

EcoSanRes Phase 2  
2006-2010



Project Document  
**Final Draft (3d)**

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## Table of Contents

<b><u>LIST OF ACRONYMS.....</u></b>	<b><u>4</u></b>
<b><u>1. SUMMARY.....</u></b>	<b><u>7</u></b>
1.1. GENERAL OBJECTIVES OF THE ECOSANRES PROGRAMME PHASE 2 .....	7
1.2. CENTRAL COMPONENTS OF THE PROGRAMME.....	7
1.3. GLOBAL SUSTAINABLE SANITATION FUND.....	9
<b><u>2. CONTEXT .....</u></b>	<b><u>10</u></b>
2.1. THE SANITATION CHALLENGE .....	10
2.2. SANITATION, POVERTY ALLEVIATION, AND ENVIRONMENTAL SECURITY.....	10
2.3. STRATEGIC ROLE OF ESR 2 AND THE MDGs TO 2015 .....	11
2.4. STATUS OF SUSTAINABLE SANITATION IN THE WORLD TODAY.....	13
THE INCREASING DEMAND .....	14
<b><u>3. AVAILABLE RESOURCE BASE .....</u></b>	<b><u>17</u></b>
3.1. SWEDISH EXPERT RESOURCE BASE .....	17
3.2. INTERNATIONAL EXPERT RESOURCE BASE.....	17
3.3. PRIVATE SECTOR RESOURCE BASE.....	18
3.4. SEI'S ROLE IN ECOSANRES PHASE 2.....	18
<b><u>4. OVERALL PROGRAMME VISION, STRATEGY AND FUTURE DIRECTION .....</u></b>	<b><u>21</u></b>
4.1. OVERALL STRATEGIC AIMS OF THE ECOSANRES PROGRAMME.....	21
4.2. MOVING FROM PHASE 1 TO PHASE 2.....	21
4.3. SUGGESTED DIRECTIONS FOR THE ECOSANRES PROGRAMME PHASE 2.....	22
<b><u>5. PROGRAMME OBJECTIVES, OUTPUTS AND ACTIVITIES.....</u></b>	<b><u>28</u></b>
5.1. CENTRAL OBJECTIVE .....	28
5.2. SUB-OBJECTIVES .....	28
5.3. MODUS OPERANDI.....	28
5.4. REGIONAL NODE PROGRAMME IN THE SOUTH .....	28
5.5. KNOWLEDGE DEVELOPMENT AND ADVISORY TEAM .....	33
5.6. COMMUNICATIONS AND NETWORKING .....	35
<b><u>6. PROGRAMME INPUTS .....</u></b>	<b><u>38</u></b>
6.1. PROGRAMME ORGANISATION .....	38
6.2. CAPACITY BUILDING AND NODE DEVELOPMENT PROGRAMME.....	38
6.3. KNOWLEDGE DEVELOPMENT TEAM.....	42
6.4. THEMATIC WORKING GROUPS.....	42

6.5. COMMUNICATIONS AND NETWORKING .....	42
<u>7. GOVERNANCE AND MANAGEMENT OF THE PROGRAMME .....</u>	<u>45</u>
7.1. PROGRAMME MANAGEMENT.....	45
7.2. GOVERNANCE .....	46
7.3. INTERNATIONAL REVIEW PANEL .....	46
<u>8. BRIEF OUTLINE OF THE PROGRAMME IMPLEMENTATION STRATEGY.....</u>	<u>48</u>
<u>9. CALLS FOR PROPOSALS, CONTRACTS AND INVOICING.....</u>	<u>49</u>
<u>10. REVIEW, EVALUATION AND MONITORING.....</u>	<u>50</u>
<u>11. RISKS, PRIOR OBLIGATIONS AND PRE-REQUISITES.....</u>	<u>52</u>
11.1. SUSTAINABLE SANITATION FUND .....	52
11.2. FUNDING OF THE ONGOING PILOT PROJECTS.....	52
11.3. POSSIBLE RISKS .....	52
11.4. EXITING STRATEGIES .....	53
<u>12. LFA ANALYSIS.....</u>	<u>54</u>
12.1. LFA STRATEGIC ANALYSIS .....	54
12.2. LFA PROJECT PLANNING MATRIX .....	56
<u>13. BUDGET .....</u>	<u>61</u>
13.1. PROJECT BUDGET LINES FOR 2006-2010 .....	61
13.2. BUDGET 2006.....	62
<u>ANNEX 1 FUND FOR SUSTAINABLE SANITATION.....</u>	<u>64</u>
<u>ANNEX 2 – ASSESSMENT OF ESR PHASE 1 .....</u>	<u>69</u>
<u>ANNEX 3 RECOMMENDATIONS FROM THE INTERNATIONAL ECOSAN COMMUNITY .....</u>	<u>70</u>
<u>ANNEX 4 COLLABORATING ORGANISATIONS .....</u>	<u>73</u>
<u>ANNEX 5 JOB DESCRIPTIONS.....</u>	<u>78</u>

### **List of Acronyms**

ADA – Austrian Development Assistance  
ADB – Asian Development Bank, Manila, Philippines  
AfDB – African Development bank, Dakar, Senegal  
Akkadia – Akkadia Consulting, Stockholm, Sweden  
AQUAMOR (Zimbabwe)  
ASEAN – Association of Southeast Asian Nations, Jakarta, Indonesia  
BCM – Buffalo City Municipality, South Africa  
BOKU University of Natural Resources and Applied Life Sciences, Vienna, Austria  
CAPNET - An international network for capacity building in IWRM,  
CAPNET – Capacity Building for Integrated Water Resources Management Delft, the Netherlands (UNDP)  
CGIAR - The Consultative Group on International Agricultural Research,  
China Council - The China Council for International Cooperation on Environment and Development  
CITA (Mexico) Alternative Technologies for Water Conservation, Cuernavaca, Mexico  
CEPP (US)  
CODIS-PRODEINE (La Paz, Bolivia)  
CREPA - Le Centre Régional pour l'Eau Potable et l'Assainissement à faible coût, Ouagadougou, Burkina Faso  
CSD – United Nations Commission on Sustainable Development  
Danida - Danish International Development Agency, Copenhagen, Denmark  
DST – Department of Science and Technology, South Africa  
EAWAG – Swiss Federal Institute of Aquatic Science and Technology, Dübendorf and Kastanienbaum, Switzerland  
EBRD – European Bank for Reconstruction and Development, London, UK  
ECO-SOLUTIONS - Sustainable Technologies in the Community, Trivandrum, India  
EECCA – Eastern Europe, Caucasus and Central Asia  
EIB – EU European Investment Bank, Luxembourg  
ESA – European Space Agency  
ESPACIO de SALUD - NGO for health and environment in low-income urban and rural communities, Cuernavaca, Mexico  
ESR – EcoSanRes Programme, Stockholm Environment Institute (SEI), Stockholm, Sweden  
ESR 1 – EcoSanRes Programme Phase 1  
ESR 2 – EcoSanRes Programme Phase 2  
FAO – Food and Agriculture Organisation of the United Nations, Rome, Italy  
Finnida - The Department for International Development Co-operation, Finnish Ministry for Foreign Affairs, Helsinki, Finland  
GARNET - Global Applied Research Network, Loughborough University, Leicestershire, UK  
GTZ Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn, Germany  
GWP – Global Water Partnership, Stockholm, Sweden  
HESPERIAN FOUNDATION – NGO Publisher of books on worldwide medical issues, Berkley, US  
ICRAF- World Agroforestry Centre (ICRAF), Nairobi, Kenya  
IDB - Inter-American Development Bank, Washington DC, USA  
DFID(UK) – Department for International Development, London, UK  
IFAD – International Fund for Agriculture, Rome, Italy  
IIED - International Institute for Environment and Development, London, UK  
ISDR – United Nations International Strategy for Disaster Reduction, Geneva, Switzerland  
ITN – International Training Network  
ITP – Sida's International Training Programme  
IWA – International Water Association, London, UK  
IWMI – International Water Management Institute, Battaramulla, Sri Lanka  
JMP – The Joint Monitoring Programme for Water Supply and Sanitation of WHO and UNICEF  
K – Potassium  
LAC – Latin America and the Caribbean, World Bank, Washington DC, USA  
LFA – Logical Framework Analysis  
LiU – Linköping University, Linköping, Sweden  
MA – Millennium Ecosystem Assessment  
MAMA-86, Ukrainian Environment NGO, Kiev, Ukraine  
MDGs – the United Nations Millennium Development Goals

Millennium Project – Commissioned by the UN Secretary General and Supported by the UN Development Group  
MoU – Memorandum of Understanding  
MVULA TRUST – Water and Sanitation NGO, Johannesburg, South Africa  
Mvuramanzi Trust Zimbabwe – National NGO for rural water supply and sanitation, Harare, Zimbabwe  
N – Nitrogen  
NDF/NIB – Nordic Development Fund/Nordic Investment Bank, Helsinki, Finland  
NETWAS - A Capacity building and information network for Africa in water supply, sanitation, and environment, Nairobi, Kenya  
NLH - Norwegian University of Life Sciences, Aas, Norway  
Norad - The Norwegian Agency for Development Cooperation, Oslo, Norway  
P - Phosphorus  
PAC – Programme Advisory Committee  
PASTEUR INST - , Ho Chi Minh City, Vietnam  
PHG – Palestinian Hydrology Group, Palestine Territories  
PPT – PowerPoint presentation  
PS EAU - Programme Solidarité Eau, Partner network for access to water in developing countries, Paris, France  
RED CROSS - International Committee of the Red Cross, Geneva, Switzerland  
Relma – Relma in ICRAF, formerly Regional Land Management Unit, Nairobi, Kenya  
SADC – Southern African Development Community,  
SARAR Transformación SC, Tepoztlán, Mexico  
SCOPE – Society for Community Organisation and People's Education, Thiruvannamalai, Tamil Nadu, India  
SDC (Swiss) - Swiss Agency for Development and Cooperation, Bern, Switzerland  
SEI – Stockholm Environment Institute, Stockholm, Sweden  
SEK – Swedish Crowns  
Sida – Swedish International Development Cooperation Agency, Stockholm, Sweden  
SIWI – Stockholm International Water Institute, Stockholm, Sweden  
SLU – Swedish University of Agricultural Sciences, Uppsala, Sweden  
SMI – Swedish Institute for Infectious Disease Control, Solna, Sweden  
TAES – Tianjin Academy of Environmental Sciences, Tianjin, China  
SPT – Strategic Planning Team  
Streams of Knowledge - Global coalition of resource centres in the water and sanitation sector, Quezon City, Philippines  
SUDEA - Society for Urban Development in East Africa, Addis Abeba, Ethiopia  
Swedenviro - SwedEnviro Consulting Group, Stockholm, Sweden  
SWS – Stockholm Water Symposium  
TAES – Tianjin Academy of Environmental Sciences, Tianjin, China  
TUHH, Hamburg Technical University, Hamburg, Germany  
UMB - see NLH - Norwegian University of Life Sciences, Aas, Norway  
UNDESA - United Nations Department of Economic and Social Affairs, Rome, Italy  
UNDP – United Nations Development Programme  
UNECA - United Nations Economic Commission for Africa  
UNEP-GPA - UN Environment Programme Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, The Hague  
the Netherlands  
UNESCAP - United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand  
UNESCO-IHE – Institute for Water Education, Delft, the Netherlands  
UNESCO-IHP – International Hydrological Programme, an Intergovernmental Science Programme in Water Resources, Paris, France  
UN-HABITAT – United Nations Human Settlements Programme  
UNICEF – United Nations Children's Fund, New York, USA  
WASTE - WASTE Advisers on Urban Environment and Development, Gouda, the Netherlands  
WB – World Bank, Washington DC, USA  
WECF – Women in Europe for a Common Future, Munich, Germany  
WHO- World Health Organisation, Geneva, Switzerland  
WKAB – Winblad Konsult AB, Stockholm, Sweden

