framework and operational procedures of the National hydrometric network. Proposals for future institutional framework arrangements”

## Training

“Requirements of EU WFD and its implementation in hydrology and water policy”

“Database Management System Platform and Information System and new applications for hydrological data”

## Contract 2

- **Works Contract**

**National co-financing 75 000 EUR**

**Committed 147 000 EUR**

(due to significantly rise of the construction prices)

- Construction of hydrometric stations infrastructure.



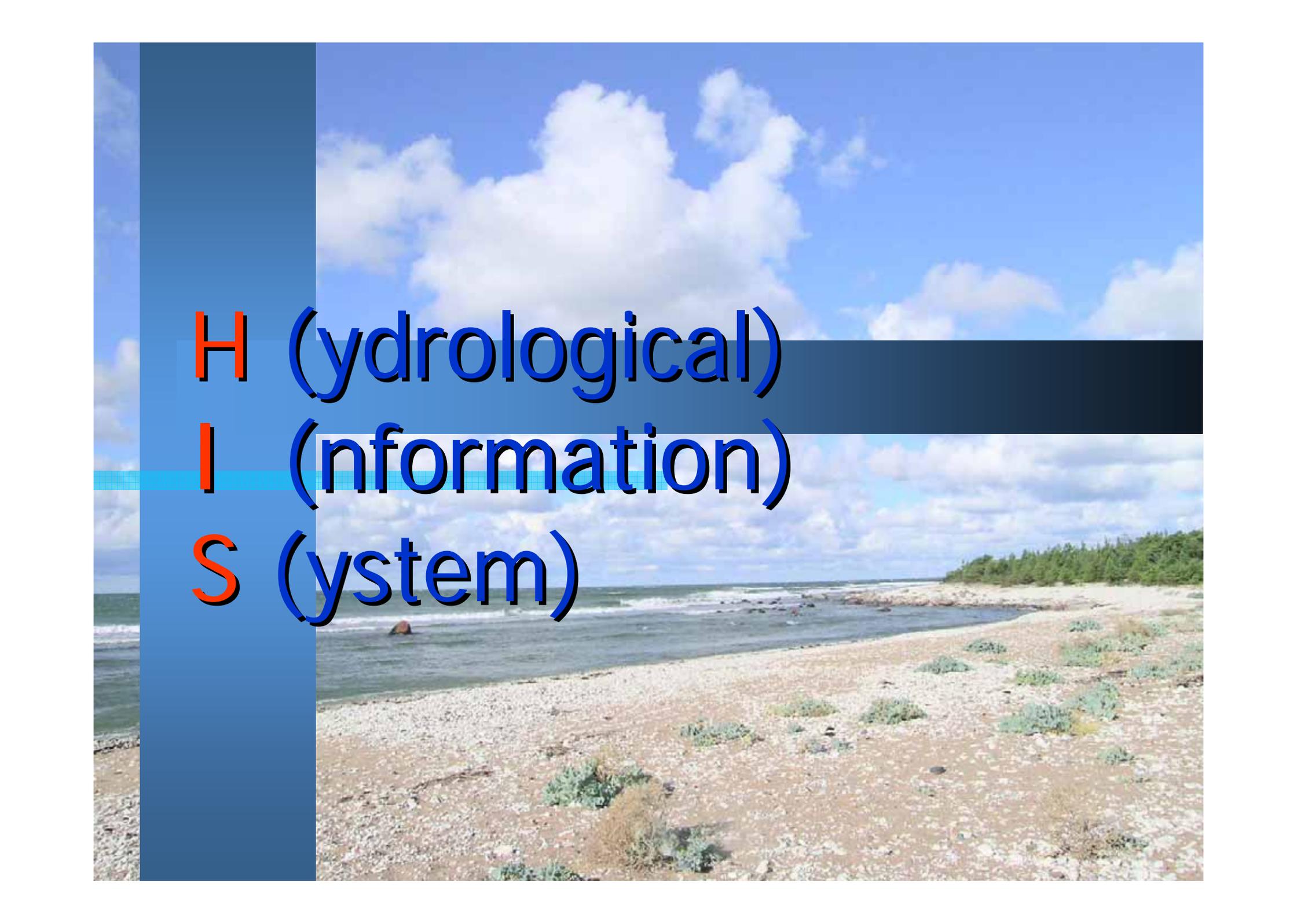




## Contract 3



- **Technical Assistance for developing HIS**  
**Phare 158 000 EUR**  
**National co-financing 20 000 EUR**
- STTE 1 for 1 month
- STTE 2 for 6 months
- STTE 3 for 8 months
- HIS and river flow processing software trainings, training materials and workshop
- 1,5 IT administrators (system maintenance) for 12 months



