



Network for the development of Sustainable approaches for Large Scale Implementation of Sanitation in Africa



Coordination Action

Proposal/Contract Number: 037099

A Coordination Action supported by the European Commission under the Sixth Framework Programme within the " GLOBAL CHANGE AND ECOSYSTEMS " Programme Starting Date: 1st June 2006



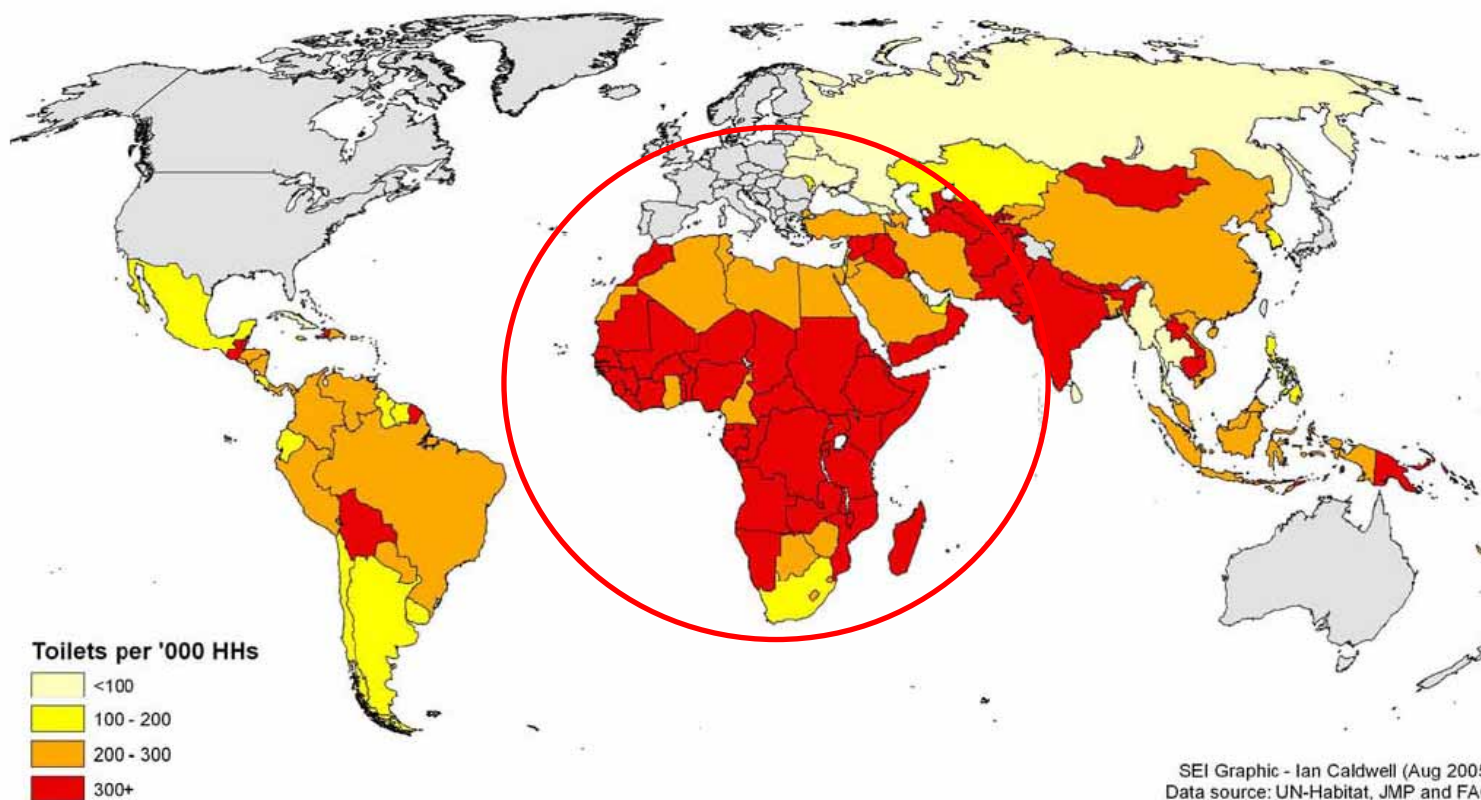
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Introduction

To achieve the year 2015 goal for urban water supply coverage in Sub-Saharan Africa– halving the percentage of those without access – an additional **210 million people over the next 15 years** will have to be provided with service.



