

Workshop Report

SEACRIFOG Stakeholder Dialogue

- World Café Event at OSCM - February 7th 2018



Greenhouse Gas Observation & Climate-Smart Agriculture

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1. Supporting EU-African Cooperation on Research Infrastructures for Food Security and Greenhouse Gas Observations (SEACRIFOG) – Project overview

African societies face growing global change risks, with rapidly changing patterns of human settlements and intensity of use of **ecosystem services**. At the same time, climate variability and **climate change** trends are intensifying stress on the ecosystems that ensure environmental security, both locally (e.g. ecosystem services), regionally (e.g. sustainable development options) and internationally (e.g. carbon sequestration). Approaches that can address this challenge in an **integrated** and **multidisciplinary** way are urgently needed in many places in Africa where there is a close relationship between societal well-being and environmental condition, relating particularly to biomass for energy and **food production**, and hydrological considerations such as **water yields**. **Policymakers** and land-use decision makers are increasingly dependent on **knowledge** on the state of the environment. Long-term observational systems and **research infrastructures** have been identified to be indispensable elements of knowledge generation to serve **climate change adaptation**, **food security**, and **climate change mitigation**.

This project supports **EU-African cooperation** on research infrastructures. Its aims are to increase coherence and **interoperability** between infrastructures in Europe and Africa, to enhance technical competence, science awareness and **lifelong learning in Africa** in order to facilitate the use of research results for **evidence-based policy making**, and to identify **knowledge gaps** for future research directions. The project will:

- 1 identify the essential parameters needed to develop science based strategies to improve food and nutrition security including early warning systems and to **mitigate climate change**;
- 2 formulate a **roadmap** towards fully interoperable and accessible research infrastructures in agricultural and climate research in the EU and Africa that match the **needs of the users**, and;
- 3 deliver a contribution to **capacity building** and **human capital development** in Africa.

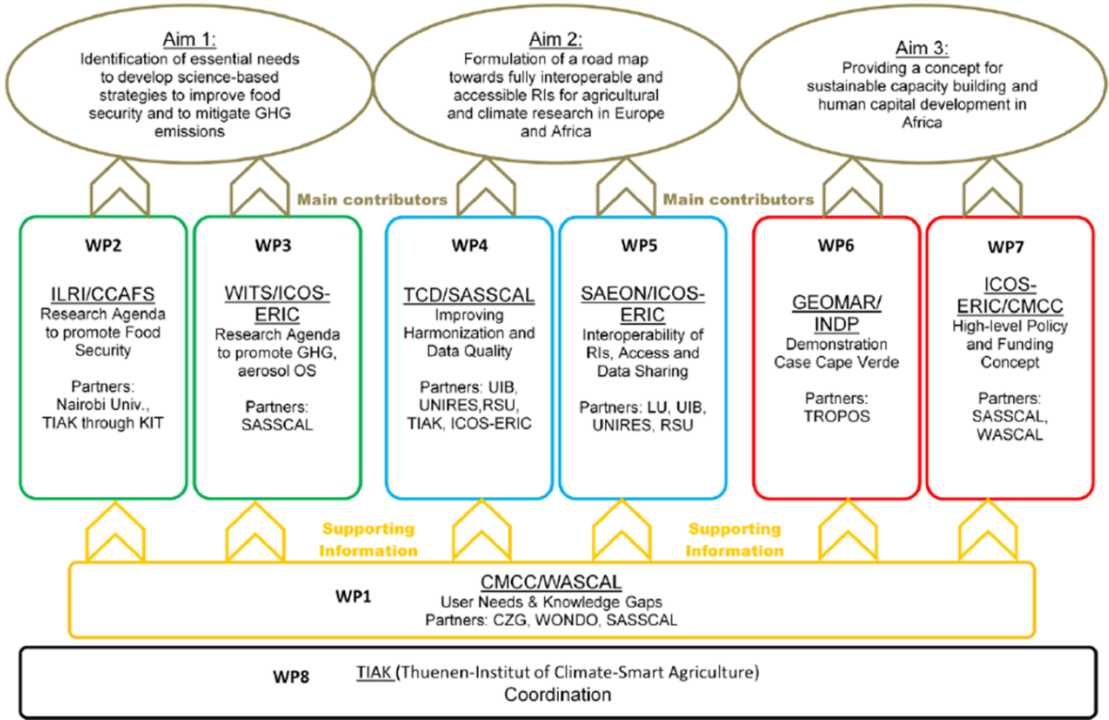


Figure 1 – Simplified overview of the SEACRIFOG project structure including the central aims and the main role of the individual work packages.

