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Swiss Agency for Development and Cooperation SDC

# **Groundwater Resources Governance in**

# **Transboundary Aquifers**

Kalahari-Karoo/Stampriet Aquifer

# REPORT

# SECOND REGIONAL MEETING - TECHNICAL MEETING ON PROJECT IMPLEMENTATION

UN House, Windhoek, Namibia

21-23 May 2014



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## LIST OF ABBREVIATIONS

CFP	Country Focal Point
CSIR	Council for Scientific and Industrial Research
GEF	Global Environment Facility
GGRETA	Groundwater Resources Governance in Transboundary Aquifers
GROWAS	Groundwater database of the Department of Water Affairs of Namibia. It supports the monitoring and managing of the groundwater resources of Namibia.
IGRAC	International Groundwater Resources Assessment Centre (UNESCO category 2 centre)
IMS	Information Management System
ISARM	Internationally Shared Aquifer Resources Management Programme of UNESCO and IAH
JICA	Japan International Cooperation Agency
МССВ	Multi Country Consultative Body
NTTG	National Technical Transboundary Aquifer Group
RPC	Regional Project Coordinator
SDC	Swiss Agency for Development and Cooperation
ТВА	Transboundary Aquifer
TOR	Terms of Reference
TWAP	Transboundary Waters Assessment Programme
UNESCO-IHP	United Nations Educational, Scientific and Cultural Organization International Hydrological Programme
UNGA	United Nations General Assembly

## 1. Introduction

Within the framework of the "Groundwater Resources Governance in Transboundary Aquifers" (GGRETA), funded by the Swiss Agency for Development and Cooperation (SDC), the Governments of Botswana, Namibia and South Africa, jointly with the UNESCO International Hydrological Programme (UNESCO-IHP) and the International Groundwater Resources Assessment Centre (IGRAC) organized a technical meeting from 21-23 May 2014 on the assessment of the Stampriet transboundary aquifer at the United Nations House in Windhoek, Namibia

The GGRETA project - Stampriet Case Study aims at improving knowledge on the recognition and vulnerability of the Stampriet transboundary aquifer (Botswana, Namibia and South Africa), developing shared aquifer management tools, and initiating the development of Multi Country Consultative Body to agree on priority areas for action to improve the management of the Stampriet transboundary aquifer. At the first regional meeting organized in October 2013, national, regional and international experts representing a variety of stakeholder groups worked together to set the technical bases for starting the multidisciplinary assessment of the aquifer. To build on that, the technical meeting in May instructed and brought into operation the national technical groups who will lead the assessment.

Upcoming activities will focus on the harmonization of data collected in order to prepare the recommendations for the setting up of a world leading example of a joint coordination mechanism for the management and the governance of the aquifer. This will bring countries together to agree on priority issues, and lay the foundations to establish cooperation mechanisms among countries for the sustainable governance of their groundwater resources.

# 2. Objectives of the Second Regional Meeting – Technical Meeting on Project Implementation

The main objective of the technical meeting was to instruct and bring into operation the National Technical TBA Groups (NTTGs) from the involved countries using a common methodology for the assessment of hydrogeological, socio-economic, environmental, legal and institutional aspects of the Stampriet transboundary aquifer..

The Regional Technical Meeting also aimed at identifying the availability of different types of national data in Namibia, Botswana and South Africa with the national teams, and to agree on the project's technical organizational chart (**Annex 1**) and work plan (especially for data collection, processing, harmonization and communication) (**Annex 2**).

The Agenda of the meeting is attached as **Annex 3** to this report. Government representatives and experts from the three project countries attended the meeting. The List of Participants is attached as **Annex 4**. All PowerPoint presentations are available at the project website: <u>http://groundwatercop.iwlearn.net/gefgwportfolio/ggreta</u>

## 3. Summary of Main Actions, Conclusions and Decisions of the Second Regional Meeting – Technical Meeting on Project Implementation

Main actions, conclusions and decisions taken during the Second Regional Meeting – Technical Meeting on Project Implementation are as follows:

- Operationalization and interaction of the National Technical TBA Groups (NTTGs) who will implement the project.
- Training to ensure that the NTTGs have clear understanding of the project methodology and planning.
- Commencement of the second phase of multidisciplinary data collection activities relating to the aquifer assessment (i.e. hydrogeological, socioeconomic and environmental and legal and institutional aspects).
- Agreement on the priorities and schedule of data collection and processing activities based on the project methodology.
- Agreement on a template for NTTGs to report the type, availability and cost of data. These are being used to specify work plans and deliverables during the data collection and processing phase of the project.
- Preparation of a draft document showing the availability of hydrogeological, socioeconomic and environmental, and legal and institutional data in Namibia, Botswana and South Africa.
- Agreement on a revised version of the project organizational chart that clearly defines the relationships between different parts of the project management structure.
- Preparation of a cover/introductory letter on behalf of the major governmental stakeholders (Departments of Water Affairs) in order to support the national teams for data collection.
- Agreement on the set up of a shared workspace (management tool).
- Strengthening of cross-border dialogue and cooperation.

#### 4. **Project Execution Arrangements**

The GGRETA Project - Stampriet Case Study Project is being executed by UNESCO-IHP in cooperation with IGRAC. All activities are being carried out in close coordination with governmental authorities and the UNESCO-IHP national committees in the three countries (Botswana, Namibia, and South Africa). Other key stakeholders are consulted at set times during the project execution.

At the meeting a revised version of the project organizational chart that clearly defines the relationships between different parts of the project management structure was agreed. For each country, the NTTG will be responsible for the multi-disciplinary assessment covering hydrogeological, socio-economic, environmental, legal and institutional aspect. NTTGs are formed by one expert on hydrogeology, one expert on environment and socio-economics, and one expert on legal and institutional frameworks.

At the national level, the work of the NTTGs will be managed and guided by National Coordination Focal Points (CFPs) who will oversee their reports and also facilitate and coordinate project activities with national Government Representatives, namely:

- Namibia: Department of Water Affairs and Forestry of the Ministry of Agriculture, Water and Forestry;
- Botswana: Department of Water Affairs of the Ministry of Minerals, Energy and Water Resources;
- South Africa: Department of Water Affairs of the Ministry of Water and Environmental Affairs

Following approval of the CFPs, NTTGs will report to the Regional Project Coordinator (RPC). NTTGs should work in close cooperation among themselves and with the RPC to aggregate and harmonize the data collected.

At the transboundary level, the RPC will secure coordination between national teams (NTTGs/CFPs) for data harmonization and assessment, and reporting to the Project Management Unit (i.e. UNESCO and IGRAC).

A group picture and organizational chart of the GGRETA Project – Stampriet Case Study are presented in Figure 1 and **Annex 1**, respectively.



Figure 1 - Group picture of the GGRETA Project - Stampriet Case Study

# 5. Detailed Report of the Second Regional Meeting – Technical Meeting on Project Implementation

### Day 1 (Wednesday, 21 May 2014)

#### **Opening Session**

The meeting began with welcoming remarks from the Ms Barbieri (Officer in Charge of the UNESCO Office in Windhoek) and Government Representatives of Namibia, Botswana and South Africa, namely, Mr Nehemia (Under-Secretary, Department of Water Affairs, Government of Namibia), Mr Phofuetsile (Deputy Director, Department of Water Affairs, Government of Botswana), and Mr Netili (Senior Hydrogeologist, Council for Geoscience South Africa).

Ms Barbieri highlighted the importance of water in the Southern Africa Region, and the role UNESCO-IHP is playing in assisting countries to improve water resources management. She also thanked the Swiss Agency for Development and Cooperation (SDC) for its financial support to this project.

Mr Nehemia emphasized the full support of the Ministry of Agriculture, Water and Forestry of Namibia for the project. He stressed the fact that the Stampriet aquifer has a crucial role for local communities' survival in the region, particularly in times of drought, which Namibia has been experiencing for some time. He expressed strong support for a sustainable management approach with full reporting of project activities to the government and clear definition of the roles and management of stakeholders. He finished by thanking SDC for supporting the project.

Mr Phofuetsile started his intervention by highlighting the importance of the project as it would greatly contribute to water diplomacy by creating a tool to ensure that shared water resources are managed efficiently, sustainably and equitably. He emphasized that the Department of Water Affairs of the Ministry of Minerals, Energy and Water Resources of Botswana will provide strong efforts to facilitate data provision.