Number of toilets per thousand households to be installed through to 2015 to meet the MDGs (Rockström, 2005)



The sanitation MDG in Africa will ***only*** be achieved by the strategic and guided execution of national and international plans for **large scale implementation of sanitation systems in peri-urban and rural areas**, counting on the technical and financial support of industrialised nations and the involvement of local communities for the decision making, planning and future management.



NETSSAF: Network for the development of Sustainable approaches for Large Scale Implementation of Sanitation in Africa

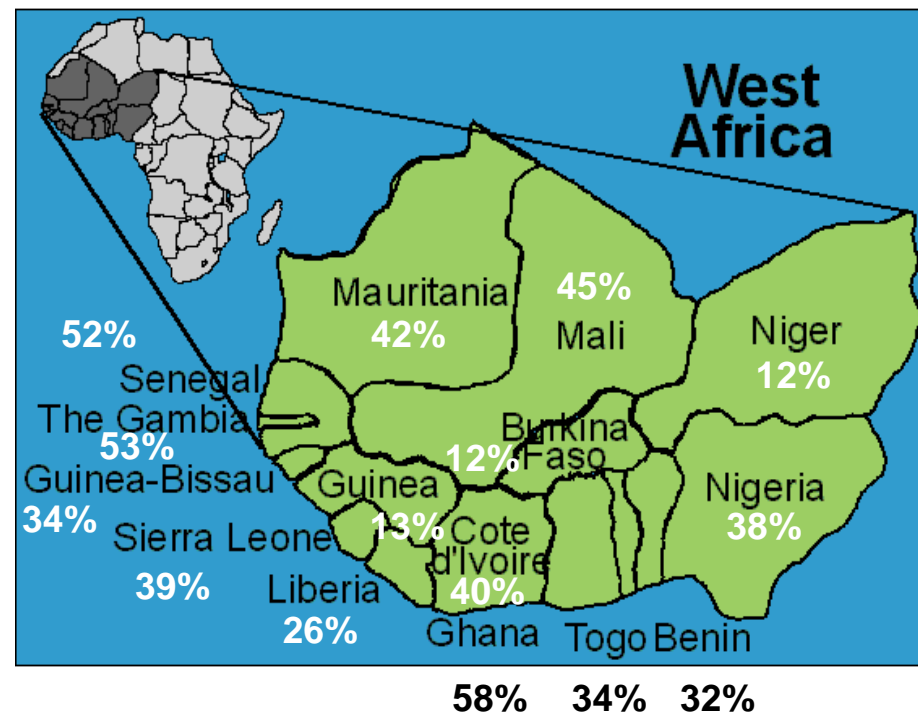
Acting in agreement with the objectives of the Cooperation Strategy of the European Community and aiming towards preparing the technical and organisational basis for massive implementation of sanitation facilities in Africa, the general objective of proposed Coordination Action will be:



To coordinate and integrate the current scientific research, technological innovation and execution activities, creating synergies to support the large scale implementation of sustainable sanitation systems in peri-urban and rural areas, in order to propose feasible solutions for the achievement of the Sanitation Millennium Development Goals in Africa.



Looking forward to have a plausible impact in the development of sustainable solutions for the sanitation crisis in the continent, NETSSAF will focus on proposing sanitation options based on the needs of the **West African countries**, where the sanitation coverage reaches 58% in the best of the cases (Ghana) and 12% in Niger and Burkina Faso.



