



Project no. 037099

## NETSSAF

**Network for the development of Sustainable approaches for large Scale  
Implementation of Sanitation in Africa-**

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Thematic Priority: Global Change and Ecosystems

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Report “**

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RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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## INTRODUCTION

The general objective of NETSSAF is to coordinate the current scientific research, technological innovations and execution activities, creating synergies to support 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.

In order to achieve the NETSSAF objective, the coordination action is directed at two types of activities: coordination (including training) and consortium management activities. The latter comprises tasks and sub-tasks within 9 work packages (WP) each with a general and specific objective, which when integrated contribute to attaining the overall NETSSAF objective.

## 1. BACKGROUND INFORMATION

### 1.1. Description of the Work Package 7

In this work package, the research and development institutions throughout the West African region will be identified in order to map the current research activities in sustainable sanitation in rural and peri-urban areas. 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 scientific and technological needs, as well as the identification of gaps in knowledge for the massive implementation of appropriated sanitation systems. In this way, this co-ordination group will map 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. During this work package, the current international regional and sub-regional networks and developing organisation mapped in WP5 will be considered, in order to identify the proper recommendations for synergies and links, including the consolidation of the network.

### 1.2. Description of the task 7.2

As a follow up to the identification of research amongst institutions across the region comprising those within and outside the NETSSAF consortium as presented in **D06** (Current research within) and **D10** (First current research report outside), this task attempts to cluster the research identified in a schematised form.

### 1.3. Objectives of the present exercise

The specific objectives of this exercise are to:

- Avoid overlaps in research
- Enhance knowledge exchange amongst institutions
- Recommend linkages and subsequent synergies that will result from Networking
- Identify scientific and technological needs
- Identify gaps in knowledge
- Facilitate the preparation of a road map for research and technology development for the massive implementation of appropriate sanitation systems

#### **1.4. Methodology for the execution of this exercise (D16)**

The method used in executing Task 7.2, (the formation of research clusters) comprised review of secondary data (literature search, internet, etc); preparation of a draft document on clustering of the identified research; circulation of draft document to NETSSAF consortium members for their contributions leading to a consensus document (Table 1) based on a schematised systems approach, encompassing processes (Household/end-user, transport, treatment, reuse and disposal) and characteristics (Technical, institutional, etc.) of sanitation systems. The identified research areas were fitted into the table to provide the requisite clusters.

## 2. RESEARCH CLUSTERS WITHIN AND OUTSIDE NETSSAF CONSORTIUM

**Table 1: Research clusters identified within and outside the NETSSAF consortium**

Systems Processes / Systems Characteristics	Household/ End User	Transport	Treatment	Reuse/ Potential Reuse	Disposal
Technical	IWA,UAA, KNUST, KNUST,SEI, GTZ, GTZ, ESCA, TUHH  <i>ui,ui,diabeso, crepa-ci, crepa-ci, crepa-ci,pls, icrc-liberia, icrc-sierra leone,icrc- sierra leone, icrc-sierra leone, iwmi, kma, ewag, ewag, ujf, c- ouga, onea, wrsp-wb,aee, otterwasser, alphalog, eni, ioape</i>	IWA,SEI, GTZ,ESCA, SLU  <i>kma, ewag,ujf, otterwasser</i>	TTZ,TTZ,TTZ, TTZ,TTZ, TUHH,TUHH, TUHH,CREPA BOATA,IWA, IWA,UAA,UAA SLU,SLU,SLU EAWAG, EAWAG, EAWAG, EAWAG, EAWAG, KNUST,SEI, GTZ,UAA, UAA, ESCA, SLU  <i>Ifan,iwmi,kma, ewag,ujf,iiwe, iiwe,iiwe,onea, aee,inres,unral s, otterwasser, kwb,pse,waste , eni, kala- saba, edm</i>	TTZ,TTZ, TUHH,TUHH, TUHH,CREPA .BOATA, BOATA,IEES, IWA,SLU,SLU, KNUST,SEI, GTZ, ESCA, SLU  <i>ui,crepa-ci, crepa-ci, crepa-ci, enda-rup,ifan, iwmi,iwmi,kma ewag,ewag, iiwe, iiwe,onea,aee, inres,inres,unr als, otterwasser, waste, iopae, alphalog, ipr/ifra, ier</i>	IWA, SEI, ESCA  <i>kma, ewag, ujf, otterwasser,</i>
Institutional/Governance  -Capacity Assessment	CREPA, CREPA, CREPA,IWA, UAA, EAWAG, KNUST,SEI, GTZ, GTZ,TUT, BOATA,TUHH CEPAPE  <i>ui,diabeso, crepa-ci, crepa-ci,  crepa-ci, pls, unicef- guinea,unicef- guinea, kma alphlog</i>	IWA EAWAG,SEI, GTZ,TUT, TUHH  <i>crepa-ci, kma</i>	IWA, EAWAG, EAWAG, EAWAG, EAWAG,SEI, GTZ, TUHH  <i>crepaci, kma, eni</i>	IWA,EAWAG, SEI, GTZ,TUT, BOATA, TUHH  <i>crepa-ci, kma</i>	IWA, EAWAG,SEI, GTZ,TUT, TUHH  <i>crepa-ci, kma</i>
Policy regulations/ Legislation	CREPA,IWA, SEI, GTZ, GTZ, GTZ,  <i>crepa-ci, crepa-ci, kma</i>	IWA,SEI, GTZ  <i>kma</i>	IWA,SEI, GTZ  <i>kma</i>	IWA,SEI, GTZ  <i>Kma</i>	IWA,SEI, GTZ  <i>kma</i>
Economics  -Financing Mechanisms	BOATA, BOATA, BOATA,IWA,	IWA,SEI, GTZ, GTZ,TUT	TTZ,IWA,UAA, SLU, GTZ EAWAG,SEI,	BOATA, BOATA,IWA, UAA,SLU,SEI,	IWA,SEI, GTZ, GTZ,TUT