**H** (ydrological)  
**I** (nformation)  
**S** (ystem)

**Public  
awarness**

**Local  
customers**

**State  
Environmental  
Register**

**International  
transboundary  
and other conventions**

**H  
Y  
D  
R  
O-  
C  
L  
I  
D  
A  
T  
A**

**Processed  
Controlled  
(historical)  
Data**

**Knowledge Based System**  
Statistical analysis  
Data analysis  
Hydrological reports  
Hydrological expertice  
GIS map coverage

**Hydrology  
Department**

**Water  
Forecast**

**Primary and Secondary data  
processing**  
Discharge and Runoff  
Calculation System

**Regional  
Hydrological  
Centers**

**Water  
Quality**

**Real time data**

**Automatic stations**

**Conventional stations**

**INTERNET**

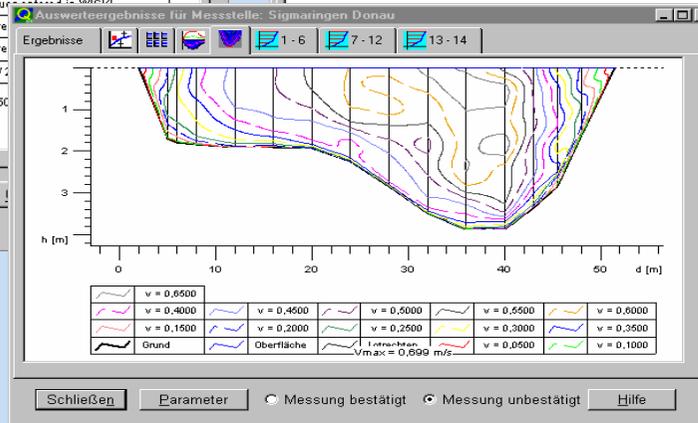
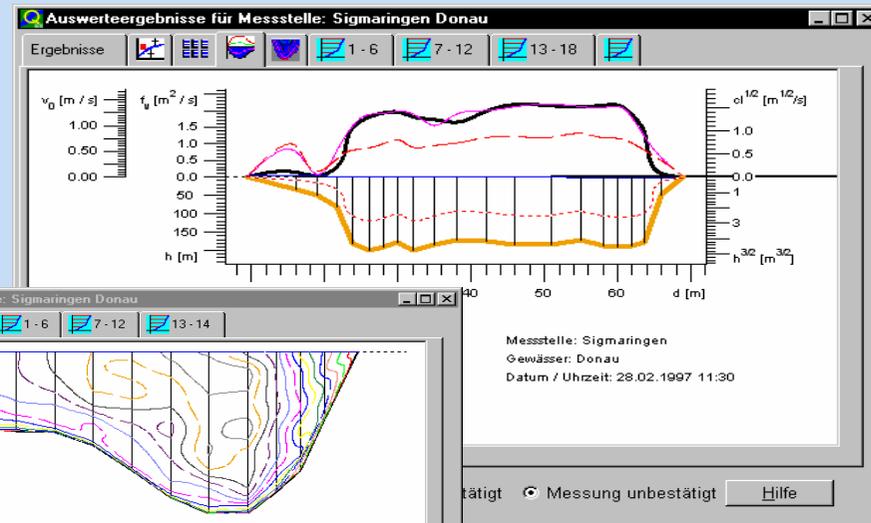
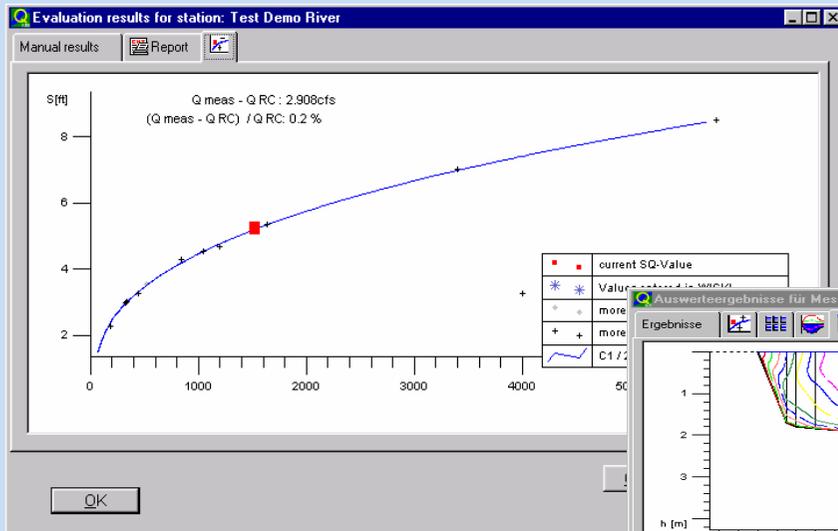
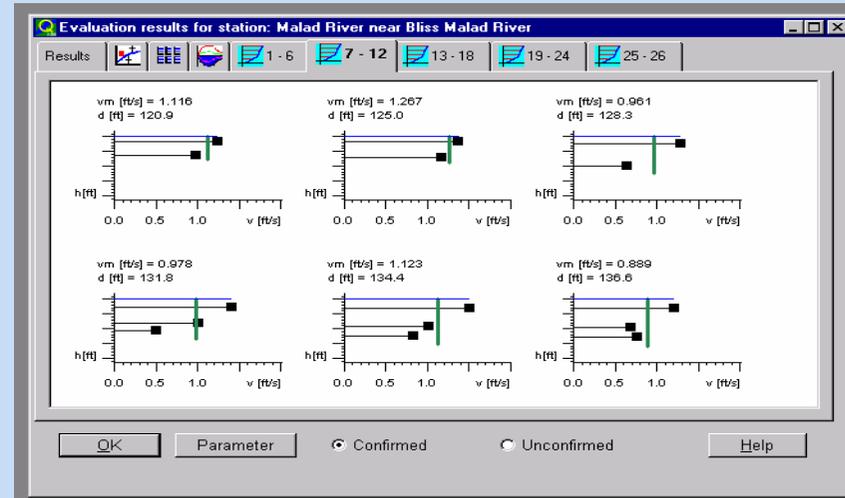
**National hydrometric network**