Sanitation Coverage in the West African region (WHO-UNICEF, 2002)



The specific strategic objectives of the NETSSAF Co-ordination Action are:

1. To prepare the technical, social and policy bases for the future large-scale implementation of low cost technologies for sustainable sanitation in West Africa.
2. To encourage the establishment of permanent communication links between research centres, rural developing associations, regional networks, authorities and other stakeholders in Africa, focussing in the western region, promoting the know-how exchange and expertise in relation to innovative sanitation approaches for large-scale implementation.



3. To co-ordinate current research and development activities in Africa, focussing in the western region, in order to promote cooperation and avoid overlapping and duplication of efforts, taking into account traditional knowledge and innovation technologies.

4. To define, initiate and guide future R&D activities on West African level by mapping current research and forming research clusters in order to fulfil the scientific and technological needs for the further large-scale implementation of innovative and feasible sanitation concepts.



5. To identify a variety of innovative, adaptable and replicable approaches to sustainable sanitation in Africa, aiming at integrating appropriate low cost technologies in the context of community based management.

6. To disseminate the results, through a Sustainable Sanitation Extension Programme, designed specially to reach the local communities and to build capacity of authorities for future implementation and dissemination, developing institutional mechanisms for deployment of extension strategy.



The scientific and technological objectives of the NETSSAF Co-ordination Action are:

1. To evaluate and classify in a multidisciplinary approach a group of existent rural and peri-urban settlements with no access to improved sanitation in West Africa, selecting a set of typical cases.
2. To review and discuss different sanitation technologies (conventional and innovative), by using experiences of implementation in West Africa and other developing regions.



3. To identify suitable sanitation technologies for each typical case, according to the characteristics and needs identified regarding technical, social, economical, environmental, institutional and legal aspects.
4. To identify the technical requirements of each technology selected for large-scale implementation, regarding sourcing, logistics, installation, operation and maintenance.
5. To identify the non-technical requirements of each technology selected for large-scale implementation, regarding human, financial, economical, environmental, legal and institutional aspects.



6. To identify, map and contact the existent regional suppliers of the technological requirements of each sanitation technology selected, in order to prepare a West African database of Sanitation Supply.
7. To identify and map the current sanitation implementation activities and their actors in West African, in order to prepare a West African database of potential technology transfer associations and groups, which will participate in a future massive implementation.



8. To propose and design an Adapted Sustainable Sanitation Management System, to support decision makers and beneficiaries in identifying feasible sanitation alternatives for large-scale implementation by using low-cost technologies adapted to the different physical and socio-economic conditions prevailing in West Africa.

9. To develop adequate strategies for large-scale implementation of low-cost sanitation technologies in peri-urban and rural areas, focusing on their relevant governance, institutional frameworks and socio-economical aspects in the African context.



Definition of evaluation criteria

- 1.1-Multidisciplinary criteria for evaluation and classification of peri-urban and rural settlements with no access to improved sanitation.
- 1.2-Criteria for evaluation and systematisation of conventional and innovative low cost sanitation technologies.
- 1.3-Dissemination criteria

Regional evaluation and classification of typical settlements

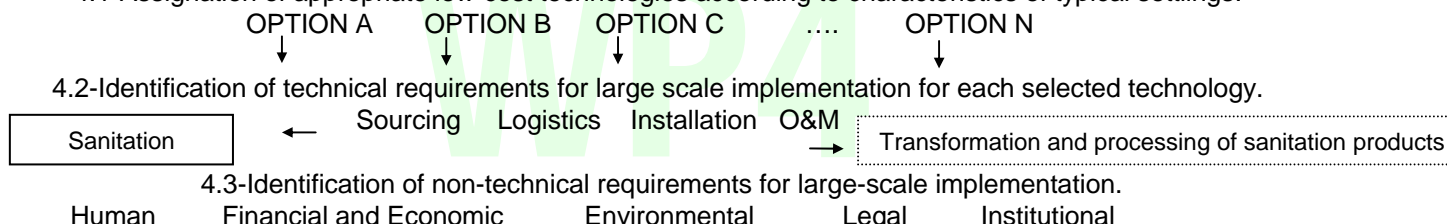
- 2.1-Selection of potential study population/areas.
- 2.2-Regional assessment of rural and peri-urban settlements.
- Identification of key actors.
- 2.3-Classification of typical settlements.
- 2.4-Selection of typical examples/ study cases.