WSP – Water and Sanitation Program, World Bank, Washington DC, USA

WSSCC – Water Supply and Collaborative Council, Geneva, Switzerland

WSSD – World Summit on Sustainable Development or the Johannesburg, South Africa

WWC – World Water Council, Marseille, France

## 1. Summary

### 1.1. General Objectives of the EcoSanRes Programme Phase 2

The demand for ecological sanitation services is not yet main-stream but indications of increased awareness and interest are showing that this could quickly change. In 2005 there were three international conferences dealing with ecosan in South Africa, India and Syria. Also, some 100 projects are currently underway in various countries. The need for improved sanitation services is enormous as outlined by the MDG work. Some 2.6 billion people currently lack sanitation services and this figure is increasing indicating that there is a need for significant innovation if this trend is to be abated. Enormous investments will be made over the next decade in order to help meet the MDG on water and sanitation and this goal has major and direct implications on several of the other MDGs. Sanitation as a sector has not really yet entered the era of sustainable development. Trends involving source separation and recycling seen within the solid waste sector have not really begun within the sanitation sector. The advocacy, development and demonstration of ecological sanitation approaches in developing countries will therefore help provide new possible solutions and choices and this clearly justifies the next phase of the EcoSanRes Programme.

Phase 1 of EcoSanRes between 2002 and 2005 has provided a broad foundation of knowledge, experience and an international network of partners within the field of ecological sanitation. The emphasis on developing urban solutions was and still is a major challenge for all countries in the North and South. That several new ecological sanitation initiatives are occurring around the world as independent local initiatives is a good sign that the efforts thus far are having positive effects. Phase 1 emphasised communications and awareness raising, guidelines and methods, R&D and implementation in the form of ambitious full-scale pilot projects. Some of the pilot projects are in full swing while others are only commencing.

Building on this momentum, Phase 2 will be even more ambitious, primarily centred on mainstreaming of capacity building by engaging and further developing expert groups in the South that can take on regional leadership. As a contribution to poverty alleviation and reversal of environmental degradation, ***the prime objective of Phase 2 is to develop and promote pro-poor sustainable sanitation in the developing world through capacity building and knowledge management.***

- The Programme will facilitate the establishment and development of nodes of expertise that will conduct regional projects dealing with awareness raising, training, policy and regulations reform, R&D, testing and development, demonstration and social marketing. The Nodes will determine the programme content and priorities for their respective regions.
- The Programme will also further develop the Swedish and international expertise base adapting to the needs of the South, help coordinate international efforts, provide a communications and awareness raising function, and further develop the globally linked normative knowledge base (eg WHO eco-sanitation guidelines).

### 1.2. Central Components of the Programme

The aim of this document is to provide a strategic plan for the operations, management and governance of the EcoSanRes Programme between 2006 and 2010.

The level of investment is similar to that of Phase 1, but the emphasis on capacity building is more prominent. The following lists the main areas:

- Capacity building through regional node development to regionalise efforts in the South so that regional-based training, policy development and implementation can be carried out
- Integrated normative knowledge development to maintain cutting-edge advancement interventions within the entire sanitation system and cycle emphasising the concepts of sustainable development and gender equality
- Communications, networking and coordination to help mainstream sustainable sanitation and strengthen North-South and South-South linkages

In addition a management and governance function will be provided as follows:

- Project management, monitoring and financial management
- Governance in the form of an international board and an international review panel

All components of the Programme will apply a gender-mainstreaming approach including the principles of sustainable development since these are considered vital to providing livelihood resilience and socio-ecological harmony.

The target groups of this programme cover local governments (public authorities, regulators and policy makers), NGOs, academia, the private sector, financial institutes, bilaterals, multilaterals, the media, and the informed public.

An annual budget of 16 MSEK per year will be required for these efforts. SEI will make a financial contribution of 1 MSEK towards this requirement. The following summarizes the budget for 2006.

**Summary of budget for 2006**

<b>Intervention</b>	<b>Budget SEK</b>
Capacity Building/Node Development	6.778.000
Knowledge Development	1.931.000
Communications and Networking	2.132.000
Management	1.842.000
Governance	650.000
Overhead on SEI staff (40% of 5.745.035 )	2.298.014
Overhead on reimbursables and transfers(4.9% of 7.588.300)	368.651
<b>Total</b>	<b>16.000.000</b>

As mentioned above, the level of funding is similar to Phase 1 which received 11.3 MSEK in its final year in 2005. A strong connection will be made between Phase 1 and 2 through the use of the pilot projects in regional and South-South capacity building. The pilot projects will be used for demonstration, training, carrying out performance studies and regional workshops. It will be up to the regional nodes in their own regional plans to determine exactly what activities are to receive emphasis.

It is also important to point out that the Sida International Training Programme (ITP) sponsors an ecological sanitation course managed through the EcoSanRes Programme budgeted at ca 3 MSEK per year. This will be closely integrated into the ESR



Programme Phase 2 with regard to the planning and execution of the course and the linkage to regional node development, capacity building and knowledge development. This effort can be seen as an important element in catalysing interest and capacity in the area of ecological sanitation.

This document is based on the experience from running EcoSanRes Phase 1 between 2002 and 2005 (which was in turn based on the experience from the SanRes Programme 1993-2001), the recent review of ESR Phase 1 carried out for Sida which has been a real inspiration to the further development of the ESR Programme plus the recent executive stakeholders meeting held within the context of the 2005 World Water Week in Stockholm.

### **1.3. Global Sustainable Sanitation Fund**

Associated with ESR Phase 2 will be the formation of a global fund (possibly called the Sustainable Sanitation Fund) for implementation and scaling up of sanitation projects in order to help meet the MDGs.

The global fund is presently being reviewed within Sida and will be presented in a follow-up project document in mid-2006. It is anticipated that the Fund will be an independent body with its own administration closely linked to the ESR Programme. It could also eventually become a facility representing several bi-lateral funding sources and not just Sida.

Ecological sanitation must be made available within Sida as an expanding feature to be included in relevant development programmes dealing with infrastructure, urban planning, housing, HIV/AIDS, health, rural development and education. In particular, work on health and education in school sanitation is an obvious area of collaboration.

It should be again noted that the ESR Phase 2 outlined in this document will not be funding the ongoing pilot projects within EcoSanRes. These pilot projects, which continue into 2007 and 2008, provide a basis for regional node development with institutional ownership in the South and are to be covered by the Fund as local initiatives. Since the Fund will not be set up until later in 2006, Sida plans to provide a bridging fund system to ensure that the pilot projects continue uninterrupted during this interim period. More details on the proposed Fund are found in Annex 1.

## 2. Context

### 2.1. The Sanitation Challenge

The Joint Monitoring Programme (JMP) of the WHO and UNICEF reported in 2004 that the number of people lacking basic sanitation services rose from 2.1 billion in 2001 to 2.6 billion by 2004. It is common knowledge that improved sanitation has a direct positive effect in reducing diarrhoea morbidity (Fewtrell et al 2005<sup>1</sup>). Still, progress in improving sanitation for almost half the world's population remains slow and diarrhoea from unsafe water, sanitation and lack of hygiene causes 1.8 million deaths per year, 90% of which are children under 5 years of age (SIWI, 2005<sup>2</sup>). Calculations by WHO show that sanitation has significant benefits well beyond paying for itself (5.5 benefit to cost ratios) by directly improving hygiene, health and livelihoods (Hutton and Haller, 2004<sup>3</sup>). A direct relationship exists between child mortality and access to sanitation. Improved sanitation is defined by the World Health Organization as connection to a public sewer, connection to a septic system, a pour-flush latrine, a simple pit latrine or a ventilated improved pit latrine. These are the basic conventional sanitation solutions that are in many cases inadequate in protecting both health and the environment. Sustainable sanitation can provide these added features and encompasses in general the following criteria (Winblad and Simpson-Hébert, 2004<sup>4</sup>):

- Disease prevention: the sanitation system must be capable of destroying or isolating faecal pathogens and provide improved hygiene
- Environmental protection: the sanitation system must prevent pollution and conserve valuable water resources
- Nutrient recycling: the sanitation system should return nutrients to the soil.
- Affordability: the sanitation system must be accessible to the world's poorest people.
- Acceptability: the sanitation system must be aesthetically inoffensive and consistent with cultural and social values including gender equality, convenience, dignity and security
- Simplicity: the sanitation system must be robust enough to be easily maintained with the limitations of the local technical capacity, institutional framework and economic resources.

### 2.2. Sanitation, poverty alleviation, and environmental security

Sustainable sanitation has direct benefits on human livelihoods by improving household economy and quality of life. Apart from these direct tangibles, sustainable sanitation has important implications on the wider context of environment and development. The most important direct link is between sanitation and the global

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<sup>1</sup> Fewtrell, L., R.B. Kaufman, D. Kay, W. Enanoria, L. Haller and J.M. Colford Jr. 2005. Water, Sanitation and Hygiene Interventions to Reduce Diarrhoea in Less Developed Countries; a Systematic Review and Meta-analysis. *Lancet Infectious Diseases* 5(1): 42-52.

<sup>2</sup> SIWI. 2005. *Securing Sanitation: The Compelling Case to Address the Crisis*. Stockholm International Water Institute. 40p. ([http://www.who.int/water\\_sanitation\\_health/publications/securing sanitation/en/](http://www.who.int/water_sanitation_health/publications/securing sanitation/en/))

<sup>3</sup> Hutton, G. and L. Haller. 2004. *Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level*. WHO/SDE/WSH/04.04.

<sup>4</sup> Winblad, U. and M. Simpson-Hébert (eds), 2004. *Ecological Sanitation – Revised and Enlarged Version*. SEI.

hunger challenge. Poor developing countries are home for the world's 800 million malnourished people, and the totality of population growth (60-80 million people per year over the next 25 years), occurs here. Food production will have to double over the next 25 years, in developing countries, in order to eradicate malnourishment and keep pace with population growth, which is the 1<sup>st</sup> Millennium Development Goal (MDG).

It is increasingly understood that this cannot be achieved through continued expansion of agricultural land into natural ecosystems (forests and savannahs), without seriously eroding key ecosystem services from terrestrial and aquatic ecosystems. According to the Millennium Ecosystem Assessment (MA), 65% of key ecosystem services (such as biodiversity, water regulation, carbon sequestration) have been eroded over the past 50 years. Agricultural expansion is the key driving force behind this dramatic decline in ecological resilience in the world's landscapes. The only way to solve this is to raise productivity on existing farmland. Soil fertility is a key limiting factor to achieve the required yield increase. The nutrient balances of many farming systems in developing countries are highly negative – where much more nitrogen and phosphorus is exported away from farmland with the harvest, compared to what is replenished by the farmer (up to -70 kg Nitrogen per hectare per year in East Africa). Sustainable sanitation systems can close the loop between food production and consumption, and provide key soil fertilization for farming systems that cannot afford commercial fertilizers. A recent estimate by SEI (SEI, 2005<sup>5</sup>) indicates that in sub-Saharan Africa ecological sanitation could, if fully adopted, provide an equivalent of all commercial fertilizers currently used on the continent.

