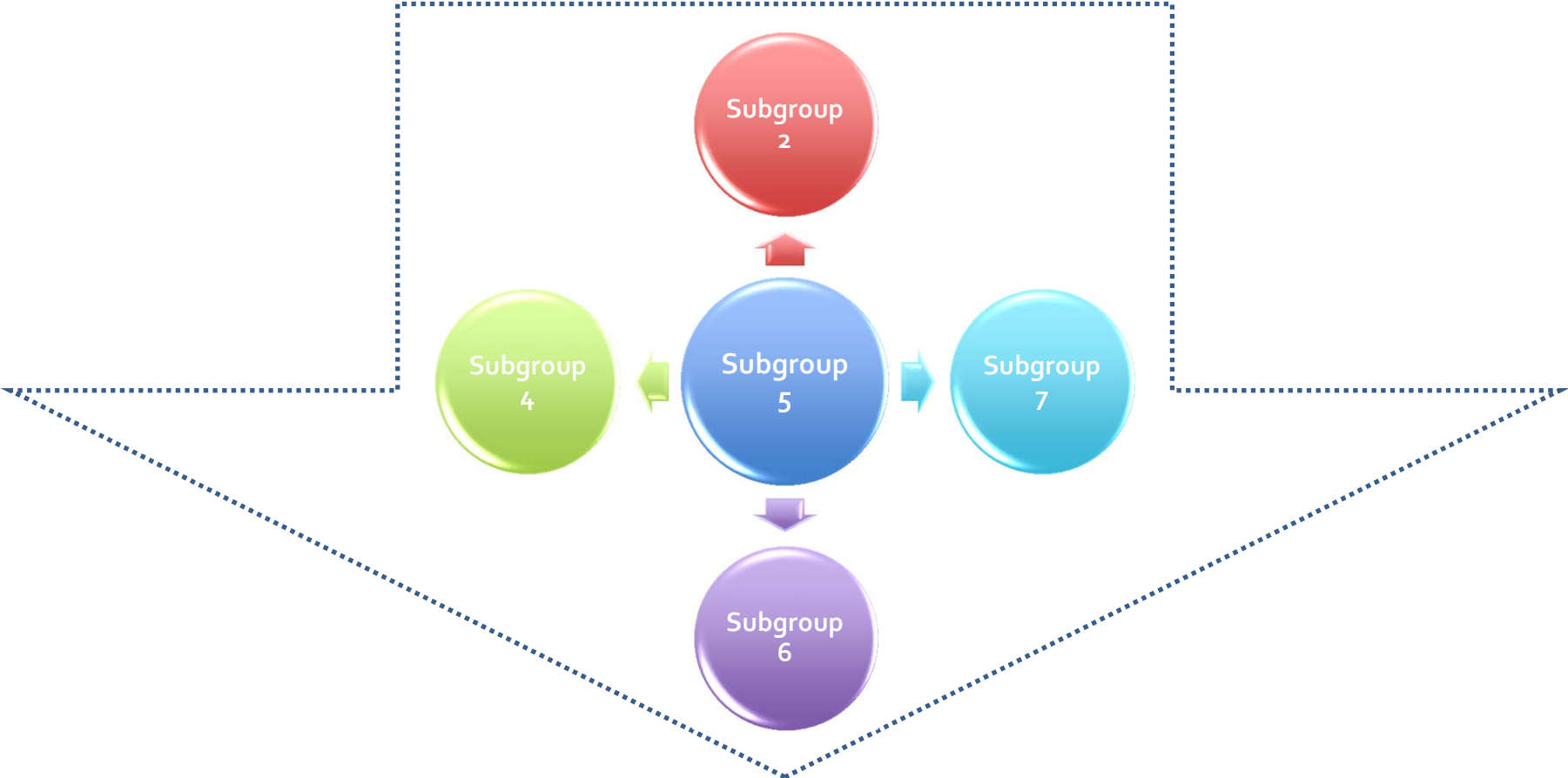


PROJECT ÁGUA-DF

**THE ROLE OF CENTRAL  
LABORATORY OF CAESB IN THE  
PROJECT ÁGUA DF**

SUBGROUP 05 - WATER QUALITY

# OBJECTIVE 1: INTEGRATION WITH OTHER SUBGROUPS



## INTEGRATED MODEL FOR WATER RESOURCES

## OBJECTIVE 2 : WATER QUALITY DATA TREATMENT FOR PARANOÁ LAKE – DATA BANK (SINCE 1977)

EXPECTED	REALIZED	REMARKS
Statistical evaluation of data for the optimization of monitoring	NO	<ul style="list-style-type: none"> <li>▪ Matter not prioritized;</li> <li>▪ Integration of legal obligations with the line of research</li> </ul>
Definition of key parameters for monitoring		
Defining a new monitoring plan		
Definition of the parameters to be used in modeling	PARTIAL	<ul style="list-style-type: none"> <li>▪ Sending results from data bank</li> <li>▪ SWMM, SWAT, CE-QUAL-W2</li> </ul>
Reformulation of the WQI	YES	<ul style="list-style-type: none"> <li>▪ Study by TUD</li> <li>▪ Study by UNB</li> </ul>

## OBJECTIVE 3 : NEW DATA ACQUISITION

EXPECTED	REALIZED	REMARKS
Online monitoring of Lake Paranoá through multiparameter probes	PARTIAL	<ul style="list-style-type: none"> <li>Probe installed by the Helmholtz Institute, in Lake Descoberto;</li> <li>Survey of equipment specifications made.</li> </ul>
Assessment of micropollutants made in Germany	YES	<ul style="list-style-type: none"> <li>Sampling campaigns in Lake Paranoá;</li> <li>Samples from WTP South and North;</li> <li>Samples from Lakes Descoberto and Santa Maria</li> <li>Interim reports released;</li> </ul>
Assessment of sediments	YES	<ul style="list-style-type: none"> <li>KIT</li> <li>UnB</li> </ul>
Water treatability tests (focus TOC/ DOC)	YES	<ul style="list-style-type: none"> <li>Samples from Paranoá sent to Dresden</li> </ul>