Sanitation Technologies Assessment

- 3.1- Existing low cost conventional sanitation options.
- 3.2- Innovative sanitation technologies.

Identification of potential sustainable sanitation technologies

- 4.1-Assignment of appropriate low-cost technologies according to characteristics of typical settlements.



Adapted Sustainable Sanitation Management system

- 6.1- Design of decision making support tool.
- 6.2- Strategy of Implementation: Manual for planning and implementation.
- People – Authority- Technology

Regional identification of possible suppliers / actors

- 5.1- Identification and mapping of possible regional suppliers of technological requirements (material, constructors, installation, ect.)
- 5.2- Identification of current technology transfer and implementation activities and their actors.
- 5.3- Data Base Platform construction.

Coordination of research, technology development and cooperation

- 7.1- Mapping current research
- 7.2- Formation of research clusters
- 7.3- Formation of platform database
- 7.4-Recommendations for future research, technology developments and cooperation

Sustainable sanitation extension and dissemination programme

- 8.1-Extension activities sensitive to end users: Hygiene and Sanitation Promotion Programme
- 8.2-Capacity building of authorities for future implementation and dissemination
- 8.3-Linking and empowering existing and new specialised training activities
- 8.4-Development of tools and activities for mass dissemination
- Web page Data Base Publications Participation in international Symposia Final Conference

EG 1

Low cost sanitation technologies

EG 2

Agricultural potential

EG 3

Community base management

EG 4

Governance and institution

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
WP1: Definition of evaluation criteria																														
1.1	Multidisciplinary criteria for evaluation and classification of peri-urban and rural settlements with no access to improved sanitation																													
1.2	Criteria for evaluation and systematisation of conventional and innovative low cost sanitation technologies																													
1.3	Criteria of identification of key stakeholders																													
WP2: Regional evaluation and classification of typical settlements																														
2.1	Selection of potential study population/areas																													
2.2	Regional assessment of rural and peri-urban settlements																													
2.3	Classification of typical settlements																													
2.4	Selection of typical examples/ study cases																													
WP3: Sanitation Technologies Assessment																														
3.1	Existing low cost conventional sanitation options																													
3.2	Innovative sanitation technologies																													
WP4: Identification of potential sustainable sanitation technologies																														
4.1	Assignment of appropriate low-cost technologies according to characteristics of typical settlements																													
4.2	Identification of technical requirements for large scale implementation for each selected technology																													
4.3	Identification of non-technical requirements for large scale implementation																													
WP5: Regional identification of possible suppliers / actors																														
5.1	Identification and mapping of possible regional suppliers of technological requirements (material, constructors, installation)																													
5.2	Identification of current technology transfer and implementation activities and their actors																													
5.3	Data Base Platform construction																													
WP6: Adapted Sustainable Sanitation Management system																														
6.1	Development of the decision making support tool																													
6.2	Strategy of Implementation: Manual for planning and implementation																													
WP7: Coordination of research and technology development																														
7.1	Mapping current research																													
7.2	Formation of research clusters																													
7.3	Formation of platform database																													
7.4	Recommendations for future research, technology development and cooperation																													
WP8: Sustainable sanitation extension and dissemination programme																														
8.1	Extension activities sensitive to end users: Hygiene and Sanitation Promotion Program																													
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8.4	Development of tools and activities for mass dissemination																													
WP9: Project Management																														
9.1	General co-ordination and Financial Project Management																													
9.2	Administrative Project Management																													
9.3	Scientific Project Management																													
9.4	Local Project Management																													

Description of the work packages

WP1 (Definition of evaluation criteria): This WP aims to define the necessary evaluation criteria for the future activities to be performed during the course of the project. This part of the work will be intended to standardise and harmonise the evaluation activities to be performed in all the countries across the region, being decision tools of high quality and adaptability, which will also be an outcome for the future assessment activities. These will include: criteria of social, technical and economical evaluation and classification of peri-urban and rural settlements in targeted regions with no access to improved sanitation; criteria for evaluation and systematisation of conventional and innovative low cost sanitation technologies and dissemination criteria.