-Cost-Benefit Analysis	UAA,SEI, GTZ,TUT, CEPAPE  <i>crepa-ci, ifan,unicef- guinea uncch, kma, otterwasser, alphalog</i>	<i>kma, otterwasser, kwb</i>	GTZ,TUT  <i>kma, otterwasser, pse,waste,</i>	GTZ, GTZ,TUT  <i>otterwasser, waste</i>	<i>kma, otterwasser</i>
Environmental Impact	BOATA,IWA, MATAM,Sya, Sya,KNUST, KNUST, CEPAPE,SEI, GTZ,TUT,UAA CEPAPE  <i>scsr,crepa-ci, kma, ewag, ewag,ujf,ujf,co uga, alphalog</i>	IWA,SEI, GTZ,TUT,UAA  <i>scsr,crepaci, kma, ewag,ujf , ioape</i>	TTZ,BOATA, IWA, EAWAG, SEI, UAA,GTZ,TUT  <i>scsr,crepaci, kma, ewag,ujf,iiwe kwb,</i>	TUHH,IWA, SEI, GTZ,TUT,UAA  <i>scsr,crepai, kma. ewag, ewag ,ujf,iiwe, ioape</i>	IWA,SEI, GTZ,TUT,UAA  <i>scsr,crepaci, kma, ewag,ujf</i>
Health	BOATA,IWA, MATAM, UAA,Sya,Sya, KNUST, KNUST, KNUST, CEPAPE,SEI, GTZ, SLU  <i>scsr,crepaci, kma, ewag,ujf,c- oaga,iiwe,wrsp -wb, alphalog</i>	IWA,SEI, GTZ,UAA,  <i>scsr,crepaci, kma, ewag</i>	TTZ,CREPA, CREPA, UAA,BOATA, IWA, EAWAG,SEI, GTZ,  <i>scsr,crepaci, kma, ewag,iiwe</i>	IWA,SEI, GTZ,UAA,  <i>scsr,crepaci, kma, ewag,iiwe</i>	IWA,SEI, GTZ,UAA,  <i>scsr,crepai,, ewag</i>
Socio-cultural Gender Acceptance	BOATA, BOATA,IWA, KNUST,SEI, GTZ,TUT, CEPAPE  <i>crepa-ci, uncch, kma ,alphalog</i>	IWA,SEI, GTZ,TUT  <i>kma, otterwasser</i>	IWA, EAWAG,SEI, GTZ,TUT  <i>kma, otterwasser</i>	BOATA,IWA, SEI, GTZ,TUT  <i>CREPA-CI kma, otterwasser, alphalog</i>	IWA,SEI, GTZ,TUT  <i>kma., otterwasser</i>
Knowledge & Information Management /Education	CREPA,IEES, IEES,IEES, IWA,IWA, EAWAG, ESCA,KNUST KNUST, KNUST,SEI, GTZ,TUT, BOATA, CEPAPE  <i>crepaci, plsIs, unicef-guinea, kma, ewag,ujf,c- ouga,c- ouga,c- oaga,onea,ab mz,wrsp-wb, otterwasser, skat, waste, alphalog, ioape</i>	IEES,IEES, IWA,IWA, EAWAG, ESCA,SEI, GTZ,TUT  <i>crepaci, kma, ewag,ujf</i>	IEES,IEES, IWA, IWA,IWA, EAWAG, ESCA,SEI, GTZ,TUT  <i>crepaci, kma, ewag,ujf</i>	TTZ,IEES, IEES,IWA,IWA EAWAG, EAWAG, ESCA,SEI, GTZ,TUT  <i>crepaci, kma, ewag,ujf</i>	IEES,IEES, IWA,IWA, EAWAG, ESCA,SEI GTZ,TUT  <i>crepaci, kma, ewag,ujf</i>

Dissemination / Scaling up	CREPA,IWA, SEI,GTZ, BOATA  <i>kma, iiwe, abmz</i>	IWA,SEI, GTZ  <i>kma,</i>	IWA,SEI  <i>kma,</i>	TTZ,IWA,SEI, BOATA  <i>kma,</i>	IWA,SEI  <i>kma,</i>
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## KEY TO TABLE