Closing the loop between production and consumption of food, has important environmental benefits. The conventional waterborne sanitation systems generate vast amounts of wastewater, causing major eutrophication in downstream aquatic ecosystems. Lake Victoria, which is threatened as an ecosystem and as a source of livelihood for coastal fishing communities, is a prime example, where coastal cities and towns in Kenya, Uganda and Tanzania, are unable to properly treat sewage, which contributes to the eutrophication causing fish decline and water hyacinth invasion of the lake.

Carbon sequestration in soils is important for sustainability and productivity of agricultural land, by providing soil fertility and water holding capacity of soils. Studies suggest that up to 0.5 t carbon/ha/yr can be sequestered in the soil through composting and soil fertility management, which corresponds to a significant 150 million tons C/year on tropical croplands. Sustainable sanitation has the potential to contribute to sustainable agricultural practices which raise productivity and contribute to mitigate climate change. Sanitation linked to agriculture in developing countries, thus has links to both the efforts of mitigating climate change and the strategies to combat desertification, which is closely linked to improving the water balance on agricultural land through investments in building organic matter in topsoil.

### **2.3.Strategic role of ESR 2 and the MDGs to 2015**

As is well publicised the sanitation challenge is increasing and is estimated to be 2.6 billion people lacking basic services. This development is a reflection of the fact that

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<sup>5</sup> SEI, 2005. Sustainable Pathways to Attain the Millennium Development goals – Assessing the Key Role of Water, Energy and Sanitation. SEI. 103p.

sanitation in poor countries has not received the sufficient support both institutionally and financially that it deserves. In part it also reflects the lack of political interest in an area that lacks vision and innovation. Open defecation which statistically is the most common practice in the world is often the only alternative that provides at least a perceived hygienic and aesthetically acceptable solution. A dialogue at all levels – local, national, regional and global is necessary to instil new confidence that something constructive can be done. Also innovative advances are needed like ecological sanitation solutions that can both protect human health and the environment. The whole element of sustainability has yet to break its way into the sanitation sector and the approaches taken today reflect rather antiquated models that fail to provide long-term security. Sanitation was finally flagged at the recent CSD 12 and 13 meetings in 2004 and 2005. ESR was very active in mobilising opinion and interest especially at the CSD 13 meetings. Also SEI provided significant input to the debate around building sustainability into the MDGs at the recent UN World Summit in September with the publication of the report “Sustainable Pathways to Attain the Millennium Goals. Assessing the Key Role of Water, Energy and Sanitation” Some excerpts from this report follow below and in Fig 1:

#### **SITUATION TODAY**

- 2.6 billion people lack sanitation
- 1.8 million deaths per year due to diarrhoeal disease (90% children under 5 yrs of age)

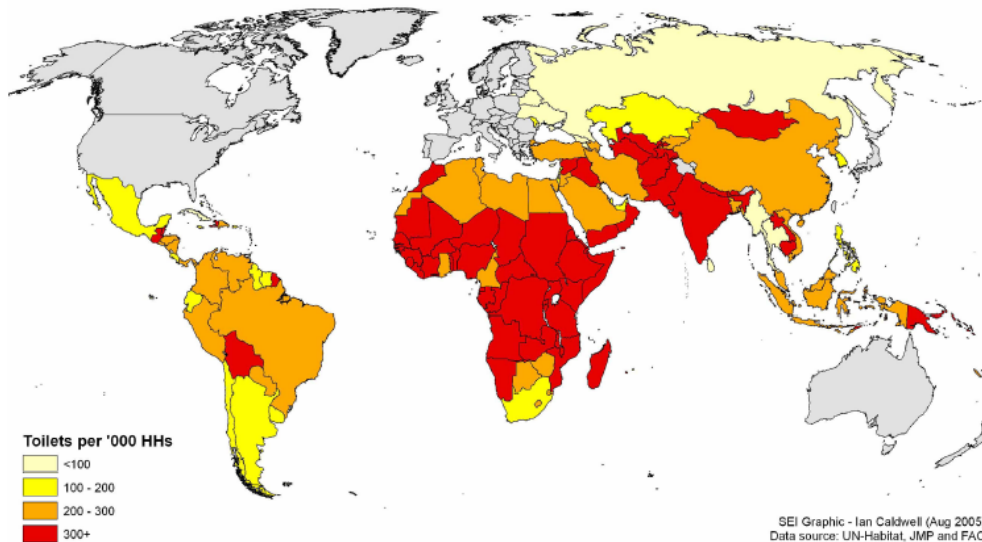
#### **MDG TARGET FOR 2015**

- 1.75 billion people (50:50 urban:rural)
- 450 million households (hh) (60:40 urban:rural)

#### **REGIONAL DIFFERENCES IN TARGET SIZE**

Millions of households	UN Region	Urban to rural split
151	East Asia	70:30
112	South Asia	35:65
80	Sub-Saharan Africa	50:50
39	Latin America & Caribbean	80:20
38	Southeast Asia	50:50

In total 95,000 household installations per day are required between 2003 and 2015 to meet the MDGs.



**Fig 1. Number of toilets per thousand households to be installed through to 2015 to meet the MDGs**

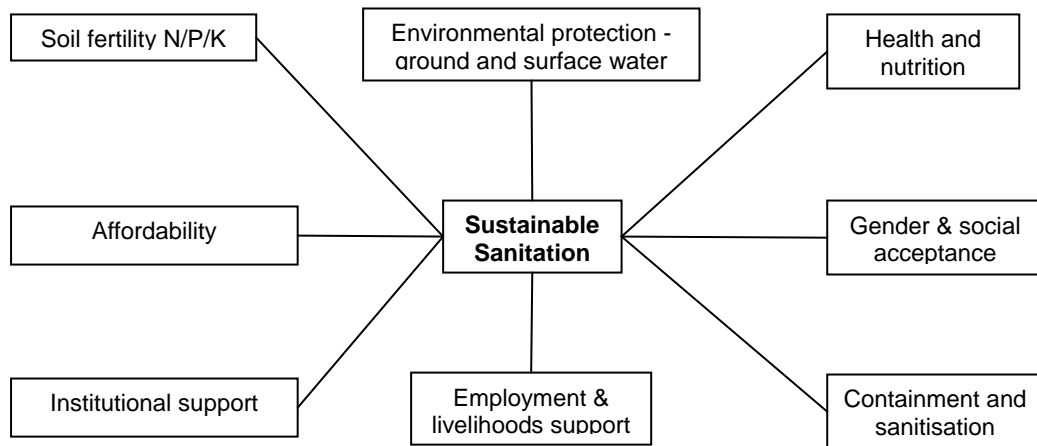
ESR 2 therefore has a key role in continuing the policy development and demonstration of sustainable sanitation solutions, providing opportunity to create interest and capacity in the target MDG countries and to demonstrate that ecological approaches to sanitation do work, are appropriate for rural and urban communities and are affordable.

#### **2.4. Status of sustainable sanitation in the world today**

Ecological sanitation has four main features: source separation, the containment of human excreta, its sanitisation and recycling back to the soil (closing the loop on both nutrients and water). This represents a paradigm shift in the entire approach to sanitation. Humans produce on the average only 50 L of faeces and 500 L of urine per year. A normal flush toilet uses an additional 15,000 L of drinking water per person per year. The greywater from kitchens and bathrooms adds an additional 35,000 L per person per year depending on the location. This makes waterborne sanitation a very costly item and a near impossibility for the cities in most developing countries if a majority of urban households are to be served. By making use of source separation, innovative solutions become available whereby the various products can be treated and returned to agriculture. These include soil composting shallow pit toilets instead of pit latrines, dry toilets with urine diversion for both rural and urban settings, toilets connected to biogas systems, etc. These are less costly than conventional systems when one takes into account the economic externalities such as human health and the environment. In particular ecosan has clear benefits for women in terms of their own living requirements, but also the household where sanitation often is managed by women. Ecosan can be applied in both rural and urban communities, both rich and poor and is particularly sensitive to the needs of both young and old. The provision of nutrients for production for cash crops is a central added-value component involving both men and women.

An over-simplified conceptual model of sustainable sanitation is shown below in Fig 2. It integrates 8 major components that interact to provide sustainability (ie containment and sanitisation, recycling to soil, health and nutrition, environmental

protection, institutional support, employment and livelihoods development, gender-friendliness and affordability).



**Fig 2 Components of sustainable sanitation**

### **The increasing demand**

At the present time the demand for ecological sanitation is not of significant proportion. This innovative approach to sanitation has historical roots in East Asia but in modern times especially in urban areas it is really still in its infancy. Some 100 demonstration and pilot projects are ongoing in the world today according to an ongoing global inventory within the EcoSanRes Programme. The largest programmes are in China (the rural programme is already almost full-scale only after a few years after introduction), El Salvador, Vietnam and South Africa. Significant developments are in, for example, Mexico, Bolivia, Costa Rica, Guatemala, Peru, in several West, East and Southern African countries, in India, Sri Lanka, Nepal, Malaysia, Philippines, Ukraine, the Balkans, and in several countries in central Asia. In 2005 there were no less than three international conferences on the topic in South Africa, India and Syria. Numerous national and international training courses have been held over the past five years. Ecosan is now a priority for Sida, GTZ, aid agencies in the Netherlands, Austria, Switzerland, Finland, the WSP, UNICEF, Red Cross, WHO, UNDP, UNEP, UN-Habitat and several national governments. It is this increasing awareness and demand that phase 2 of the EcoSanRes Programme will be responding to and it is through regional capacity building that the Programme will help provide a supportive platform.

The strategy to promote alternative sanitation involves targeted awareness raising among stakeholders, from policy makers and legislators, to educators, social and biophysical scientists, sanitation technicians, and civil society. However the emphasis of the targeting within the ESR Programme has been first to work with local community leaders and organisations involved in sanitation improvement, environmental and human health protection. Following this first step, in depth discussions and training are arranged with professionals and technicians. If these are successful, demonstration and pilot projects of various sizes can be introduced. These in turn lead to expanded training and awareness building to larger groups of people and eventually full-scale projects can be proposed. Throughout these steps requires an adaptive and opportunistic approach to management depending on the local situation.

## 2.5.Scope of the Programme

EcoSanRes has been focussed on ecological sanitation but the term sustainable sanitation has been introduced as well.

*“Sustainable sanitation protects and promotes human health, does not contribute to environmental degradation or depletion of the resource base, is technically and institutionally appropriate, economically viable and socially acceptable.”<sup>6</sup>(with the present state of sanitation in the world today the issue of reuse and recycling is an optional feature)*

Sustainable sanitation therefore includes ecological sanitation which can be simply defined as follows:

*Ecological sanitation has 4 main characteristics:*

- *source separation of urine, faeces and greywater,*
- *containment of each product*
- *sanitisation and treatment*
- *recycling of the nutrients, humus and water to soil and agricultural systems*

There is a growing interest within the water and sanitation community to encourage EcoSanRes to take on the broader area of sustainable sanitation including wastewater treatment and reuse. To do this would require major leaps and bounds in technological research, knowledge management and capacity development, in both the North and the South. And these go beyond the practical dimensions of development aid.