WP2 (Regional evaluation and classification in typical settlements):

This work package aims to collect and systemise relevant information regarding the current sanitation, social and institutional situation of peri urban and rural areas in West Africa. It will be a multidisciplinary stage, where data regarding the socio-economical situation of the regions, current sanitation practices and national/trans-national policy frame will be gathered. In the same sense, the human settlements will be classified, in order to systematise the existing needs, with the aim of producing a set of typical cases for which sanitation strategies should be designed. Finally, based on the results a list of key actors will be identify including end users, local, regional and national authorities, rural development organisations, among other, in order to define an extension strategy in WP8.



WP3 (Sanitation Technologies Assessment): this work package will be devoted to the assessment of the existing low conventional sanitation options and the innovative sanitation technologies. All the feasible technologies available will be evaluated using the criteria designed in WP1, based on the existing applications in Africa and other relevant developing countries.



WP4 (Identification of potential sustainable sanitation technologies):

Once the socio-economical characteristics and existing needs of typical cases have been identified in WP2 and a throughout evaluation of the sanitation technologies available is performed, an assignation of the most appropriated technology for each case will be executed. As a result a set of options will be obtained, for which the technical requirements will be identified, regarding sourcing, logistics, installation, operation and maintenance. If the sanitation technology also implies the recovery of nutrients an water (irrigation with wastewater, soil conditioning with excreta and/or urine fertilizer), then the technical requirements of the transformation and sanitation of the products will be identified. The identification of the non-technical requirements will also be carried out, meaning that the necessary human, financial, economical, environmental, legal and institutional aspects will be carefully reviewed.



WP5 (Regional Identification of possible sanitation providers and actors): This work package will be devoted to the development of an effective sanitation market information system, aimed to launch the activities performed by local producers and traders of sanitation materials (toilets, pipes, bricks, ect.) as well as local constructors companies and operation and maintenance suppliers, providing the necessary information to make feasible the implementation of large scale sanitation programmes in West Africa by using local infrastructure. Finally, the West African database of potential technology transfer and capacity building associations will be design, in order to link the current sanitation implementation to further prepare them for a future massive implementation.



WP6 (Adapted Sustainable Sanitation Management System): The development of this work package will be a key figure in completing NETSSAF goals, since it will merge the results obtained in WP2, WP3, WP4 and WP5, allowing the identification of appropriated low technology options, management strategies and policy options in a multidisciplinary approach for the support of a massive sanitation implementation in West Africa. One of the results, The Adapted Sustainable Sanitation Management System, will be a decision-making support tool that will enable the identification of feasible sanitation technologies adapted to the local physical and socio-economical conditions. It will be complemented by the guide “Implementing low cost sustainable sanitation approaches in West Africa”, a manual for planning and implementation each of the selected innovated low-cost sanitation technologies, taking into account community-based management and governance, institutional and socio-economical factors.



WP7 (Coordination of research, technology development and cooperation): the research and development institutions throughout the West African region will be identified in order to map the current research activities that are being performed in the field of sustainable sanitation in rural and peri-urban areas, identifying a set of research clusters to avoid overlapping and enhancing knowledge exchange. The members of this work package will receive the input from WP3, where the evaluation of the existing conventional low cost technologies as well as innovative sanitation options will be performed. Therefore, this group will be in charge of identifying the technological needs, as well as the gaps in knowledge for the massive implementation of appropriated sanitation systems. In this way, this co-ordination group will point out the research road needed for enhancing the application and the feasibility of these technologies in the African context. A set of recommendations for future research and technology development will also be produced.