### **Organizations within NETSSAF consortium (Uppercase)**

TTZ	Technologie Transfer Zentrum, Bremerhaven
TUHH	Technische Universität Hamburg-Harburg
CREPA	Le Centre Régional pour l'Eau Potable et l'Assainissement
BOATA	Bureau Ouest-Africain d'Organisationnel et de Technologies Appropries
IEES	International Ecological Engineering Society
IWA	International Water Association
UAA	Université Abobo-Adjame
SLU	Sveriges Lantbruksuniversitet
MTM	Mairie de Matam
EAWAG	Eidgenossische Anstalt für Wasserversorgung, Abwasserreinigung und Gewässerschutz
Ville-de-SYA	Commune de Bobo-Dioulasso
ESCA	EcoSan Club Austria
KNUST	Kwame Nkrumah University of Science & Technology
CEPAPE	Université de Ouagadougou-Centre d'Etudes pour la Promotion, l'Aménagement et la Protection de l'Environnement
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
TUT	Tampere University of Technology

### **Organizations outside NETSSAF consortium (lowercase italics)**

<i>ui</i>	University of Ibadan
<i>diabeso</i>	NGO Diabeso Sanya, Santinabougou, Mali
<i>crepa-ci</i>	Le Centre Regional pour l'Eau Potable et l'Assainissement in Cote d'Ivoire
<i>scsr</i>	Switzerland Centre for Scientific Research in Cote d'Ivoire
<i>plsIs</i>	Partnership Lille Saint-Louis du Senegal
<i>enda rup</i>	
<i>ifan</i>	Institut Fondamental d'Afrique Noire
<i>unicef-guinea</i>	
<i>icrc-liberia</i>	
<i>icrc-sierra leone</i>	
<i>uncch</i>	University of North Carolina at Chapel Hill

<i>iwmi</i>	International Water Management Institute
<i>kma</i>	Kumasi Metropolitan Authority
<i>ujf</i>	University of Jyvaskyla, Finland
<i>iiwe</i>	International Institute of Water and Environment
<i>c-ouaga</i>	Commune of Ouagadougou
<i>onea</i>	Office National de l'Eau et de l'Assainissement
<i>awrsp-wb</i>	Africa Water Resources and Sanitation program- World bank
<i>ae</i>	Institute for Sustainable Technologies
<i>unrals</i>	University of Natural Resources and Applied Life Sciences, Vienna
<i>otterwasser</i>	Otterwasser GmbH
<i>skat</i>	Swiss Resource Centre and Consultancies for Development
<i>kwb</i>	Kompetenzzentrum Wasser Berlin
<i>waste</i>	Waste Advisers
<i>ioape</i>	Institut Ouest Africain de Protection de l'Environnement, Mali
<i>alphalog</i>	NGO working in the Sector of Sanitation, Mali
<i>edm</i>	Energie du Mali, Mali
<i>eni</i>	Ecole Nationale des Ingénieurs, Mali
<i>ipr/ifra</i>	Institut Polytechnique Rural/Institut de Formation et de Recherche Appliquée, Mali
<i>ier</i>	Institut d'Economie Rurale, Mali
<i>d-bamako</i>	District de Bamako, Mali
<i>kala saba</i>	Bureau d'Etude, Mali

### 3. CONCLUSION

1. Research on sustainable sanitation within the NETSSAF consortium has been directed mostly at the Technical aspects.
2. The magnitude of research attention followed the trend of Technical (16.4%), Knowledge & Information management/Education (14.8%), Institutional/Governance (13.1%), Environmental impact (12.1%), Economics (11.8%), Health (10.8%), Socio-cultural (8.9%), Policy (7.5%) and Dissemination/Scaling Up (4.6%). These figures show the areas which have received less research attention which, in turn, pinpoints the direction of future research within the consortium.
3. Additionally, within the system characteristics, the intensity of research with regard to process also vary considerably. In the Technical aspects, most of the work is on Treatment (36%) followed by Reuse (32%), Household (18%), Transport (8%) and Disposal (3%). Similarly, within Institutional/Governance, Policy/Legislation, Economics, Environmental Impact, Health, Socio-cultural, Knowledge & Information management/Education and Dissemination/Scaling most of the work is in Household with the percentage research intensity of 35%, 26%, 25%, 35%, 36%, 30%, 36% and 29%, respectively.

4. Research on sustainable sanitation outside the NETSSAF consortium has also been directed mostly at the Technical aspects.
5. The magnitude of research attention followed the trend of Technical (32.6%), Environmental impact (14.8%), Knowledge & Information Management/Education (14.0%), Health (11.4%), Institutional/Governance (8.1%), Economics (7.6%), Socio-cultural (5.5%), Policy (3%) and Dissemination/Scaling Up (3%).
6. Research outside the NETSSAF consortium is also mostly directed at Household ; Technical (28.4%), Knowledge & Information Management/Education (19.3%), Health (11.4%), Institutional/Governance (11.4%), Environmental Impact (10.2%), Economics (8%), Socio-cultural (4.5%), Policy/Legislation (3.4%) and Dissemination/Scaling (3.4%).
7. These figures show that both within and outside the NETSSAF consortium very little research attention has been given to the areas of Policy and Dissemination/Scaling up.