Mr Netili provided formal apologies from the Department of Water Affairs of the Ministry of Water and Environmental Affairs of South Africa for not attending the meeting, and expressed hope that the meeting will contribute to better understanding of the importance of the Stampriet groundwater resource in a region that is critically dependent on it.

#### Session 1 – Introduction to GGRETA Project

The meeting continued with an introduction and briefing on the GGRETA project context (**Annex 5**), objectives workplan, organization and methodology from Mr Ross (Senior Groundwater Advisor, UNESCO, Paris) and Mr Nijsten (Senior Researcher, International Groundwater Resources Centre – IGRAC, Delft - Netherlands).

<sup>\*</sup> All PowerPoint presentations are available at the project's website: http://groundwatercop.iwlearn.net/gefgwportfolio/ggreta

Mr Ross gave an overview of UNESCO's International Hydrological Programme (IHP) with emphasis on groundwater activities including the Internationally Shared Aquifer Resources Management Initiative (ISARM), the GEF Transboundary Waters Assessment Program (TWAP) and the UNGA resolution on the Law of Transboundary Aquifers. He explained how the project on Groundwater Governance in Transboundary Aquifers (GGRETA) financed by the Swiss Agency for Development and Cooperation initiates the development of Multi Country Consultative Body to agree on priority areas for action to improve the management of transboundary aquifers and provides a more in-depth analysis of TBAs than the TWAP.

Mr Nijsten introduced the methodology for carrying out the multidisciplinary assessments of transboundary aquifers covering hydrogeological, socioeconomic, environmental, legal and institutional aspects. He explained the project workflow and outputs including data collection, harmonization, aquifer level characterization and assessment. Harmonized data will be presented in thematic maps and tables to be uploaded into a shared information management system which is being developed under the project. Additionally, he emphasized that the ultimate goal of having an indicator-based assessment is to simplify the output message and make it understood by the beneficiaries and policy makers.

Mr Ross gave an overview of the project design and activities including the structure of outcomes and outputs and details of project activities expected in 2014. He explained the project execution arrangements and presented an organizational chart the project showing the main participants in the case study and their roles and responsibilities.

The meeting agreed on a revised version of the project organizational chart (Annex 1) that more clearly defines the relationships between different parts of the project management structure.

#### Session 2 – GGRETA Project: Stampriet case study: data collection and processing

The post lunch session was devoted to an introduction to data collection and processing for the Stampriet Case Study. The NTTGs received detailed briefing on the project methodology on hydrogeological, socioeconomic and environmental, and legal and institutional aspects from Prof Kirchner (Senior Hydrogeologist and Regional Project Coordinator) and Mr Stefano Burchi (Senior Legal Specialist with the International Association of Water Law - AIDA).

Prof Kirchner gave a comprehensive introduction to the Stampriet artesian basin. He introduced the geographical, climatic, socioeconomic and environmental features of the basin and summarized developments in the characterization of the aquifer. He also discussed particular variables including recharge, water quality and water abstractions, and some of the gaps in knowledge and challenges (e.g. data reliability, scattered data). He also introduced key developments in groundwater legislation and explained some of the problems in implementing the legislation.

Mr Burchi introduced revised methodology for collecting information on legal and institutional issues based on a questionnaire that he developed for the project. The questionnaire covers legislation related to both transboundary and domestic aquifer management and also includes a few questions on the implementation of legislation. Following discussion, discussion, the questionnaire was expanded and adjusted to include policies, macro-scale plans, and informal entities on the ground.

Mr Carvalho Resende stressed that there should be an agreement on priorities for data collection and a reporting template. Additionally, he emphasized that data collection should have a gender perspective, and sex-disaggregated data should be collected, if available.