WP8 (Sustainable sanitation extension and dissemination

programme): This extension program will be intended to reach 4 different targeted audiences: local communities, local and national authorities, specialised scientific community and the general public. In order to achieve this goal, the members of this group will design and carry out extension activities sensitive to users, will define activities for building up the capacity of the authority to disseminate the results and will also develop the institutional mechanisms for deployment of the extension strategy. All the findings regarding the dissemination strategies will be collated in Guidelines for future dissemination, regarding training local communities and design of awareness campaigns for local authorities. In order to bring to general public and relevant stakeholders the knowledge gathered through the co-ordination of efforts, a website for mass dissemination will be set up, and presentations, publications and the final conference will also be organised.



WP9 (Project management) :This work package is involved with the management of the project, and is responsible for all of the other work packages. In order to secure an efficient running of the project, the management tasks have been divided into four tasks: General co-ordination and Financial Project Management, Scientific Project Management, Local Project Manager and Administrative Project Management. WP9 includes the material and human resources management, as well as the communication to the partners of the project's progress and their obligations and the delivery of obligatory reports to the Commission.



Main contribution expected from the partners



- 1.- **Technologie Transfer Zentrum Bremerhaven (TTZ)**, Germany:
Administrative and financial project management; TTZ will pose as the leader of the Work Package 6, Adapted Sustainable Sanitation Management System, where they will give a special contribution in the development of the decision making support tool (task leader 6.1); Additionally, TTZ will be the responsible for the projects' webpage establishment. With the support of TUHH, TTZ will publish at least one article regarding WP4 (Assignment of appropriate low-cost technologies according to characteristics of typical settlements) and, jointly with BioAzul, one article regarding WP6 (Design of decision-making support tool), and they will give seminars during the final NETSSAF Conference on the Results of the Adapted Sustainable Sanitation Management System and on the Definition of future joint activities for network solidification. The databases to the developed during the projects time frame will be of the responsibility of BioAzul. Therefore, key actors and suppliers' database platform and platform database online will be constructed and maintained by BioAzul.



2.-Hamburg University of Technology (TUHH), Germany:

Scientific Project Management and Group leader of EG1 (Low cost sanitation technologies). TUHH will be in charge of the development of the criteria for evaluation and systematisation of conventional and innovative low cost sanitation technologies (task 1.2), for the classification of typical settlements task in WP2, and for the assessment of innovative sanitation technologies (task 3.2). Additionally, TUHH will design and develop a Guide for Large Scale Planning and Implementation of Low Cost Sanitation Technologies in task 6.2. They give a special contribution to the conception of recommendations for future research and technology developments (task 7.4). With the support of KNUST, TUHH will publish at least one article regarding the EG1, and with the support of TTZ, another one regarding WP4 (Assignment of appropriate low-cost technologies according to characteristics of typical settlements). They will give a seminar during the final NETSSAF Conference on the Strategy of Implementation: Manual for planning and implementation.



3.- Centre for low cost Water supply and sanitation (CREPA),

Burkina Faso: Local Project Management and the organizers of the final NETSSAF Conference in Ouagadougou-Burkina Faso. CREPA will be responsible for the Work Package 5 (Regional identification of possible suppliers / actors) giving a more profound contribution to the identification and mapping of possible regional suppliers of technological requirements. Additionally, CREPA will be the task leader of the Regional assessment of rural and peri-urban settlements / identification of key actors in WP2. They will be responsible for the organization of 3 Workshops in West Africa (Capacity Building Workshop, Rural Workshop and Second Research Clusters Workshop). Jointly with GTZ, they will publish at least one article concerning the EG3 (Community based management), and they will present a seminar regarding the Introduction to the West African database of Sanitation Supply.



- 4.- **BioAzul (BioAzul), Spain:** Report Project Management; Jointly with TTZ, they will publish at least one article concerning the WP6 (Design of decision-making support tool).
- 5.- **Ouest-Afraicain d'Appui Organisationnel et de Technologies Appropriées (BOATA),** Mali: The mid-term meeting will be organised by BOATA in Bamako-Mali. BOATA, with a large experience in carrying out feasibility studies to implement sustainable sanitation in West Africa, will be the leader of the "criteria of identification of key actors; dissemination criteria" task in WP1. They will be in charge of the most demanding Work Package: Sustainable sanitation extension and dissemination programme. BOATA will be the responsible for the Extension activities sensitive to end users (Hygiene and Sanitation Promotion Program). They will be responsible for the organization of 3 Workshops in West Africa (Capacity Building Workshop, Rural Workshop and First Research Clusters Workshop). Jointly with SLU, they will publish at least one article concerning the EG2 (Recycle of nutrients, agricultural and aquaculture potential), and they will present a seminar regarding the Strategy of dissemination and extension for local farmers: bringing sustainable sanitation to the rural and peri-urban areas of West Africa.