What EcoSanRes is prepared to do in this area is to provide dependable methods for source separation of greywater and practical methods of treatment and reuse. Also along the same lines, EcoSanRes should consider to take on source separation of faeces in urine-diverting flush toilets. But the whole area of trying to make mixed sewage systems more sustainable is well beyond the scope of this programme.

The question comes to a crossroad, however, when EcoSanRes is requested to deal with the whole question of agricultural reuse of untreated municipal and industrial effluents. This is a vast area requiring serious and immediate attention. And there are surely small and large-scale approaches that can be used to pre-treat such wastewaters in order to reduce pathogen loads and to retain nutrients for agriculture. For EcoSanRes to take on full-scale pilot projects dealing with this question would require major financial commitments possibly from several bilateral sources, beyond those from Sweden. This could be a topic worthy of discussion within the donor community.

Figure 3 illustrates the components required to close the loop on nutrients and water. Source-separation of products from households optimises the capability of containment, treatment and reuse. The big challenge especially in urban centres is that most of these products are mixed and diluted into large volumes of water, thereby

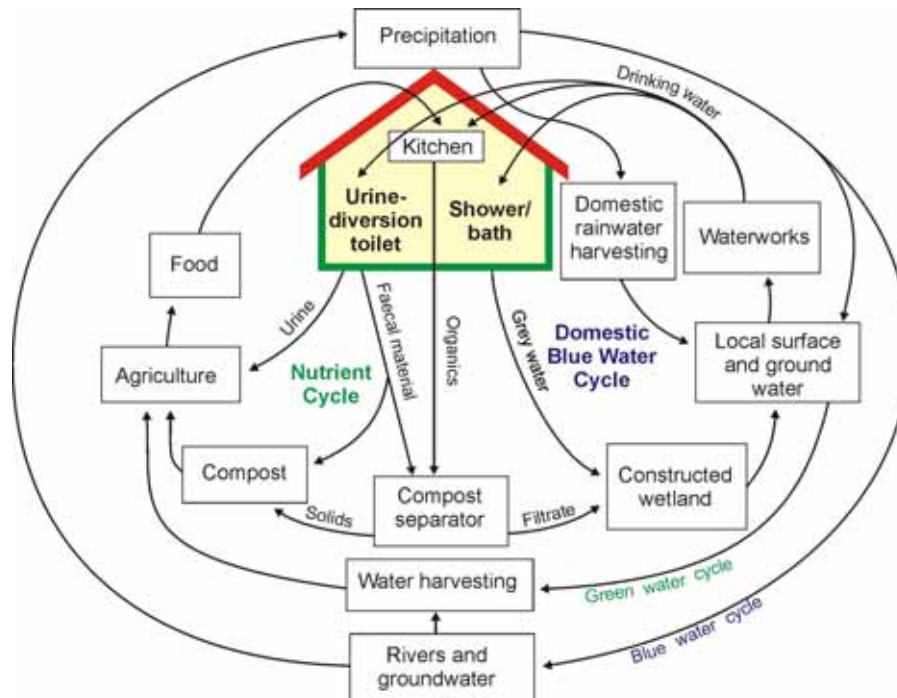
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<sup>6</sup> Kvarnström E.; Bracken P.; Ysunza A.; Kärrman E.; Finnson A. and Saywell D.: Sustainable Criteria in Sanitation Planning, Paper produced for People Centred Approach to Water and Environmental Sanitation, 30<sup>th</sup> WEDC International Conference, Lao PDR, 2004.

resulting in a mammoth engineering task that is very costly. Sewage treatment systems in most parts of the world are difficult to finance and maintain. But this has not brought about new and innovative approaches that are economical, safe and sustainable. Ecosan development is really only in its beginning stages and requires enormous efforts to make significant impacts.

EcoSanRes Phase 2 will widen its scope in the following areas:

- closing the nutrient loop with agriculture
- address system interactions between water, agriculture and sanitation
- address rural, peri-urban and urban linkages
- further the emphasis on urban areas
- delve more into cross-cutting issues such as vulnerability linked to diseases like HIV/AIDS, gender aspects and environmental sustainability
- assess the costs of ecological sanitation



**Figure 3 Components of closing the loop on nutrients and water.**



### **3. Available Resource Base**

#### **3.1. Swedish Expert Resource Base**

A central strengthening factor in the EcoSanRes Programme has been the Swedish network that has been closely involved. This group of experts from WKAB, SMI, SLU, LiU, Swedenviro and Akkadia have been instrumental in making breakthroughs in the implementation of ecosan around the world, in the development of capacity through training and demonstration and in the provision of guideline recommendations on how ecosan can be carried out. This capacity is relatively limited compared to the size of the task at hand and therefore has to be used efficiently to make greatest impact. This group can provide a positive catalytic developmental effect through close contact with the regional nodes. ESR Phase 2 is designed to make use of this group in a more integrated fashion than in Phase 1. They will be involved in Capacity Building, a Knowledge Development Team, International Thematic Working Groups and the International Training Programme will be integrated to these activities.

In parallel with and as a support to the ESR Programme, SEI has been and is currently administering Sida-financed Bilateral Associate Experts (BAE) or Biträdande bilateral expert in Swedish (BBE). To be eligible as a BAE/BBE Sida stipulates a set of criteria. Thus, a BAE/BBE within the context of the sustainable sanitation is a young Swedish professional, who also has experience with some or several aspects of this type of sanitation provision. The third such BAE/BBE has recently been recruited within the ESR Programme. This is not only an excellent way for young people to learn more about international development assistance, but improves their capabilities in the subject matter, while they provide a certain degree of expertise to the organisation they are posted.

Also there is the Minor Field Studies (MFS) Programme funded by Sida to support Swedish students to conduct part of their Masters thesis in a developing country. So far there have been ca 20 students that have chosen to carry out studies involving ecological sanitation linked to ongoing pilot projects. This is an important element in the creation of the next generation of ecosan experts. ESR Phase 2 will therefore encourage linking MFS candidates with regional node projects.

#### **3.2. International Expert Resource Base**

There are several organisations both large and small allied to the EcoSanRes Programme located in European, African, Asian and Latin American countries. Examples of some of the actors are:

- GTZ, WASTE, TUHH, NLH, UNESCO-IHE in Europe;
- Governments of Uganda and South Africa, CREPA, Water Aid, WaterNet, Aquamor, Mvuramanzi Trust, Dept of Science and Technology (SA), Mvula Trust, Kimberley Municipality, Buffalo City Municipality, Universities at Makerere and Dar es Salaam and CSIR/Pretoria in Africa;
- Government of India, UNICEF-India, SCOPE, Eco-Solutions, Red Cross, Pasteur Institute (Vietnam), Erdos Municipality; Inner Mongolian Government, TAES, Hanoi University of Technology in Asia;
- SARAR, Tepoztlan Municipality and UNICEF-Bolivia in Latin America
- UNEP-GPA, UNDP, WHO and UNICEF-HQ

Of particular importance is the ongoing collaboration with WHO in the production and dissemination of the new global guidelines on the reuse of human excreta and greywater.

New partners now making an entrance are WSP-HQ, WSP-Africa, WSP-EAP, UN-Habitat, IWMI, Relma-ICRAF, BOKU, WECF, MAMA-86, the UN Millennium Project and ESA. Annex 4 lists many of the present and potential partners.

This document cannot provide a detailed review of the capacity and achievements of each of these organisations. The future of successfully implementing more sustainable sanitation practises in the South lies in how effective Phase 2 can mobilise the present capacity and catalyse the introduction of regional programmes owned and carried out by many of these talented organisations. ESR Phase 2 will provide funding to manage and carry out many small and large projects in the South. By developing the regional nodes and linking the international community to the global Sustainable Sanitation Fund, there will be much more opportunity for local initiative projects. Such projects will cover the gamut of topics including awareness raising, networking, training, demonstration/testing, implementation and policy/regulations work.

Also, the Sida-sponsored International Training Programme on ecological sanitation that has been ongoing for several years is now managed through SEI implemented by experts within the Swedish resource base and has a large group of active alumni from around the world. The course covers two of the three global regions (LAC, Africa and Asia) and trains 30 individuals each year. Regional courses may be possible to organise in the near future in connection with the regional node development.

### **3.3. Private Sector Resource Base**

For the purposes of this project document an unbiased review or annotated list of entrepreneurs, builders, architects, equipment manufacturers, etc was not warranted. Around the world there are several inventors, developers and manufacturers of ecosan equipment including toilets, urinals, odour locks, holding tanks, ventilation systems, delivery chutes, collection systems, piping systems, composting systems, specialised transport vehicles, etc. In the development of regional nodes, the mapping of this regional and local capacity is absolutely essential.

### **3.4. SEI's Role in EcoSanRes Phase 2**

SEI's responsibility in managing this programme is as institutional partner with Sida. The overall goal is to help implement the Swedish objectives for poverty reduction and sustainable development in relation to the MDGs to improve the water and sanitation, hygiene, gender mainstreaming, livelihoods and nutritional status of the world's poor.

SEI's role is to provide a home for the global programme, to assist in the identification and development of regional nodes, to provide guidance and insight into the multi-faceted research and development challenge of building social, environmental and economic sustainability into sanitation, to provide a management and monitoring capacity for all the contracted projects and to provide a global communications and networking programme.

SEI is an independent, international research institute specializing in sustainable development and environment issues ranging from water and sanitation, climate and energy, atmospheric environment, risk and vulnerability, policy and institutions and sustainable development general studies. It works at local, national, regional and global policy levels. SEI's mission is to support decision-making and induce change towards sustainable development around the world by providing integrative knowledge that bridges science and policy in the field of environment and development. Legally speaking SEI is a government foundation sorted under the Swedish Ministry of Sustainable Development with formal ties as well with the Ministry for Foreign Affairs.

SEI brings substantial resources to this role. It has research centres in Sweden, Estonia, the UK, US, and Thailand. The processes of institute research and think-tank activities also have distinguishing features. SEI purposely selects major issues that act as impediments to creating more sustainable societies so that scientific progress has potential for shaping important human interventions and processes of change. The SEI approach is typically highly collaborative and participatory, involving partners in the regions and places of research so that local knowledge and values are mobilized and explicitly considered. Projects are designed to incorporate the building of regional capacities and the strengthening of institutions so that the long-term capabilities of SEI's collaborators are enhanced as part of the process. Throughout SEI programmes is an uncompromising commitment to high ethical standards for the conduct of research and the provision of policy advice.

By mainstreaming ecological sanitation in many of its ongoing programmes dealing with water resources, livelihoods and vulnerability, SEI will provide additional support in the South to the EcoSanRes Programme.