Work package 6 – Demonstration Case Cape Verde:

Objectives

- Explore the possibility to synergistically overlap the following three relevant “spheres” in marine and atmospheric research in Cape Verde and West Africa (Fig. 2):
 - o **International Research Sphere:** State-of-the-art marine and atmospheric research according to highest international standards exposing and connecting the “National Research Sphere” to the international community and science.
 - o **National Research Sphere:** Support the national research capabilities to enhance marine and atmospheric research on local/regional topics of high socioeconomic relevance. Assure high scientific standards through support and knowledge exchange with the “International Research Sphere”
 - o **Regional Marine Human Capital Development & Capacity Building Sphere:** Support the development of a West African human capital development and capacity building hub in Mindelo. Embed education and training into the context of active national and international research activities (TTR – Training-Through-Research).
- Contribute to “Aim 3” of SEACRIFOG (Fig. 1) by assessing the possibility of implementing this “three-spheres-approach” in a sustainable way and estimating the synergy potential to all parties involved.

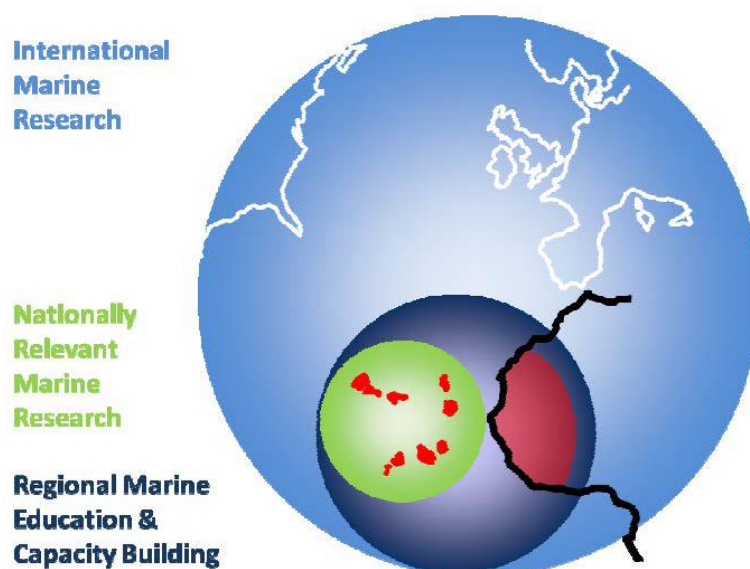


Figure 2 – Three-spheres-approach to identify synergistic overlaps between national and international research activities and regional development and capacity building.

2. Workshop format

This workshop followed the concept of a "World Café" dialogue that brought together stakeholders with different background and expertise. in order to discuss societal needs and challenges against the background of a global climate change and how environmental research both at the international and the regional level can address these topics adequately.

The World Café is a structured conversational process intended to facilitate discussion, initially in small groups and then linking ideas within a larger group to access the collective intelligence or collective wisdom in the room.

3. Topics

The topics covered during the dialogue were: **Regional Matters**, **International Matters** and **Capacity building** in the field of environmental sciences in West Africa. Each theme was discussed at a different table (Figure 3) and for 25 minutes the participants per groups (figure 4) were able to express their opinions and present ideas and suggestions on the proposed topics. After that time the groups moved to the next table.