## Day 2 (Thursday, 22 May 2014)

## <u>Session 3 - Discussion of the matrix for data collection and interventions from national</u> <u>experts</u>

This session was largely devoted to presentations by the NTTGs introducing and discussing the three countries' national data availability, data collection and processing requirements. The discussions were focused around the matrix of GGRETA variables and indicators. Data availability in the three countries was introduced by members of the newly recruited NTTGs from Namibia, Botswana and South Africa<sup>1</sup>. Availability of data was discussed with technical specialists according to their respective country and area of specialism. Hydrogeological data was discussed first (Ms Mulokoshi and Ms Joel - Namibia , Mr Lentswe - Botswana, Ms Leshomo – South Africa), followed by a socioeconomic and environmental (Mr Muroua – Namibia, Ms Mosetlhi – Botswana, Mr Hanise – South Africa), and legal and institutional data (Ms Kinyaga – Namibia, Mr Itumeleng – Botswana). The presentations were followed by a discussion of the availability of data for each variable to be collected in the GGRETA methodology. Based on the discussion, challenges such as data gaps (especially in hydrogeological data), and need for funding to cover field missions to collect data were identified. The meeting also agreed on a set of priority data to be collected and decided to discuss reporting requirements and logistical issues and cost of data collection on the final day of the meeting.

#### • Hydrogeological data:

Ms Joel – Namibia introduced the Namibian portion of the Stampriet aquifer including meteorology, geology and hydrogeological sections. She gave an overview of the key data sources including the Groundwater Resources Information Metadata, CSIR water quality data and maps, borehole data, water points information (GROWAS), the JICA report, the hydro-census, water level data and extraction data.

Conclusion: There are many data available for the Namibian part and the data availability is quite centralized

Mr Lentswe – Botswana provided data on climate, land use cover, aquifer geometry and water quality in Botswana, while acknowledging that data on hydrogeology in Botswana is scattered and sometimes difficult to access.

Conclusion: A reasonable amount of data exists, but it is located in different agencies and places

Ms Leshomo – South Africa showed some hydrogeological maps of the Stampriet aquifer region in South Africa, stretching different boundary definitions as well as an example of a

<sup>&</sup>lt;sup>1</sup> The NTTG for South Africa was still to be completed with the expert on legal & institutional aspects

geological log. Proxy variables such as livestock numbers will be important for estimating abstraction.

Conclusion: there is not much data on the South African part of the aquifer and it will be necessary to use proxy information.

Mr Kenabatho commented that it will be important to encourage collaboration between experts from different countries to share data sources and ensure data harmonization.

• Socioeconomic and environmental data:

Mr Muroua - Namibia provided an overview of the data and information sources for socioeconomic and environmental data in Namibia. There are a large number of data sources and the data is scattered but it can be collected.

Conclusion: Most data appear to be available, but from scattered sources.

Ms Mosetlhi – Botswana gave a comprehensive overview of data availability and sources in Botswana. Data on population, settlement types, development plans and community perceptions is readily available. Data on water use is available but scattered. Data on land use, and waste and wastewater management is limited and scattered.

Conclusion: Most data seem to be available, but scattered. Some environmental data sets are limited.

Mr Hanise – South Africa provided a profile of one district of the Stampriet area in South Africa. Most of the required data is available, but data on human dependency on groundwater is limited.

Conclusion: Data on water uses are limited.

• Legal and institutional data:

Ms Kinyaga - Namibia summarized the main features of the transboundary and domestic legal and institutional framework relating to groundwater management in Namibia. She also introduced ownership of groundwater resources and water user management responsibilities.

Conclusion: Necessary data are expected to be available.

Mr Itumeleng – Botswana introduced the transboundary legal and institutional framework, the Botswana Water Act, other relevant legislation including the Town & Country Planning Act and the ownership of groundwater.

Conclusion: Necessary data are expected to be available.

#### <u>Session 4 – Discussion of the matrix for data collection and interventions from national</u> <u>experts (contd.) and data harmonization</u>

Mr Nijsten introduced the project information management system, he also explained the need for data harmonization with some examples, and made some suggestions on communication within the project. The information management system will have the capacity to store interpreted data - such as digital layered maps, and tables - and documents. He explained some of the challenges of data harmonization including map projections, scale and legend. Finally he introduced the concept of a project workspace where information can be exchanged and shared between project experts and followed up.

Support was expressed in the following discussion for the development of a project workspace, and also for provision of additional resources to meet data collection expenses including travel from capitals to regional centers.

#### Day 3 (Friday, 23 May 2014)

Day 3 of the meeting included discussions on priorities for data collection and reporting, challenges for data collection and processing, including reporting and logistical requirements and on the further stages of the project including the next project meeting.