Of particular relevance to the EcoSanRes Programme, the following SEI linkages can be mentioned that bring sanitation to the wider policy agenda on environment and development:

- Integrating water and sanitation into the ongoing work on livelihoods, resilience, sustainability, the Millennium Development Goals and risk and vulnerability assessments for various regions in the world
- Monitoring of the work to achieve the Millennium Development Goals including those dealing with water and sanitation
- Established SEI networks important to EcoSanRes are
  - the Vulnerability Net that is working in, for example, post-Tsunami Sri Lanka and Indonesia, and in West Africa, Latin America/Caribbean and SE Asia on assessing risk and vulnerability, building resilience in communities including elements like sustainable sanitation,
  - the Blue-Green water initiative emphasising the use of rain water and preservation of soil fertility to enhance agriculture and decrease hunger
  - the Carensa network working on bagasse applications (eg composting),
  - Partnerships for Africa (renewable energies for Africa including biofuel requiring nutrient recycling),
  - Sumernet (Mekong River basin sustainable development),

- BioEarn (capacity building in agricultural biotechnology at universities in East Africa),
  - China Council urbanisation project, which is coordinated by SEI
  - Challenge Programme on water and sanitation based at IWMI
- Of direct relevance to ESR Phase 2 are signed working agreements between SEI and WSP in Africa, UNICEF in India, a proposed working agreement with WSP-East Asia-Pacific and liaison with UNEP, UN-Habitat, UNDP, FAO, WHO and ADB. The liaison with WHO has been facilitated through the recently approved global guidelines on reuse of human excreta and greywater which EcoSanRes 1 helped finance. Implementation of the guidelines through close collaboration with the Geneva office will help ensure that this work moves forward.

## 4. Overall Programme Vision, Strategy and Future Direction<sup>7</sup>

### 4.1. Overall Strategic Aims of the EcoSanRes Programme

- To develop and introduce sustainable, innovative approaches to help improve sanitation services in needy communities in the South
- To advance knowledge on sustainable sanitation systems for livelihood improvement and sustainable development
- To advance integrated strategies that link sustainable sanitation to management of water, land, food systems and socio-economic development
- To work with and within the authorities, organisations and businesses that are responsible for sanitation in urban and rural settings in selected regions
- To integrate ecological sanitation into the mainstream sanitation by finding useful entry points and linkages
- To communicate more effectively about sustainable sanitation
- To emphasise in the public forum the advantages of ecosan in terms of health and environmental protection, water savings, simplicity, reliability and linkages to agriculture – elements that would allow sanitation to pay for itself
- To create centres of competence in selected global regions and to assist in building capacity in the area of sustainable sanitation
- To promote sustainable sanitation and to help coordinate the international efforts within similar programmes
- To support the development of policies and regulations that will allow for sustainable approaches to sanitation in developing countries
- To promote gender aspects in sustainable sanitation
- To ensure that the following building blocks are part of the ESR Programme:
  - capacity building, regional node development and demonstration projects
  - normative knowledge development
  - communications and networking

### 4.2. Moving from Phase 1 to Phase 2

Phase 1 evolved from its forerunner the SanRes Programme which ran from 1993-2001. The general areas emphasised within ESR Phase 1 were communications and networking, capacity building, R& D and implementation in the form of pilot projects. The strategy used in Phase 1 was somewhat opportunistic based on the capacity available within the established ecosan networks available in 2001. The dominant activity within Phase 1 has been the pilot projects and in particular the project in China which has shown significant progress, with phase one completion in 2006. The ESR Programme has been reported on in progress reports, plus numerous publications have been produced. A summary of the findings of the recent review done for Sida is found in Annex 2.

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<sup>7</sup> This section is based on the experience of carrying out ESR Phase 1, the Sida assessment of ESR Phase 1 (summarised in Annex 2) and the list of prescribed needs and actions arising from the Lubeck (2003) and Durban (2005) ecosan conferences (listed in Annex 3).

### **4.3. Suggested Directions for the EcoSanRes Programme Phase 2**

In general it can be said that expertise in the area of sustainable sanitation is extremely lacking throughout the world, especially when one considers the size of the global challenge at hand. Only a few countries have developed advanced research and development programmes with demonstration and implementation projects. The prime goal of ESR Phase 2 is therefore capacity building in the South. And it is through carrying out of hands-on projects through the regional nodes that this capacity will be built up.

*The following is a list of areas now requiring special attention in Phase 2. These are offered as a comprehensive list of possible areas that the different regional nodes could take a lead on. Priorities will have to be made by the regional nodes through stakeholder consensus in dialogue with the ESR Programme.*

#### **4.3.1. Gender mainstreaming**

Gender mainstreaming is basic to achieving sustainable sanitation and water use<sup>8</sup>. As pointed out by Hanna and Andersson (2002)<sup>9</sup>, the gender perspectives on ecological sanitation have not yet been specifically explored. An examination of the different roles women and men have with respect to sanitation improvement is necessary. Women's role in securing household hygiene and provision of food would be enhanced in programmes promoting ecological sanitation. Men's role as masons, builders and in latrine maintenance would also be enhanced through the provision of permanent and easily maintained installations. The added value of available nutrients and increased soil fertility from ecosan systems will have positive impacts on household nutrition but also income from cash crops. The ecocycle characteristic to eco-sanitation provides a central meeting point for both men and women. Ecosan projects tend to create a more equitable approach to both the planning and execution. Ecosan lends itself to being gender-sensitive when it comes to technology development, social marketing, socio-cultural linkages and socio-economic aspects. Phase 2 however will provide greater insight into and assess how well this work has succeeded thus far. Gender-mainstreaming capacity needs to be added to the governance, participatory and planning aspects of sanitation projects. Gender needs to be built into all the priority areas described below. The new Programme will make extra efforts to ensure that gender mainstreaming is a central feature to be addressed in the capacity building projects and activities.

#### **4.3.2. Targeted Capacity Building**

The target groups of the capacity building efforts of the Programme are at three levels:

- *Regional level:* regional training and research institutions (training of trainers)
- *National level:* governments, institutions for research and training
- *Local level:* local government, municipal institutions, private sector organisations, NGOs and CBOs. Training will target e.g. small private contractors, sanitary engineers, health officials, urban planners, maintenance staff and health workers

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<sup>8</sup> UNDP. 2003. Mainstreaming Gender in Water Management: A Practical Journey to Sustainability: A Resource Guide. 90p.

<sup>9</sup> Hannan, C and I. Andersson. 2002. Gender Perspectives on Ecological Sanitation. In: Proc 1st Int. Conf. on Ecological Sanitation 5-8 November 2001 Nanning, China. [www.ecosanres.org](http://www.ecosanres.org)

Capacity building for scaling up of sustainable sanitation systems also requires participatory processes. Projects will include promotion, awareness raising and training of village and town leaders, inhabitants, and relevant government departments responsible for water and sanitation, housing, environmental protection, health protection, solid waste management and urban/local agriculture. Other targets will be business, universities, financial institutions and NGOs. It is through the process of demonstration and doing that capacity will be built. The learning alliances being used by CREPA in West Africa can be used as a model. Here ecosan has been introduced to cover social impact and acceptance, economic aspects, toilet design, containment and sanitisation, collection and storage, health impact and hygiene and agricultural reuse of products. An important learning aspect will be the concept of the sanitation system and nutrient and water ecocycles and not just the toilet itself. By addressing and understanding the entire system, health and environmental protection can be achieved.

Professional capacity is a major bottleneck in the development of sustainable sanitation practices. Examples of areas requiring attention are agro-reuse of human excreta, wastewater reuse, toilet design, urine system design and greywater systems. And the following groups need to be targeted: sanitary engineers, entrepreneurs, policy specialists, planners, maintenance staff, social marketers, communications experts, journalists, professors, teachers, trainers, architects, health workers, etc.

Phase 2 will assist in introducing ecological sanitation into the curricula at universities and training schools in the South.

#### **4.3.3. Policy, Legislation and Regulation**

Policies covering provision of sanitation are lacking on local, national, regional and global scales. Sanitation was not included in the original set of MDG targets in 1990, but was added at the WSSD in Johannesburg in 1992. It turns out to be the largest single MDG, much larger than the targets for HIV/AIDS, malaria, safe water and nutrition. This in itself is revealing of the situation and the challenges at hand. Sanitation lacks dedicated political leadership and will. Legislation along the lines of the “Polluter Pays Principle” for municipal sanitation is virtually non-existent. For ecological sanitation to develop, basic legal definitions need to be created for human urine and faeces, which up to now are not recognized legally. For example, the EU has no regulations for collection or reuse of urine, thereby making such manipulations, in effect, illegal.

Phase 1 provided a first assessment of the challenges ahead especially in the area of legislation and regulations for human excreta handling, treatment and reuse. It also provided a series of guidelines which lead to the WHO guidelines, considered a major breakthrough in the development of ecosan systems. Urine and faeces have no legal status when it comes to legislation in most countries and modifications and reforms are therefore needed. Much development is required in this area and this should be one of the areas to be attacked in the regional node work during Phase 2.

#### **4.3.4. Local leadership**

Linked to this is the whole area of enhancing local leadership in the regional projects, in particular the pilot projects. In all pilot projects, one of the basic criteria for moving forward is the presence of dedicated local leadership. This will be improved by taking

more time in contacting and communicating with the local authorities in the municipalities where the projects are taking place. A handicap experienced thus far in Phase 1 was the effect of a change in government. In Mexico, for example, mayors cannot be re-elected and must leave after one term (2-3 years). Most agreements become annulled and must be regenerated with the new regime. In Phase 2 agreements with local governments will be carefully worded to attempt to build in longevity. Also Phase 2 will provide the Programme with a Director that can backstop the local partners in their work with local leadership so that the intentions of the Programme are well understood.

#### **4.3.5. Social Marketing of Sanitation**

During Phase 1 it became apparent that efforts have to be focussed on demand-driven processes for sustainable sanitation. Modern marketing methodologies and techniques need to be adapted to the particulars of provision of sustainable sanitation solutions in developing countries. It will be necessary to bring in expertise from the commercial marketing world with an understanding of the concept of closing the loop on sanitation including public exhibits, descriptive materials and media events.

Sanitation marketing in the words of WSP consists of:

- Winning consensus towards a marketing approach rather than supply driven
- Learning about the market (demand and supply)
- Overcoming barriers (eg regulations, new partnerships)
- Developing the right products and support to local industry development
- Regulating waste/nutrient transport and disposal/recycling

Phase 2 will need to build in social marketing as a capacity building component. The expertise for this is found in both the North and the South. This will be of major importance in urban centres where the issues of ecosystems and reuse are not always apparent or well understood by members of society. It will also be important in those areas of the world that are phobic towards ecological approaches to sanitation due to religious views, cultural traditions and aesthetics. These are not at all static issues, however. And if the facts are made clear about the risks of inadequate and failing sanitation systems, logic will sooner or later prevail. The introduction of dry ecosan latrines in India has produced very positive results and what was considered only 5 years ago as an impossibility is now becoming a reality. Introduction of the new WHO Guidelines on the handling, treatment and reuse of human excreta and greywater will have major impacts in the social marketing of ecosan around the world.

#### **4.3.6. Economic analysis**

Assessment of the costs of sanitation was found to be a very difficult area to tackle in Phase 1 of ESR. Good data on the costs of building and maintaining any sanitation system are difficult to find. And extracting relevant data from municipal governments is even harder. Costs of negative impacts of poor or non-existent sanitation on health and the environment are also very difficult to be had. Now with the establishment of a few large full-scale pilot projects (eg Erdos in China and Kimberley in South Africa) the original data will be made available from source. And the actual costs and benefits of urban ecological sanitation will be assessed. These will be compared with what conventional approaches would have cost, from neighbouring housing developments using sewage systems. By bringing in a few organisations that specialise in environmental and health economics (including input from within the Swedish



resource base), necessary expertise will be added to the capacity building work. These assessments will have major impacts on the future implementation of source-separation sanitation at a large scale around the world.