Each dialogue table was attended by a facilitator and a notes taker:

Table 1 Regional Matters:	Table 2 International Matters:	Table 3 Capacity building:
Facilitator: Vito Melo (INDP/OSCM)	Facilitator: Björn Fiedler (GEOMAR)	Facilitator: Corrine Almeida (UNICV)
Notes taker: Ivanice Monteiro (INDP/OSCM)	Notes taker: Nuno Vieira (INDP/OSCM)	Notes taker: Elizandro Rodrigues (INDP/OSCM)

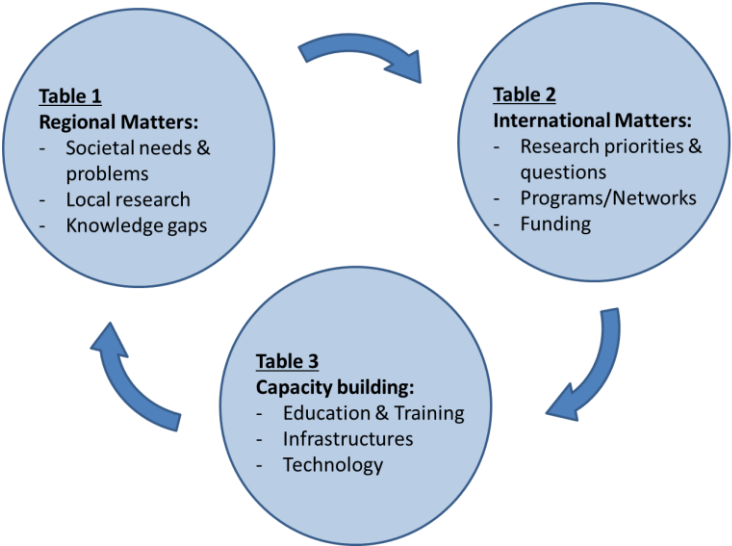


Figure 3- Figure schematic of the 3 tables dialogue and their respective themes and key issues.

	Nome	Instituição
Group 1	Sahida-Alina do Rosário	Ensino Secundário
	Ana costa	Universidade dos Açores
	Matthieu Waeles	IUEM
	Alexandre Bartolomeu	Direcção Nacional do Ambiente de Moçambique
	Kahbi Baptista	Guarda Costeira
	Silvana Monteiro	Direção Nacional do Ambiente (Cabo Verde)
	Nilson Brás	ABI-CV
	Elisia Cruz	Diretora departamento DPD no INDP
Group 2	Luis Morais	Directeur du laboratoire LEMAR
	Inês Machado	Faculdade de Ciências da Universidade de Lisboa
	Tommy Melo	Presidente Biosfera 1
	Felipe Soares	Diretor Pedagógico da Escola Portuguesa do Mindelo
	Joao Paulo Santos de Carvalho	GIZ / O Programa das Nações Unidas para o Desenvolvimento
	Lia Francisco dos Prazeres Neto Sousa	Ministério das Pescas e do Mar
	Maria Osvaldina Duarte Silva	Presidente do INDP
Group 3	Benvindo Fonseca	INDP
	Celso Billy Isac Montanha	Instituto Nacional de Investigação Pesqueira
	Debany Baptista	Universidade Bruxelas
	Tatiana Cabral	Fazenda de Camarão
	Delvis Fortes	Direção Nacional da Economia Marítima
	Alejandro Iglesias	Comissão Oceanográfica Intergovernamental da UNESCO
	Felismina Armando Cavane Antia	Ministério do Mar, Aguas Interiores e Pescas
	Pericles Silva	INDP/OSCM

Figure 4- List of participants by groups.

4. Summary

Table 1 Regional Matters

Participants from Azores, Portugal, Mozambique and Cape Verde addressed the following themes: **societal needs and problems, local research and knowledge gaps.**

With regard to **societal needs and problems** related to the environment the participants were concerned about climate change induced processes: Coastal erosion, salinization of soils, seasonal climatic changes with out-of-season rains and extreme flood and drought situations (depending on the region of the country), increase of storms and dispersion of species to new regions.

Participants from the Islands (Cape Verde and the Azores) shared the same view with regard to increased effort for fishing due to a decline of fish resources. In the Azores, with the economic crisis, more people entered the fisheries sector, which led to increased fishing effort and then overfishing and consequently there was a decline in per capita income. It has been shown that there is a certain difficulty in transferring scientific knowledge to the fishing communities.