6.- International Ecological Engineering Society (IEES),

Switzerland: IEES will be the leader of the first Work Package, giving a contribution to the development of criteria for evaluation and systematisation of conventional and innovative low cost sanitation technologies. The identification of technical requirements for large-scale implementation for each selected technology, in the West African context, will be of the responsibility of IEES.

8.- International Water Association (IWA), United kingdom: they will play the role of Work Package leaders of the coordination of research and technology development (WP7) where they will help in the mapping of current research, formation of research clusters and the development of recommendations for future research and technology developments. They will also support task 1.1 (Multidisciplinary criteria for evaluation and classification of peri-urban and rural settlements with no access to improved sanitation) and 3.1 (Existing low cost conventional sanitation options). Jointly with ULeeds, they will publish at least one article concerning the WP7 (Recommendations for future research and technology developments), and they will present a seminar regarding the recommendations for future research, technology development and cooperation strategies.



9.- Université Abobo-Adjamé (UAA), Côte d'Ivoire: UAA will be the task leader of the mapping current research, giving special emphasis in Region B (Senegal, the Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia and Cote d'Ivoire). They will also be dedicated to the same region in the task 5.1 (Identification and mapping of possible regional suppliers of technological requirements). Additionally, UAA will support the NETSSAF web-page establishment by translating it into French. They will be responsible for the organization of 3 Workshops in West Africa (Capacity Building Workshop, Rural Workshop and Day Workshop).

10.- Sveriges Lantbruksuniversitet (SLU), Sweden: The group leader of EG 2 (Recycle of nutrients, agricultural and aquaculture potential). SLU will participate as an external collaborator, in account on their vast experience carrying out projects in Africa, in the development of multidisciplinary criteria for evaluation and classification of peri-urban and rural settlements with no access to improved sanitation (task 1.1). They will be the responsible for linking and empowering existing and new specialised training activities (task 8.4.1) and will also support in the evaluation of innovative sanitation technologies (task 3.2) and the formation of research clusters (task 7.2), among others tasks. Jointly with BOATA, they will publish at least one article concerning the EG2.



11.- Commune De Matam (MATAM), Sénégal: The authorities of the community of Matam, developers and implementers of sanitation strategies in their own community, will be the responsible for the identification of non-technical requirements for large scale implementation in West Africa (task 4.3). They will also participate in the dissemination programme focusing on the end users and capacity building of authorities, among other tasks. Additionally, they will be responsible for the organization of 2 Workshops in West Africa (Capacity Building Workshop and Rural Workshop).

12.- Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Switzerland: EAWAG will be the main responsible for the assessment of sanitation technologies Work Package (WP3), participating in the evaluation of existing low cost conventional sanitation options and innovative sanitation technologies. Additionally, they will give their support in the definition of criteria for evaluation and systematisation of conventional and innovative low cost sanitation technologies (task 1.2) and contribute in the development of recommendations for future research and technology developments, among other tasks. Jointly with SEI, they will also publish at least one article concerning the WP3 (Sanitation Technologies Assessment).



13.- Commune de Bobo-Dioulasso (Ville de SYA), Burkina Faso:

Ville de SYA will support CREPA in the Identification and mapping of possible regional suppliers of technological requirements (task 5.1) by working in the region C (Ghana, Burkina Faso, Benin and Togo). Ville de SYA will support in the development of multidisciplinary criteria for evaluation and classification of peri-urban and rural settlements with no access to improved sanitation (task 1.1) and the regional assessment of rural and peri-urban settlements /identification of key actors (task 2.2), among other tasks. Moreover, they will be responsible for the organization of 2 Workshops in West Africa (Capacity Building Workshop and Rural Workshop).