#### **4.3.7. Environmental, health and social impact assessment**

Studies covering the social, economic and environmental impacts of ecosan will also be carried out in connection with the full-scale pilot projects. Methods developed for EIA (environmental impact assessment) will be employed. Here both positive and negative impacts will be evaluated using a *systems analysis and livelihoods and vulnerability* assessment approach. Although ecosan because of its ability to source-separate and contain the various fractions, protects ground and surface water, the process of collection and especially transport will have certain negative impacts eg in the form of energy consumption, especially if the products are not used in the immediate local areas. Also the labour intensive aspects of ecosan will have both positive and negative impacts. That people will be working with sanitisation systems also introduces new handling risks requiring added precautions for example in the steps of collection, and in the processing and treatment steps in ecostations. These need to be compared to the present risks that are being taken through the use of more conventional approaches such as pit latrines and waterborne sewage systems. Ecosan provides improved access to sanitation systems and this has major social impacts in terms of providing convenient, appropriate and affordable services.

#### **4.3.8. Broader range of sustainable sanitation solutions including wastewater treatment and reuse**

The more classic approach to ecological sanitation using dry techniques and source separation has been the optimal approach, especially where water has been lacking. But there have been considerable negative reactions to this attempt to specialise in dry sanitation, especially for the communities that prefer to provide waterborne solutions. Phase 2 should continue the process of devising ecological solutions for the collection, containment, treatment and reuse of wastewater from source-separated water fractions containing faeces only (following urine diversion) and greywater. This requires research on handling, treatment and reuse systems. These solutions would help introduce ecosan into the whole area of pour-flush and flush latrines that empty presently into leaky septic tanks, cess pits and deep pits. It is also important that the ecosan community of experts take on this research and development in order to assist in the transition of making conventional sanitation more sustainable.

With the use of dewatering and wet composting systems, ecological systems need to be developed for those areas of the world that prefer to use water-based sanitation. That farmers throughout the developing world are using raw wastewater from municipal sewage and industrial sources requires the attention of the ESR Programme. This includes evaluation of health and environmental risks, development of sustainable methodologies for pre-treatment e.g. gravity filtration systems, constructed wetlands, etc. and safe methods of reuse. The new WHO Guidelines will assist in these efforts.

#### **4.3.9. Technology Development and Town Planning**

A suite of technology development opportunities and new planning requirements exist in the process of mainstreaming ecological sanitation. These include aspects relating to architecture, building norms, building and bathroom design, ventilation systems,

piping, latrine and toilet design, etc. The whole area of ecostation design especially in urban areas requires new elements within town planning whereby sanitation is integrated into urban centres and urban agricultural areas. Shifting sanitation in part to the solid waste sector may provide needed capacity to deal with organic fractions such as faeces and kitchen wastes. Water treatment and reuse and storm water management plus solid waste management are also centrally affected and require new approaches.

#### **4.3.10. Cross-cutting issues of relevance**

The MDGs provide a central platform for the ESR Programme to build on. The 8 MDGs are cross-cutting issues for sanitation to link with, i.e.

- reduction of poverty and malnutrition,
- universal primary education,
- gender equality and empowerment of women,
- reduction of child mortality,
- improvement of maternal health,
- reduction of malaria, HIV/AIDS and other diseases,
- ensure environmental sustainability, and
- develop a global partnership for development.

Providing safe and affordable sanitation that also increases soil fertility touches on most of these goals. It is therefore important in the formulation of the projects within the ESR Programme to design them with these goals in mind. This has an impact on the scientific methods, the parameters being assessed, the social marketing approaches taken and the overall strategy for communications and choice of target groups

#### **4.3.11. Mechanisms of pathogen destruction**

A key element in sustainable sanitation is the use of composting to treat faecal matter that contains pathogens (microbes and parasites). Much progress has been made of recent in this area by increasing pH (e.g. using wood ash) and storage time to reduce pathogen levels. But there are still questions surrounding the mechanism of destruction of ova in thermal and ambient temperature composting. This is especially of interest if wet systems are to be developed. Phase 2 should provide the opportunity to further assess and improve low-cost treatment systems that can provide health protection.

#### **4.3.12. Linkage of sanitation to improvements in coping with health-based vulnerability**

Little has been studied about the nutritional and hygiene status of HIV/AIDS patients that are receiving medication to slow the downward trend in immune capacity and increased vulnerability. A literature survey was recently carried out by the CRS in Ethiopia (CRS, 2005)<sup>10</sup> where the subject is introduced. The question to be tested is whether such patients can extend the length of their lifespan by improving hygiene practises (water and sanitation-related) and by improving the quality of their nutritional status by making use of nutrients from ecosan systems in subsistence farming. Ecosan provides nutrients that can be used in farming gardens and the resultant fresh vegetables and fruits can provide an important supplement to the diet.

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<sup>10</sup> CRS, 2005. HIV/AIDS Water Security and CRS. What's the Connection?. CRS. Ethiopia. 15 p

Cohort analyses comparing ecosan and non-ecosan villages will be carried out during Phase 2 in order to test these hypotheses.

#### **4.3.13. School sanitation**

Schools in poor rural villages often lack adequate water and sanitation facilities. This is a problem around the world. The target size requiring attention is enormous and much capacity building is necessary in order to make a positive impact. Childhood is the best time in life to instil good hygiene habits. Primary schools are particularly well-positioned to provide guidance on hygiene, safe water use and sanitation not only for the school children but for their parents and families as well. Sanitation improvement in schools improves generally the attendance by girls through the provision of facilities that can properly accommodate their needs.

Phase 2 of ESR will assist ongoing school sanitation programmes (eg through UNICEF) and help introduce ecological approaches thereby introducing ecosan to children and their families. Examples of school sanitation using ecological approaches are found in the Ukraine (Mama-86), Mexico (Tepoztlan) and China (Nanning, Guangxi).

#### **4.3.14. Collaboration with the private sector and influencing large-scale investment**

The ongoing urban pilot projects particularly in Erdos, Kimberley and Buffalo City show clearly that if ecosan is to reach full-scale implementation, the private sector and related financial institutions are necessary to play a central role. This includes, for example, building companies, architects, toilet and urinal manufacturers, ventilation suppliers, manufacturers of collection bins for source separation, solid waste entrepreneurs, designers and builders of composting systems, agricultural entrepreneurs interested in recycling of nutrients (urine) and humus (compost), marketing and real estate companies and financial institutes and banks. Market expansion can be achieved through incentives, up-scaling initiatives, making inroads on building standards and through innovation funds. Continued collaboration with the private sector and development banks will be emphasised in order to help influence both small and large-scale investment programs.

#### **4.3.15. Networking and coordination between international actors**

Networking has been based thus far on providing a professional level of response to opportunistic needs that have arisen. There has not been the time to work according to a larger communications strategy and thus there are missing links and gaps in the work. In addition, coordination between international actors funding ecosan projects around the world has not been possible. With Phase 2 there will be a dedicated manager for networking and communications in order to work around a more complete strategy including the formation of an International Coordination Group for Ecosan. The latter will provide an opportunity for the major international actors to co-ordinate their activities and exchange programme plans.

## 5. Programme Objectives, Outputs and Activities

### 5.1. Central Objective

*As a contribution to poverty alleviation and reversal of environmental degradation, the prime objective of Phase 2 is to develop and promote pro-poor sustainable sanitation in the developing world through capacity building and knowledge management.*

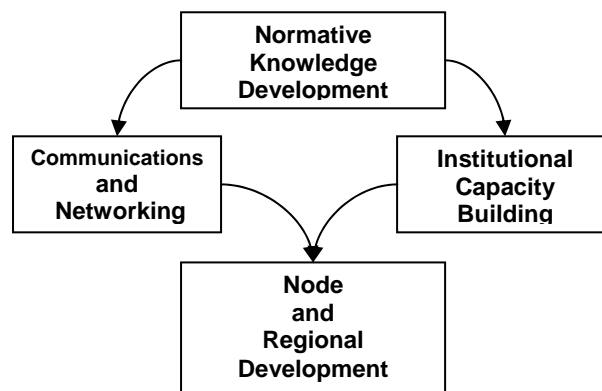
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### 5.2. Sub-objectives

- Capacity building and node development to regionalise efforts such as training, policy development and implementation in the South
- Integrated normative knowledge development to maintain cutting-edge advancement within the context of stakeholder participation, gender mainstreaming and the principles of sustainable development
- Communications, networking and co-ordination to help mainstream sustainable sanitation and strengthen North-South and South-South linkages

### 5.3. Modus Operandi

The following illustrates the general operating approach that ESR Phase 2 will take. The central deliverable of the programme is to develop capacity in the regional nodes and regions for implementation of sustainable sanitation. This is done through normative knowledge development, institutional capacity building, communications and networking to increase awareness and development of policies.



### 5.4. Regional Node Programme in the South

#### 5.4.1. Node Programme Components

Regional nodes will be developed starting in 2006 to take a lead in regional networking and development of regional capacity. These are independent centres of expertise that will develop a regional programme on sustainable sanitation in West Africa, East Africa, Southern Africa, LAC, South Asia, SE Asia, China, EECCA, North Africa and the Middle East. The first 8 regions named are considered a priority for attention during 2006-2010 based on the JMP and MDG assessments. This will involve national and local organisations in the respective region and a battery of local

projects will be initiated dealing with capacity and training, R&D, demonstration, pilot projects, scaling up, etc.

To carry this out the Node Development Manager will be involved in solidifying the lead organisations' role in programme development, financial management and coordination within each region.

Organisations currently carrying out large-scale or regional pilot projects dealing with ecological sanitation may of course qualify better than others. But organisations experienced in regional networking within the general area of environmental management may also be highly qualified if they can also bring together the right mix of expertise within the region.

It will be up to each regional node to develop a portfolio of activities drawn together into a regional programme. It is anticipated that this will take from 5 to 10 years depending on several factors such as availability of capacity, leadership, participation, the size of the region, availability of funds, etc. Through dialogue a programme will be shaped that reflects regional and local priorities but also based on realistic milestones that are achievable. In addition, each node will be responsible to organise periodic workshops to coordinate regional activities, participate in south-south capacity building programmes and produce semi-annual progress reports. Progress will be monitored on various points in order to determine where strengths and weaknesses exist and where additional attention is required.