In Cape Verde there seems to be a lack of knowledge of the real needs and concerns of fishing communities. For instance, reports exist about fish resources that are moving further away from the coast thereby causing a decline in fishermen's incomes. Moreover, Cape Verdean participants reported about deficits in coastal management which results in urbanization of many coastal areas in Cabo Verde. To some extent this is also due to a **lack of knowledge** about the **marine coastal environment**. Dedicated coastal **monitoring** is needed to better assess impacts on the marine environment. There is also a need to further invest in projects linked to renewable energies and combine research projects with local knowledge, this opinion also shared by participants from Portugal.

Participants from Mozambique reported their experience and they identified illiteracy, inefficient use of resources and conflicts of interest as well as the main challenges to overcome problems in the marine environment in their home country.

As for **local research**, participants from Mozambique and the Azores stated that they are carrying out action plans for adaptation to climate change, programs to increase ocean literacy and socio-economic programs with fishing communities. Participants listed international projects that were active in Cape Verde, such as the project funded by the Portuguese-American Foundation and the FCT for the monitoring of the oxygen minimum zone (OMZ) in the subtropical Atlantic Projects in partnership with countries of the subregion, such as the MESA - Monitoring of the Environment and Security in Africa (use of satellite information for environmental management) and the project PREFACE, (mitigation of social and economic problems through empirical knowledge) have been mentioned. Other local projects are:

- Projects in Education and environmental awareness;
- Identification of new fishing grounds in the Santa Luzia reserve;
- Project of fishing co-management in the fishing communities of Sal and Maio (PRAO-CV);
- Projects for added value of fishery products

Finally, a variety of **knowledge gaps** were discussed, which revealed the need for exploration of new marine resources in the Azores. In Mozambique there is a need for warning programs about possible storms and other maritime threats. With regard to Cape Verde the following gaps were identified:

- impact of management measures on marine resources and the community
- coastal dynamic processes
- marine circulation pattern between the islands
- potential role of marine protected areas in Cape Verde

- extreme oceanographic events such as deoxygenated eddies
- invasive species phenomenon
- abundance and potential impact of microplastics for the ecosystem

Table 2 International Matters

The topic at this table was dealing with international research programs and agendas and to explore their relevance for and connectivity to the local research sphere in West Africa. Participants were addressing the following topics:

Microplastics - There is a need to have studies about the amount of **microplastic** in this region of the Atlantic. Participants were not aware of globally coordinated observations of microplastic, similar to the one on ocean acidification. European representatives being present in the dialogue stated that even in Europe it just started to develop some coordination efforts. Cape Verdian representatives at the table were concerned about potential negative effects for the local marine resources such as fish and identified this as a clear **knowledge gap** that needs to be closed in the nearby future.

So far, more attention is being paid to **macroplastics** being present at many beaches, for instance, at the northern beaches of the island of São Vicente and Santa Luzia. NGOs are very active in organizing cleaning campaigns and they wish to participate also in international, coordinated programs. It was also mentioned that Cabo Verde, being a member of the West Africa Network of Protected Areas (RAMPAO), should try to identify origin of the garbage. There might be some mechanisms within RAMPAO to demand from origin countries some financial compensation, for instance, for costly cleaning campaigns in the protected areas of Cape Verde.

Another important aspect with global connectivity are **invasive species**, in particular among different **Macaronesian Archipelagos**, as well as chemical contamination caused by ship traffic, which tends to increase due to the greater flow of ships between these archipelagos, both commercial and recreational vessels.

The last issue discussed at the International Matters table was the difficulty of **accessing international funds** for environmental research. And even internally it is very difficult, especially for small NGOs. According to the participants, there is a strong need to improve this situation in the future. Three areas of action were identified:

- 1- Cape Verde does not have a **high-level representative** in international programs (mainly at the regional Comunidade Económica dos Estados da África Ocidental - CDEAO level);
- 2- Lack of knowledge and experience in how to **compete for funds** (type of fund, how to locate the funds, and how to design a project appropriately);
- 3- **Linguistic difficulties** as applications have to be done mostly in foreign languages (e.g., English).