# Data

# Vertical

Survey of recorded verticals  
Station Malad River near Bliss River name: Malad River Date of the measurement 10/03/2000 09:39

No.	B/V/D	Date / time	d [ft]	h [ft]	Kind of measurement	valid
1	B	10/03/2000 09:39	87.0	0.00		yes
2	V	10/03/2000 09:39	90.0	0.95	1-point measurement	yes
3	V	10/03/2000 09:42	95.0	1.90	1-point measurement	yes
4	V	10/03/2000 09:44	100.0	2.30	1-point measurement	yes
5	V	10/03/2000 09:46	105.0	2.40	1-point measurement	yes
6	V	10/03/2000 09:49	110.0	2.70	3-point measurement	yes
7	V	10/03/2000 09:53	118.4	2.90	2-point measurement	yes
8	V	10/03/2000 09:56	120.9	3.10	2-point measurement	yes
9	V	10/03/2000 10:00	125.0	3.50	2-point measurement	yes
10	V	10/03/2000 10:03	128.3	5.00	2-point measurement	yes



# Rating Curve Comparison

# Cross Section

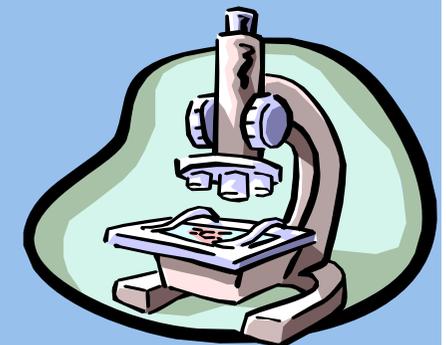
# Contract 4

- Supply contract for procurement of up-to-date equipment, hardware and software, its installation and training

Phare 339 000 EUR

National co-financing 114 600 EUR

- Procurement contract includes 3 years maintenance contract, 6000 EUR



# Activity applied

- Up-to-date equipment, hardware and software (sensors, telemetry outpost, data collection server, database server, workstation and notebook) were procured and installed
- Training  
"Data transmission, processing, storage, analysis and dissemination system"

A scenic view of a rocky coastline. The foreground is a wide, pebbly beach with sparse, low-lying vegetation. The middle ground shows the ocean with gentle waves lapping at the shore. The background is a bright blue sky filled with fluffy white clouds. The overall atmosphere is bright and clear.

Achievement:

Estonia fulfils the requirements of the WFD (2000/60/EC) for surface water quantity objectives and thus provides the evaluation of its water status

A serene winter landscape featuring a narrow stream that flows through a forest. The water is dark and still, acting as a perfect mirror for the sky and the surrounding trees. The trees are mostly bare, with their branches and leaves covered in a thick layer of snow. The ground is also blanketed in white snow, creating a peaceful and quiet atmosphere. The overall color palette is dominated by whites, greys, and dark blues, with some hints of brown from the tree trunks and branches.

Thank you  
for your attention!