Mr Ross introduced the reporting requirements for the technical specialists during their initial contracts, and the priorities for data collection. The initial reports would identify the availability of data according to the variables in the GGRETA matrix. The next reports (end of the first contract period) would concentrate on priority variables identified by the Project Management Unit (UNESCO/IGRAC):

- Hydrogeology:
  - B.2 Geo-referenced boundary of the TBA
  - B.3 Depth of water table / piezometric surface
  - B.4 Depth to top of aquifer formation
  - B. 5 Vertical tickness of the aquifer
  - o C.1.1 Natural recharge
  - C.1.5 Extent recharge zones
  - o C.6 Total groundwater volume
  - C.7 Groundwater depletion
- Socio-economic and Environmental:
  - o D.1 Suitability for human consumption (natural groundwater quality)
  - D.2 Groundwater pollution
  - E.1 Population (total and density)
  - o E.2.1 Total groundwater abstraction
  - E.2.2 Groundwater abstraction for domestic use
  - E.2.3 Groundwater abstraction for agricultural use
  - E.2.4 Groundwater abstraction for commercial and industrial use

Meeting participants agreed on a matrix based on the project methodology for NTTGs to report the type, availability and cost of data, as well as priorities for the collection of data. The matrix provides a template to specify work plans and deliverables during the data collection and processing phase of the project.

Regarding in particular the legal and institutional data, it was agreed that the national specialists would focus the balance of work under their initial contracts on the collection of bi- and multi-lateral legal instruments, and of domestic legislation, called for by the Legal and Institutional Questionnaire. In addition, the specialists would also engage in the analysis of such legal instruments and legislation, in answer to questions 1 to 16 in the Questionnaire, and identify sources of information feeding questions 47, 49 and 50 in the same Questionnaire.

Mr Ross then introduced some of the challenges for data collection and processing phase of the project that had been identified during the meeting, including support and resources and the need for further clarification of the project organization. The NTTGs identified the need for offices where they could meet, and the government representatives agreed to work together to ensure that these facilities were available. Some of the specialists identified the need for funding to cover their travel to regional centres where some data required by the project is held.

It was decided that NTTGs would provide details of these costs in the matrix that the Project Management Unit (UNESCO/IGRAC) would supply with their first reports. The meeting also identified the need for letters of introduction from Government Representatives to enable the specialists to gain access to data, and government representatives agreed to arrange for the production of these letters.

The meeting also clarified that the Regional Project Coordinator will have a role in collecting and providing feedback on national reports following approval of CFPs. The primary role of data harmonization would fall to the NTTGs who should work in close cooperation among themselves and with the Regional Project Coordinator. National project leadership would continue to rest with the national Departments of Water Affairs.

Mr Ross presented a brief overview of the project workplan including project meetings. Participants agreed on the project work program and schedule of project meetings until the end of in 2015. They agreed to meet again in October 2014 with the venue and dates to be settled.

Representatives of the Project Management Unit (UNESCO/IGRAC) thanked all participants for their strong commitment to the Stampriet Project. The meeting was closed at 12:30

**Organizational chart of the GGRETA Project – Stampriet Case Study** 



# GGRETA Project – Stampriet Case Study Activities in 2014

	Activity	January	February	March	April	May	June	July	August	Sept	October	November	December
1	Project coordination												
2	Monitoring, evaluation												
3	Communication, public awareness												
4	Recruitment of project coordinator												
5	Recruitment of national specialists												
6	Elaboration aquifer specific methodology and indicators												
7	Organization of first project team meeting												
8	First project team meeting												
9	Data source identification												
10	Data collection												
11	Data processing												
12	Data harmonization												
13	Preparation of six monthly project report												
14	Organization of first technical review meeting												
15	First technical review meeting												
16	Aquifer assessment												
17	IMS design												
18	IMS development and testing												
20	Data input												
21	Training/technical capacity building												
22	Reports by national specialists and regional coordinator												
23	Annual project report												

# Agenda of the Meeting

# DAY 1 • Wednesday, 21 May 2014

oject	ives
•	To follow-up the GGRETA project context, objectives, methodology and organization;
•	To start the three countries' joint project data collection and processing requirements: hydrogeological, socioeconomic and environmental and legal and institutional;

• To operationalize the teams of national specialists.