The regional node and partners should be able to provide a basic capacity building package in the following areas:

- Toilet and collector system design
- Gender priorities and social acceptance
- Health and hygiene aspects
- Management of ecosan systems
- Agro-reuse of nutrients, humus and water

***Further details regarding the node selection process are found in section 6.2.5. Section 8 provides an outline of the programme implementation strategy and 10.1.2 provides a list of the elements of capacity building and impacts of programme implementation that the nodes will need to live up to.***

Following the list of priority future directions from section 4.3, choices can be made to further specialise and increase expertise over the programme period:

- Gender mainstreaming
- Targeted Capacity Building
- Policy, Legislation and Regulation
- Local leadership
- Social Marketing of Sanitation
- Economic analysis
- Environmental, health and social impact assessment

- Broader range of sustainable sanitation solutions including wastewater treatment and reuse
- Technology development and town planning
- Cross-cutting issues of relevance
- Mechanisms of pathogen destruction
- Linkage of sanitation to improvements in coping with health-based vulnerability
- School sanitation
- Collaboration with the private sector and influencing large-scale investment
- Networking and coordination between international actors

#### **5.4.2. Linking to the present pilot projects**

It will be advantageous to make use of the ongoing ESR pilot projects and other pilot projects funded by other international partners (eg GTZ, WASTE, etc) in the development of the regional nodes. For each region, a mapping of the ecosan expertise and activities will be necessary. That an ongoing pilot project is successful doesn't mean, however that the same organisation could take on the node responsibility. It is sufficient to say that the capacity that has been built up around the pilot projects should be made centrally available to the region via the node organisation. These have the possibility of becoming ecosan centres for training, testing and development and R& D and large-scale implementation.

While the nodes are being developed, ESR will allocate funds directly to the pilot projects to assist in their becoming capacity building resources for both the immediate and neighbour regions. The following activities are proposed:

- Erdos (performance studies; south-south workshop; training of regional partners)
- BCM/Kimberley (south-south workshop; training of regional partners)
- Tepoztlan (training of regional partners)
- India (contribution to demonstration project)
- Bolivia (contribution to demonstration project)

There are many topics requiring attention in order to develop ecological sanitation in urban centres. These include single-chute dry sanitation systems in multi-story buildings, ventilation, corrosion of metal components, urine piping and tanks, various methods of greywater treatment and reuse, enhanced thermal composting, agricultural reuse, etc. Other studies include material flows analysis, energy flows and expenditures, costing, cost-sharing, social marketing and acceptance, gender studies, policies and regulations, etc. Other aspects requiring development are training and capacity building modules, entrepreneurship incentives, and solid waste systems.

The pilot projects will therefore remain the focus for such targeted activities and the regions will be able to gain experience from participating on a South-South basis.

#### **Budget lines:**

- Node Development Manager and Capacity Building Manager (2 x 0.5 P/Y)  
885.405 SEK in salary costs plus 120.000 SEK in travel costs.

- Node Development Programme – 3 nodes in 2006  
1.950.000 SEK in contracted costs
- Linkage to Ongoing ESR Pilot Projects  
2.850.000 SEK in contracted costs

***The above activities will be led by the Node Development and Capacity Building Managers.***

#### **5.4.3. Completion of the Ongoing ESR Pilot Projects**

ESR 1 is presently carrying out urban ecosan pilot projects in China, Mexico, South Africa, and with UNICEF planning a peri-urban project in Bolivia and several rural projects in India. The approach being taken is that the responsibility for these pilot projects will be shifted more and more to the local partners. The need for funds from ESR is however significant in order to build demonstration facilities that function at full scale. Without these demonstration efforts, local authorities are not easily convinced that these alternative approaches actually can work. The pilot projects in China, Mexico and South Africa (Kimberley/Buffalo City) are in advanced stages and require funding in 2006 for full-scale demonstration of all ecosan components including the ecostation for treatment and reuse of greywater, composting of kitchen organics and faecal material and the entire collection system for urine, faecal material, organics, solid waste, etc.

SEI has signed framework agreements with local municipalities in Erdos, Kimberley, and Tepoztlan and with UNICEF in India that govern the execution of pilot projects to 2007-2008. These agreements are the basis for long-term commitments on the part of the local government and critical to the success of these projects.

Experience on how these urban ecosan centres function is however one of the absolute prime interests of the Programme. Therefore the pilot projects and even those set up by other organisations, eg GTZ and WASTE, are of interest in learning more about the challenges and successes surrounding the development of ecological sanitation systems. So ESR Phase 2 will emphasise knowledge development through the process of implementation – the pilot projects are designed to be full-scale development projects in order to learn how these systems function, how household and users adapt to them, how authorities adapt to them and how the systems can be further improved.

Phase 2 will require an early assessment of the ongoing pilot projects to determine which of these have produced significant results that merit continued support or input from the Programme. Assistance from the Review Panel will be necessary in order to carry out this assessment.

The management and execution of these pilot projects will still rest in part with personnel working in ESR Phase 2 until they have been set up and are fully running. Performance studies are of course the central interest in carrying out full-scale pilot projects, so these will be carried out over several years in order to learn more about how well these systems work over time. Much of ESR 2 is therefore still focussed on the ongoing pilot projects as sites for knowledge development and capacity building

for the regions. And it is through this experience that the regional nodes will in part be developed.

### ***China***

In the case of the Erdos project in China, the local municipal government has provided land and roads, basic infrastructure and a large number of staff to work alongside the ESR advisors. The local government will be taking greater responsibility of the ecosan operations in 2006 (760 apartments). The bulk of the overall costs have been covered by the households in the purchasing of the living quarters which include all the ecosan components. ESR has provided support for demonstration of ecosan (in the first 80 apartments) and for training of municipal workers, the building firm and sales people and the households themselves. The ecostation for the first phase of the project (760 households) which is one of the world's first sustainable sanitation facilities built into an urban setting is being financed by ESR. Of prime interest for ESR Phase 2 is to build up a local R&D capacity to study how the entire system functions and to test and develop other competitive ecosan methodologies.

### ***Mexico***

In Mexico, the local municipality of Tepoztlan has provided some staff and land for the composting facility but most of the local efforts are being assumed by the local independent partner SARAR, funded in part by ESR. Costs for ecosan installations are being covered by the 100 households. A substantial amount of capacity building and training has also been carried out by the SARAR group in the LAC region. Additional efforts are presently required to exhibit and communicate these activities at the upcoming World Water Forum to be held in Mexico in early 2006.

### ***South Africa***

In Kimberley, about 80 dwellings with ecosan equipment have been built in a collaboration between Sida/INEC, ESR and the Municipal Housing Company. Efforts have been made to develop a composting facility on site, to improve greywater treatment and to further improve the collection and agro-reuse aspects. The plan is to expand this housing project to about 2800 ecosan dwellings over the next few years.

In Buffalo City, 10 demonstration houses are to be completed in 2005, and efforts have already been made to develop the local interest and capacity for greywater onsite treatment, agro-reuse and dry toilet development. 600 units are planned for 2006. This is a collaboration with the Municipality, the Department of Housing and the Department of Science and Technology. Although the ESR Programme has no formal agreement with the municipality there is an agreement on housing support with Sida/INEC.

### ***India***

The collaboration with UNICEF was started this year and locations in 7 states are being identified for pilot projects. A cost-sharing agreement has been struck between ESR and UNICEF-Delhi. These are primarily rural projects.

### ***Bolivia***

The collaboration with UNICEF in Bolivia has not yet formalised. A workshop was held in late 2003 and an additional one is planned before the end of 2005. A peri-



urban pilot project has been proposed by an NGO, CODIS for commencement in 2006.

***Other pilot project programmes***

EcoSanRes has involvement by sub-contract in the Sida-sponsored rural pilot projects being carried out by CREPA in 7 West African countries, plus the urban pilot project being carried out by Kampala City Council in Kampala, Uganda. These are not financed through, nor have they been managed by the EcoSanRes Programme but have direct capacity building relevance in Phase 2.

**5.5. Knowledge Development and Advisory Team**

In order to ensure that the international community is advancing knowledge in eco-sanitation and can provide regional advisory services, a rolling programme of knowledge development activities is therefore proposed. The attempt here is to make use of and strengthen both the Swedish and international ecosan capacity and to catalyse its further development. A small team of at least 4 research staff at SEI will function as an integrated think-tank and advisory group and tackle a series of specialized topics:

- Social, health and environmental impacts
- Systems analysis/material flow research
- Handling and treatment systems for excreta and greywater
- Social acceptance assessments
- Gender aspects
- Livelihoods and health vulnerability research
- Economics of sanitation
- School sanitation topics

But it is not enough that specialised topics be mastered. These need to be applied as well to cross-cutting issues such as:

- mainstreaming and scaling up of ecosan,
- design and operations to avoid odour problems,
- institutional capacity issues,
- logistics, maintenance and efficiency, and
- system performance

The knowledge development team will also have a key role to play in the provision of advisory services especially in the development of regional nodes and the ongoing pilot projects within the ESR Programme. The expertise will be made available through direct contact and also as a pooled sourced of expertise to help plan training and curricula, demonstration, R&D, policy and implementation projects.

The following will be the deliverables:

- guidelines on best practice including transfer of the WHO guidelines to the regions
- workshops on specific topics
- response to demands in the regions for technical support

- linkage of experience from the ongoing pilot projects in the development of new projects in other regions
- published research summaries

**Budget Lines:**

- Health Expert (0.5 P/Y)  
442.703 SEK in salary costs and 40.000 SEK in travel costs
- Social Acceptance and Gender Expert (0.5 P/Y)  
442.703 SEK in salary costs and 40.000 SEK in travel costs
- Eco-Agriculture Expert (0.5 P/Y)  
442.703 SEK in salary costs and 40.000 SEK in travel costs
- Environmental Impacts Expert (0.5 P/Y)  
442.703 SEK in salary costs and 40.000 SEK in travel costs

**5.5.1. Coordination of Capacity Building Activities.**

The many capacity building and training activities will also require better co-ordination between actors. The ESR Programme will provide this capability through the Capacity Building Manager. This will also involve the development of capacity building within the regional nodal structure.

Of particular interest are the linkages with WHO, WSP, UNICEF, GTZ, WASTE, CREPA and other organisations involved in capacity building. In relation to health, a linkage with WHO is essential from several different aspects. A formalised liaison gives the advantage of policy promotion to a group of people that would be difficult to reach through different other channels. In addition, it may have the advantages of synergistic effects in relation to pilot and educational activities, related to the series of forthcoming WHO Guidelines. It gives an advantage in relation to monitoring of “health and impact indicators” on both an international as well as regional and national level. It further gives the advantage of focussing on different aspects and sub-areas of sustainable sanitation and provides the possibilities for comparative investigations in relation to different re-circulation aspects (including wastewater reuse).

**5.5.2. Global Thematic Working Groups.**

In order to better maintain cutting edge competence within the most active organisations around the world, four thematic working groups will be set up and managed by chosen experts. Leadership and active participation will be sought from leading organisations in the South. The working groups will cover a few selected topics of special interest. But as indicated for the Knowledge Development and Advisory Team a problem-oriented approach is necessary attacking cross-cutting issues. Through electronic discussion groups, sessions will be held, workshops organised and recommendations published. Key sectors and problem-oriented topics will be identified eg as follows:

- greywater and wastewater reuse,
- toilet design and architectural aspects,
- social aspects including gender mainstreaming

- economics of sanitation (primarily hardware)
- urine and faeces collection, composting, storage and agro-reuse
- health aspects (primarily risk assessment)

Four lead chairpersons will be identified. Participants will be chosen from organisations currently carrying out ecosan projects in the regions. This will be a global collaboration effort as was recommended at the Durban Conference in May 2005. Scheduled electronic meetings will be arranged with strict agendas and PPT presentations by participants. The summary and proceedings of the meetings will be published on the general website by the group chairpersons.