Preliminary evaluation of THM formation	YES	<ul style="list-style-type: none"> <li>UNB/ CAESB - samples from Paranoá</li> </ul>

## OBJECTIVE 4 : PROCESS IMPROVEMENT

EXPECTED	REALIZED	REMARKS
Acquisition of equipment and implementation of methodologies in CAESB	PARTIAL	<ul style="list-style-type: none"> <li>▪ Laboratory Container for testing purposes;</li> <li>▪ Acquisition planned for a mobile laboratory;</li> <li>▪ Acquisition of columns for ion chromatography;</li> <li>▪ Acquisition of TOC equipment;</li> <li>▪ Acquisition planned for equipment for micropollutants evaluation.</li> </ul>
Implementation of methodology and equipment for analysis of pathogens in CAESB	PARTIAL	<ul style="list-style-type: none"> <li>▪ Lack of German partners;</li> <li>▪ Training conducted by Cetesb</li> <li>▪ UnB</li> </ul>
Staff capacity building in Germany	YES	<ul style="list-style-type: none"> <li>▪ Visit to Karlsruhe and Dresden in January/2013</li> </ul>

## LABORATORY CONTAINER - 2010

- Equipments:
  - Central gas
  - Central waste
  - Gas chromatograph
  - TOC
  - UV-VIS Spectrophotometer
  - Water Purifier
  - Ion chromatograph
  - Refrigerator
  - Several glassware
  - Standards
- Capacity building
  - CAESB
  - UNB
  - UNESP
- Used by Caesb and UNB
  - CAESB - Evaluation of TOC, IC, and use of the spectrophotometer
  - UNB - Assessment of TOC samples
- Used by German partners

# SAMPLE COLLECTION FOR SHIPPING TO GERMANY

- Bottles
- Collection/ Transportation
- Multiparameter probes;
- Dredges;

# ANALYSES CARRIED OUT BY CAESB (RESEARCH SUPPORT TO GERMAN AND BRAZILIAN PARTNERS)

- [Ion Chromatography](#)

Evaluation of sediments

Evaluation of samples from WWT Pilot Plant

- [Metals](#)