One suggestion that was proposed during the dialogue would be to set up an internal fund-raising group. Although there is already such a group at the government level, this group does not give priority to science and education topics so much.

Another suggestion that was proposed during the dialogue is to more engage with the general public. Important scientific questions or results should be **better communicated to the public** in Cabo Verde. One example was reported from the University of Brest in France, where scientific articles are translated into a simpler language in order to be understood by non-scientific people. This translation can be done by students at the Bachelor or Master level in order to earn credits for their curriculum.

Table 3 Capacity building

Discussions about Capacity Building mainly included topics about education and training, infrastructures and technologies.

With regard to **education** participants raised some concerns about a limited cultural awareness of the marine environment due to a reduced marine and maritime literacy. This is not only the case for Cape Verde but also for the region in general and for African as a whole. In this sense, some proposals and experiences were made to improve this situation. The initiative “EcoTeachers” organizes activities to bring children closer to the ocean, taking advantage of the “Casa das Ciências” of UNICV. This includes several activities associated with the ocean such as field campaigns to the coastline, study visits to marine institutions.

Regarding formal **education in marine and maritime areas** in general, there is a need to develop this further at the university level. Graduate and post-graduate programs need to be strengthened and the potential of such programs for personal career development need to be better disseminated to the public.

There are a few studies such as the "Prospective Study on Strategic Human Resources for Cape Verde Development" (financed by the Luxembourg Cooperation), which also will contribute to a better definition of training needs in the marine and maritime area in the region.

In terms of knowledge gaps in Cabo Verde, the participants developed some suggestions which are listed in the table below.

Technical courses	Graduate courses	Postgraduate courses	Specialization Courses
Security / Firefighters	Fishing Technology	Physical, chemical and geological oceanography	Marine spatial planning
Geographic Information System	Aquaculture	Biotechnology	Environmental guide/Ecotourism
Maritime operator			Data management
Shipbuilding (Repair)			Hydrography / Bathymetry
Maritime Electronics			Installation of autonomous data collection systems
Maritime mechanics			
Fishing Technology			

Table 1 – Proposed courses to close identified knowledge gaps in Cabo Verde.

Improving linkage between **educational institutions** in Cabo Verde is crucial to develop more courses in the marine and maritime sector in order to better utilize (limited) resources.

Attention was drawn to the need to take greater advantage of investment and research projects in the West African region. When projects are being designed it has to be ensured that they always contain a **dedicated capacity building component** to improve human capacities (e.g. knowledge transfer).

With regard to **infrastructures for marine research** in Cape Verde, the island of São Vicente already has a few facilities. However, at the University of Cape Verde, there is a high need to improve the situation in terms of teaching and training of students in marine sciences (e.g., refurbishing laboratories, maintenance of research equipment, etc.). Although São Vicente is in the process of becoming the Cape Verdean center for marine and maritime matters, other islands in Cabo Verde

should not fall completely behind. This means that mechanisms within the archipelago need to be developed to enhance **mobility of students, lecturers and researchers** across all islands.

Due to the fact that institutions in Cabo Verde have only very limited technological capabilities and financial resources, new and possibly more cost-efficient technologies are needed. Further, new partnerships within Cabo Verde could already help to overcome this situation. For instance, merchant or coast guard vessels could be also used for the installation of autonomous data collection instruments. Such a transdisciplinary approach could help to use limited resources in a more efficient way.

5. Conclusion

Participants found out that across the Macaronesian archipelagos many similar challenges exist with regard to environmental research. Although some institutions in Cape Verde are very engaged in regional research projects, a demand for a better connection between local and international research initiatives was formulated. This has to go along with systematically developing capacities. Cape Verde appeared to have a very high demand for this when compared to the other regions. The following areas for action were discussed:

- External funding: Participants from Cape Verde suggested to establish an office for international fund hunting and project design explicitly for environmental research. This mechanism can be a very effective one as participants from other regions reported. Scientists from Cape Verde also would like to get better trained in project design and proposal writing.
- English language skills need to be improved in order to foster international collaborations in which Cape Verde could play an active role
- Cape Verdeans have to participate more actively in the sub regional commission meetings in order to take part in the decisions
- Mobility: A dedicated program for enhancing mobility of researchers and students within but also outside of Cape Verde is missing in Cabo Verde. Being an island state, this is of very high importance to foster national and international collaborations.
- The lack of knowledge about the state of coastal environments in Cape Verde needs to be solved by developing a monitoring program of key areas as it is the case at other archipelagos.