9:00-9:20	Opening Session	
	Welcome remarks from participating countries	Mr Abraham Nehemia, Under-Secretary, Department of Water Affairs, Government of Namibia Ms Cecilia Barbieri UNESCO Office in Windhoek OIC and Representative
	Message from participant countries	Mr Peloteshweu Phofuetsile, Deputy Director, Department of Water Affairs, Government of Botswana (To be confirmed) Mr Fortress K. Netili, Senior Hydrogeologist, Council for Geo-Science South Africa
9:20-12:30	Session 1 – Introduction to GGRETA Project	<i>Chair:</i> Ms Aina Ileka, Chief Hydrogeologist, Department of Water Affairs, Government of Namibia
9.20-9:50	Follow-up and review of the GGRETA project: international context, project objectives, related activities	Mr Andrew Ross, Senior Groundwater Advisor, UNESCO
9.50-10:00	Discussion	
10:00-10:30	Coffee break	
10:30-11:15	Review of the GGRETA project design, methodology, data and indicators	Mr Geert-Jan Nijsten, Senior Researcher, International Groundwater

		Resources Assessment Centre
		(IGRAC)
11:15-11:30	Discussion	
11:30-12:00	Presentation and consideration of the	Mr Andrew Ross
	GGRETA project workplan and	
	organization roles and responsibilities	
	including national experts	
12.00-12.30	Discussion	
12:30-13:30	Lunch	
13:30-17:00	Session 2 – GGRETA Project:	Chair: Mr Fortress K. Netili,
	Stampriet case study: data collection	Senior Hydrogeologist,
	and processing	Council for Geo-Science
		South Africa
13:30-14:15	Hydrogeological, environmental and	Prof Jurgen Kirchner,
	socioeconomic data requirements and	Senior Hydrogeologist,
	sources	Regional Project Coordinator
14.15-15:00	Discussion	
15:00-15:30	Coffee break	
15.30-16:00	Legal and institutional data	Mr Stefano Burchi,
	requirements and sources	Senior Legal Specialist,
		AIDA
16:00-16.30	Discussion	
16:30-17:00	Closing discussion - issues arising	
	during the day	

# DAY 2 • Thursday, 22 May 2014

## Objectives

- To discuss the availability of different types of national data in Namibia, Botswana and South Africa relating to the parameters and indicators for the GGRETA project;
- To follow up data harmonization and communication within the project.

9:00-12:45	Session 3 – Discussion of the matrix for data collection and interventions from national experts	<i>Chair:</i> Mr Piet Kenabatho, Senior Lecturer, Department of Environmental Science, University of Botswana
9:00-9:15	Introduction to Day 2	Mr Geert-Jan Nijsten
9:15-11:15	Climatic, geological and hydrogeological data availability, types and sources (parameters and variables A,B and C)	10 minute presentations by national specialists followed by questions and discussion
	Namibia Botswana South Africa	
	Questions and discussion	
11.15-11:30	Coffee break	
11:30-12:45	Environmental and socioeconomic data availability, types and sources (parameters and variables D and E) Namibia Botswana South Africa Questions and discussion	10 minute presentations by national specialists followed by questions and discussion
12:45-13:45	Lunch	
13:45-16:30	Session 4 – Discussion of the matrix for data collection and interventions from national experts (contd.) and data harmonization.	Chair: Mr Stefano Burchi
13:45-15:00	Legal and institutional data availability, types and sources (parameters and variables F) Namibia Botswana South Africa Questions and discussion	10 minute presentations by national specialists followed by questions and discussion
15:00-15:30	Coffee break	

15:30-16:30	Data collection and harmonization, and communication within the project; methodology	Mr Geert-Jan Nijsten
16:30	Closing of the day	

# DAY 3 • Friday, 23 May 2014

# Objective

• To discuss the work plan for the project, especially data collection, processing and harmonization

9:00-12:30	Session 5 – Actions to be taken	<i>Chair:</i> Mr Youssef Filali-Meknassi, Science Programme Specialist, UNESCO Office in Windhoek
9:00-9:30	Introduction to Day 3 and follow-up on the workplan for the project	Mr Andrew Ross
9:00-12:15	Further discussion and debate on data collection and processing and actions to be taken (questions, doubts, etc) Agreement and adoption of the workplan Organization of next regional technical meeting	
12:15-12:30	Wrap up of the day	

# List of participants

Nr.	Name	Country	Organisation	Position	Contact Details
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## **GGRETA project context**