Evaluation of samples from WWT Pilot Plant

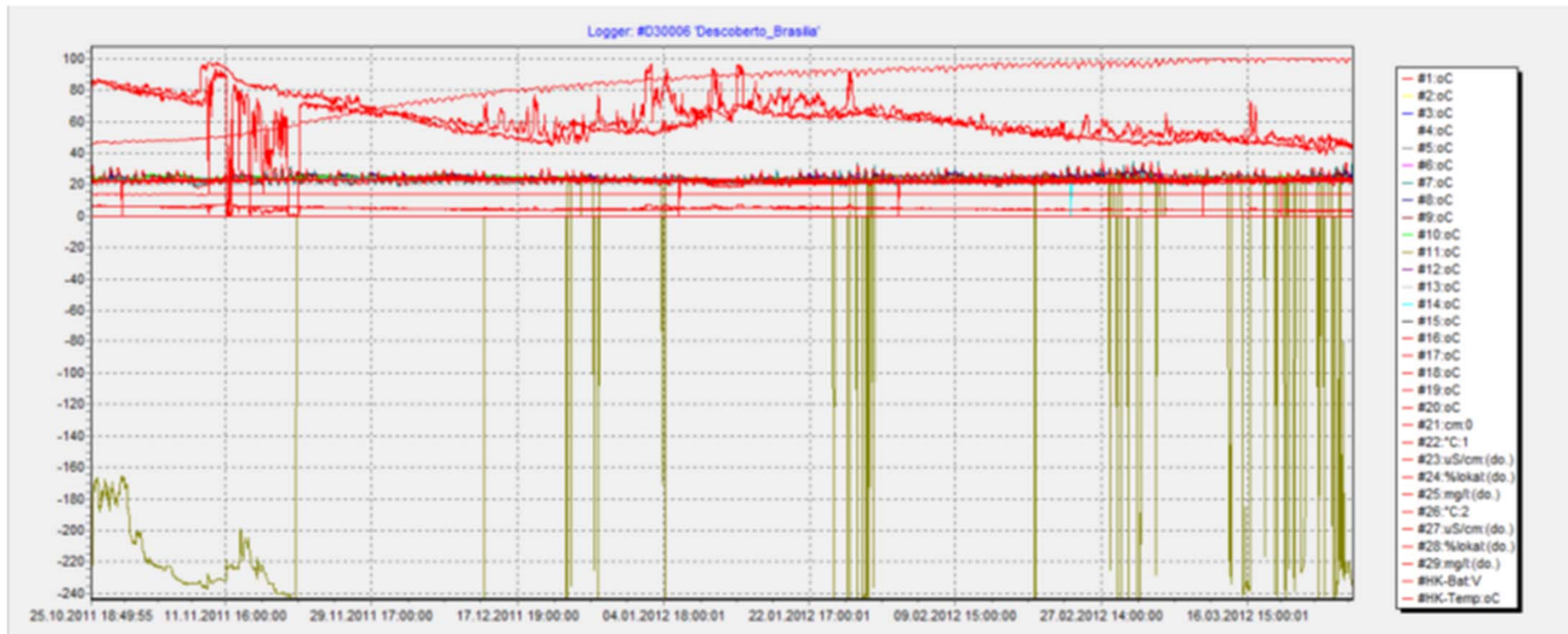
- [THM](#)

Evaluation of potential of formation of THM,  
in samples from Lake Paranoá





# INSTALLATION OF THE MULTIPARAMETER PROBE



# CAPACITY BUILDING - BRAZIL

- Workshop 1 - 2009
- Workshop 2 - 2010
- Workshop 3 - 2011
- Congress in Recife - 2011
- Workshop 4 - 2012
- Final Workshop - 2013

# CAPACITY BUILDING - GERMANY

- KARLSRUHE  
[Laboratories](#)  
[Technical Visits](#)
  
- DRESDEN  
[Laboratories](#)  
[Technical Visits](#)