Finally, participants suggested to conduct such dialogue events more often in the future and also including some more representatives from the Cape Verdean ministries.

6. Appendix

Photos during the SEACRIFOG Workshop





SEACRIFOG Participants list

N.	Full Name (Name and surname)	Organization	Area of work ¹	Country	Geographical scope of organization
1	Fiedler, Bjoern	GEOMAR	A,C	Germany	West Africa
2	Filipe Soares	Escola Portuguesa, Mindelo	Education	Portugal	West Africa
3	Kahbi Batista	Guarda Costeira	Patrol	Cabo Verde	West Africa
4	Debany Batista	vrije universiteit Brussel, Belgium	Research Oceanography	Belgium Cabo Verde	Europe – West Africa
5	Tatiana Cabral	Fazenda de Camarão	Aquaculture	Cabo Verde	West Africa
6	Tommy Melo	Biosfera 1	Conservation	Cabo Verde	Cabo Verde
7	Nilson Brás	ABI - CV	Investigation, Conservation	Cabo Verde	Cabo Verde
8	Péricles Silva	INDP/OSCM	Oceanography	Cabo Verde	West Africa
9	Nuno Vieira	INDP/OSCM	Oceanography	Cabo Verde	West Africa
10	Vito Ramos	INDP/OSCM	Oceanography	Cabo Verde	West Africa
11	Fonseca Benvindo	INDP	Promotion and Development	Cabo Verde	Cabo Verde
12	Delvis Fortes	DNEM	Fisheries Inspection	Cabo Verde	Cabo Verde
13	Inês Machado	FCUL	NSP NSFD	Portugal	Europe and Atlantic Region
14	Ana costa	Uni. Açores	Marine Ecology	Portugal	N. Atlantic
15	Luis Tito de Morais	IRD - LEMAR	Fish Ecology	France	World wide marine
16	Felismina Antia	Ministry of Sea, Mozambique	Mar.	Mozambique	Mozambique
17	Celso Montanha	National Institute of Fisheries Research	Mar.	Mozambique	Mozambique

18	Elisa Cruz	INDP	Social, Economy	Cabo Verde	Cabo Verde
19	Silvana Roque	DNA/ DMAA-SV	Environment	Cabo Verde	Cabo Verde
20	Alexandre Bartolomeu	Direcção Nacional do Ambiente de Moçambique	Environment	Mozambique	Mozambique
21	Corrine Almeida	UNICV	Education Investigation	Cabo Verde	Cabo Verde
22	João de Carvalho	Deutsche Gesellschaft für Internationale Zusammenarbeit		Angola	Angola
23	Lia Sousa	Ministério das Pescas e do Mar	Protection of ecosystems	Angola	Angola
24	Éder Silva	OSCM	engineer	Cabo Verde	Cabo Verde
25	Ivanice Monteiro	INDP/OSCM	Marine Biology	Cabo Verde	Cabo Verde
26	Elizandro Rodrigues	INDP/OSCM	Marine Biology	Cabo Verde	Cabpo Verde
27	Sahida-Alina do Rosário	Ensino básico	Education	Cabo Verde	Cabpo Verde
28	Matthieu Waeles	UNIV-Brest		France	France

¹ A= Greenhouse gas observations, B= Forestry/forest management, C= Climate change, D= Environment and sustainability, E= Geoinformatics and data management,

F=Air Quality Monitoring, G =Agriculture/crop management, H= Nature conservation, I= Community based resource management, J= computer Science and engineering

K= Food security, L= Agroforestry, O= Other (if other please specify)