14.- EcoSan Club Austria (ESCA), Austria: ESCA will be the task leader of assignation of appropriate low-cost technologies according to characteristics of typical settlements (task 4.1) and, within its context, will organize a day Workshop with all members of the consortium. They will also give their support in other tasks, such as the assessment of innovative sanitation technologies (3.2) and the mapping of current research (7.1), and they will present a seminar regarding the appropriate sustainable sanitation models according to local conditions or rural and peri-urban regions of West Africa.



- 15.- Kwame Nkrumah University Of Science And Technology (KNUST), Ghana:** The multidisciplinary criteria for evaluation and classification of peri-urban and rural settlements with no access to improved sanitation (task 1.1) will be under the responsibility of KNUST, as will the task 7.2 (Formation of research clusters). They will also play a key role in the dissemination programme, especially to the end users and capacity building of authorities. They will be responsible for the organization of 3 Workshops in West Africa (Capacity Building Workshop, Rural Workshop and Day Workshop), and they will publish, with the help of TUHH, at least one article regarding EG1 (Low cost sanitation technologies).
- 16.- Leeds University (Uleeds), United kingdom:** The University of Leeds will be in charge of the development of recommendations for future research, technology development and cooperation and definition of future joint activities for network solidification, as a task leader in Work Package 7. Jointly with IWA, they will publish at least one article concerning the WP7 (Recommendations for future research and technology developments). Additionally, among other duties, they are expected to support the creation of criteria for evaluation and systematization of conventional and innovative low cost sanitation technologies (task 1.2) and give they input in the task 3.1 (Existing low cost conventional sanitation options).



- 17.- Université de Ouagadougou- Centre d'Etudes pour la Promotion, l'Aménagement et la Protection de l'Environnement (CEPAPE)**, Burkina Faso: CEPAPE will be the responsible for building the necessary capacities for the local authorities to be able to further disseminate and exploit the findings of NETSSAF initiative (task 8.2). Additionally, CEPAPE will be responsible for the selection of typical examples/ study cases in Work Package 2. They are foreseen to support in, among other tasks, the identification and mapping of possible regional suppliers of technological requirements, focusing their region of action, and the identification of current technology transfer and implementation activities and their actors in WP5. They will also be responsible for the organization of one Workshop in West Africa, they will publish, with the support of TUT, at least one article regarding the EG4 and will give a seminar during the final Conference on the Strategies of capacity building of authorities for future dissemination.
- 18.- Stockholm Environment Institute (SEI)**, Sweden: Work Package 4, Identification of potential sustainable sanitation technologies, will be under the supervision of SEI due to their great experience in providing sanitation based on conventional and innovative approaches in rural areas of developing countries, particularly in Africa. Additionally they will lead the assessment of existing low cost conventional sanitation options in Work Package 3. The mapping of current research, among several other tasks, will receive the support of SEI. Jointly with EAWAG, they will publish at least one article regarding the WP3.



19. **Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (GTZ), Germany:** Group leader of EG 3 (Community based management). GTZ will support the assessment of existing low cost conventional sanitation options and innovative sanitation technologies in Work Package 3, as in the dissemination and capacity building of authorities for future implementation and dissemination (task 8.2). GTZ will also give an especial contribution to the identification of non-technical requirements for large scale implementation by summarizing the drawn conclusions, and they will prepare at least one article, with the help of CREPA, related to the EG3.
20. **Tampere University of Technology (TUT), Finland:** TUT will give their valuable support in the development of a decision making support tool (task 6.1) by providing the scientific models required for the decision making engine. Additionally, they will give an especial contribution in the capacity building of authorities for future implementation and dissemination (task 8.2) and will support in the planning and design of activities sensitive to end users in task 8.1. TUT will provide their input in the development of recommendations for future research and technology developments, and will prepare at least one article, jointly with CEPAP, related to the EG4 (Governance and institution).