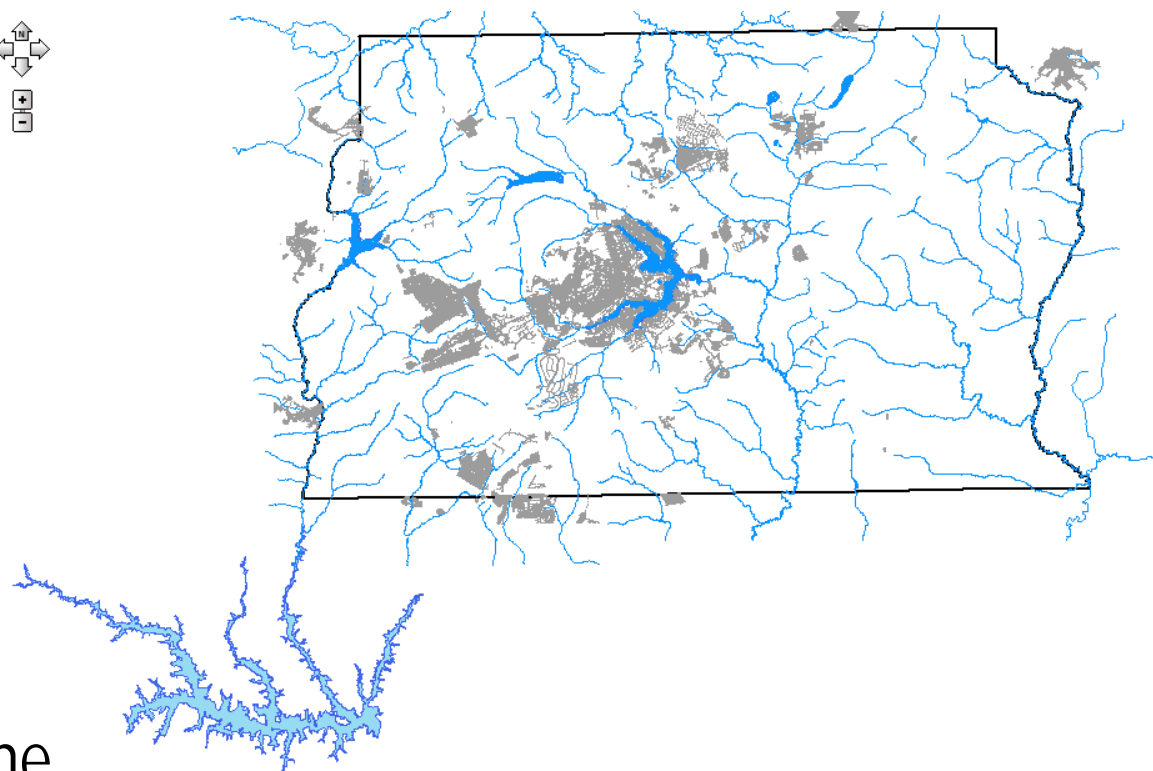
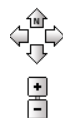


# OUTCOME FROM THE PROJECT

- Teamwork:
  - Opening a channel of communication with the educational institutions involved;
  - Structuring work plans;
  - Logistics of collecting and sending samples to Germany.
- Evaluation of the opportunities for improvement that can be implemented at the Central Laboratory, having as reference the places visited, regarding to:
  - Physical structure;
  - Methodologies already in use;
  - Comparison of results, methodologies and equipment.
- Evaluation of equipment specifications, suitable for our needs, for future acquisitions;
- A practical approach of other methods of analysis and evaluation of their applicability in processes developed in CAESB.
- Acquisition of new equipment (TOC, Mercury Analyzer, Microwave Oven) already made, to continue some of the analyses carried out in the Project.

# SUGGESTION FOR FUTURE WORK

- Assessments in other lakes of multiple uses. For example, Lake Corumbá.
- Broader approach, considering the biology and limnology (the chemical processes correlated with others, considering the lacustrine ecosystem as a whole).



# GENERAL OVERVIEW OF OBJECTIVES FOR SUBGROUP 5

- For Subgroup 5, most of the aims were fulfilled, even though some activities have been excluded, and others are still in progress;
- The information produced was of great importance, and Caesb expects to continue the evaluation, through technological improvement.

## WORK TEAM

- CAESB: Cristine Cavalcanti e Cínthia Cavalcanti
- KIT: Prof. Fritz Frimmel, Gudrun Abbt-Braun, Marius Majewski
- TU-Dresden: Prof. Eckhart Worch , Björn Steiniger, Hilmar Börnick
- UnB: Prof. Cristina Brandão



# THANK YOU

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