**Budget Line:**

- Four thematic working groups  
460.000 SEK in contracted costs

*The above activities will be managed by the Knowledge Development Team with input from the Capacity Building Manager.*

## **5.6. Communications and Networking**

### **Objectives**

To ensure continued progress of core programme activities, well orchestrated and comprehensive communications activities are required. It is of utmost importance that considerable efforts are put into such endeavours so that key issues are addressed in a timely fashion. The work plan for communications and networking relates closely to the overall EcoSanRes Programme and is intended as a support to Management in all its endeavours. Thus, the functions are closely related to the Programme Director's tasks as well as those of the Capacity Building Manager's responsibilities. The EcoSanRes Programme is at a juncture where its future depends on much communications and networking in order to ensure acceptance and expansion of sustainable sanitation development worldwide. To spearhead sustainable sanitation development it is, indeed, important to establish necessary tools for international exchange of knowledge for the purpose of enhancing capacity building and management structures for successful sanitation implementation through a multitude of institutions in addition to the ones described as part of the EcoSanRes Programme.

The EcoSanRes communications and networking strategy relates directly to all planned programme initiatives in addition to laying a foundation for new initiatives. Thus, when planning new programme initiatives it is fundamental to ensure that each one is linked to the communications and networking functions of the Programme.

When the communications and networking functions are fully operational, they will to a degree have paved the way for new programme initiatives, by having established proper contacts at the substantive and policy levels in a particular area or country, alternatively at a regional or international level. The communications and networking functions presuppose exchange within the programme in addition to relevant external bodies. Therefore, the communications and networking activities will form a pivotal juncture within the programme, which will facilitate interventions undertaken by both the Programme Director and the Swedish and international resource base at all levels. Such collaboration is likely to provide synergies and increase the impact of any effort

to promote ecological sanitation interlinking EcoSanRes Phase 2 with the priorities for Sweden's Policy for Global Development and the Millennium Development Goals, in particular Target 10 of MDG 7.

The communications and networking activities are interactive and proactive and therefore closely associated with international sanitation development including governments, international agencies, NGOs, academia, private entrepreneurs, media, and financial institutions.

### **Activities**

The ESR Programme Communications Strategy is one built on North-South and South-South collaboration. The following list of activities will be carried out:

- 5.6.1. Networking and Knowledge Management.** In order to map and coordinate the various sustainable sanitation efforts and activities around the world a global database is necessary. This will be developed as a North and South collaborative effort with a start in 2006. A global GIS database of ecosan projects will be developed. These activities will quickly broaden through the use of an interactive website, enabling all participating individuals and organisations to provide input and periodical updates. This will evolve into a hub for knowledge management and knowledge exchange.
- 5.6.2. International publications series.** The ESR publications series will be expanded to allow for publication in English, Spanish, French and Chinese. Reports from the R&D, guidelines and pilot project work plus the general text "Ecological Sanitation" will be published in 2006 in these languages. The work carried out during 2004 and 2005 will produce a series of new publications as will the ongoing pilot projects.
- 5.6.3. Global and regional websites and general electronic discussion group.** The on-going general website and discussion group will be continued and upgraded. Also, additional regional websites for each node in the applicable language or languages will be started.
- 5.6.4. Co-ordination between bilateral funding agencies.** By organising an International Coordination Group for international funding agencies, co-ordination of efforts will be possible to a larger extent than at the present time. In particular the agencies involved in funding projects in the South (eg. Sida, GTZ, WASTE, WaterAid, EAWAG, BOKU, NLH, Norad, etc.) will be able to report on, co-ordinate and plan their initiatives. Thus, collaboration efforts will then be more effective and funding hopefully more efficient.
- 5.6.5. Co-ordination for policy development.** Communications and networking efforts for the purpose of policy development will be an integral part of the ESR programme. The actions will be directed towards international agencies, bilaterals, financial institutions, national governments, etc.

**5.6.6. Library service and help desk.** The SEI Library will serve as a hub for published and grey ecosan literature. A Help desk service will be available on-line.

**5.6.7. International conferences.** The international ecosan community is anticipating an international conference with about two year intervals. The up-coming one is expected to take place in Erdos, Inner Mongolia, China, in 2007 or 2008. The role of the ESR Programme will be to provide backstopping regarding content development and partial funding of attendance from developing countries.

Additionally, international conferences, symposia, exhibits and workshops and relevant international meetings organised within the framework of the United Nations will be attended by the ESR Programme as an active partner. The agenda of such meetings will, when necessary, be made to focus on sustainable sanitation to ensure that various sanitation aspects become an integral part.

**5.6.8. Contact with media.** As progress is made and more information is available around pilot projects, training, reports, etc. efforts will be made to contact the external media. The ESR network will be provided with media contacts and news-worthy material for the purpose of promotion and awareness-raising and the facilitation of mainstreaming sanitation.

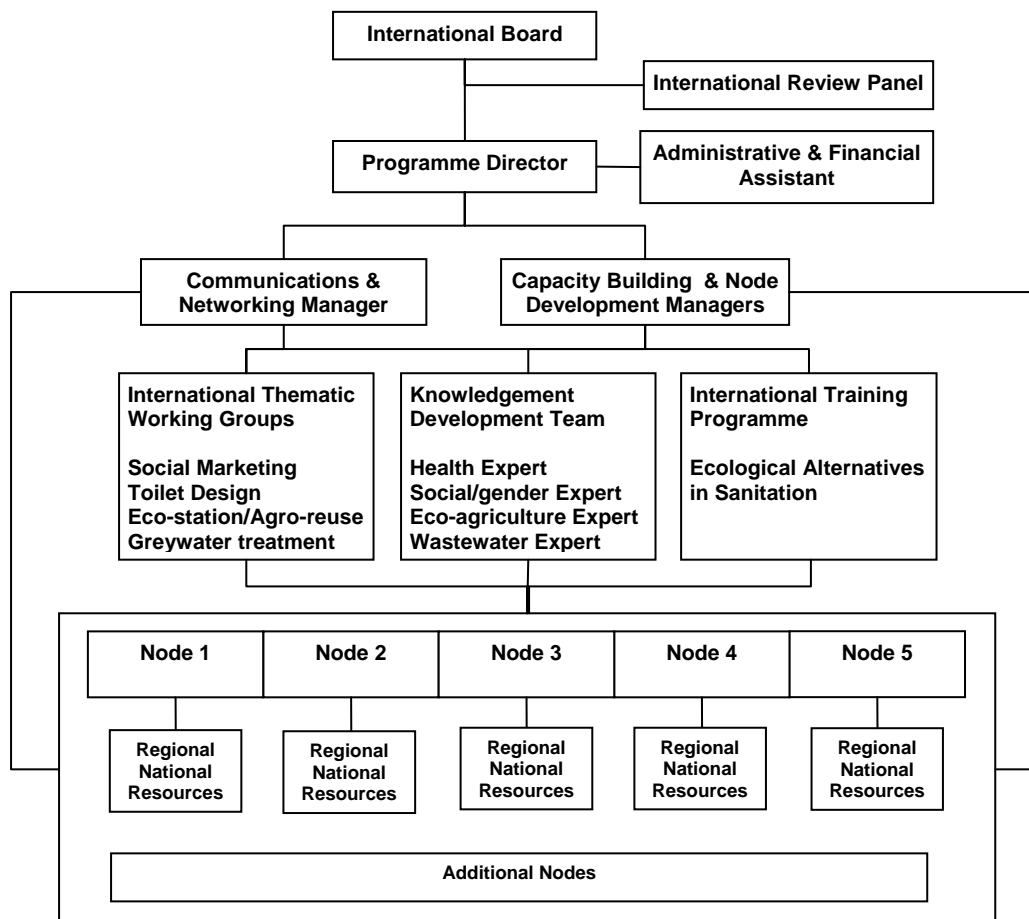
**Budget Line:**

- Communications and Networking Manager (1 P/Y)  
792.405 SEK in salary costs plus 80.000 SEK in travel costs
- Service functions (1 P/Y)  
594.204 SEK in salary costs
- Running contracted costs 665.000 SEK

*The above activities will be led by the Communications and Networking Manager.*

## 6. Programme Inputs

### 6.1. Programme Organisation



### 6.2. Capacity Building and Node Development Programme

The inputs required to carry out capacity building and the node development programme are a Capacity Building Manager (0.5 P/Y), a Node Development Manager (0.5 P/Y) and the direct Node Programme Support. The job descriptions for these two positions and necessary qualifications are found in Annex 5.

#### 6.2.1. Definition of a Node

A regional node is an organisation that can take a lead role in the promotion and development of sustainable sanitation in a specified global region of the world. The node organisation would create a sub-network of national organisations as targets for further capacity building and implementation. Each node will set up its own programme designed to serve that region. Each node will set up a networking team representing the participating organisations. EcoSanRes will provide an annual base budget for capacity building projects, workshops and a node manager. The node and participating organisations would then be able to seek additional funds for specific projects dealing with demonstration and testing, various studies and pilot projects.

Sources of funds for the larger projects would be Sida's global Sustainable Sanitation Fund, but also other sources managed by other bilaterals, multilaterals and finance institutions.

#### **6.2.2. ESR Node Programme Preparation**

- Led by the Node Development Manager
- Production of ToR and criteria for the node development
- Mapping and identification of potential node organisations
- Stakeholder discussions in the regions
- Production of programme proposals
- Ranking of proposals by the Review Panel
- Decision by Board selecting 2-3 candidates that will receive attention during 2006 with options for 2 more in 2007
- MoUs with SEI
- Project Document with LFA and budget prepared by node institution
- Review of the Project document by the Review Panel
- Project Document approval by the Board
- Initiation of the first two phases ie capacity building and project work for the first three nodes in 2006 (see outputs section for more details about the proposed activities)

#### **6.2.3. Four Phases of Node Development**

Once the node organisation has been identified and approved, the four phases envisioned are:

- 1. Capacity building
- 2. Node programme support,
- 3. Implementation projects (going to scale)
- 4. Scaling down of ESR programme support

#### **6.2.4. Time access and roll-out plan**

*It should be made clear that the objective in regional node development is to provide a critical mass of regional capacity in order for eco-sanitation to then further develop and spread on its own.* It is envisioned that this process could take as little as 3 years for some nodes and up to 8 years for others. Each node will determine its own pace of development depending on the regional and local needs. A common time plan for all nodes is therefore not feasible. In general it is anticipated that:

- Phase 1 would dominate year 1 in priority targeted locations
- Phase 2 projects would then be started as a follow-up and part of capacity building processes and continue for an additional 1-2 years
- By year three or four larger-scale implementation projects could be drawn up starting with feasibility studies. These projects would require 2-3 years to complete.

So the entire cycle could take as little as 3-4 and as much as 6-8 years to complete.

#### **Phase 1 Capacity Building – node and national/regional resources**

- Institutional management structure improvements

- Identification of current networks that can be utilised
- Identification of regional partners
- Networking execution through written agreements with partners (MoU)
- North-South and South-South workshops and general training programme including training of trainers (within the primary regional network)

#### **Phase 2 Node Programme Support**

- Development of a programme of ecological sanitation activities in each region managed by the node organisation
- Demonstration projects
- Regional training programme
- Knowledge development for local governments and authorities, NGOs, entrepreneurs, etc.
- Communications, networking and media programme (with guidance from the Communications and Networking Manager)
- Awareness raising aimed at the general public
- Policy and legislation reviews (definition of gaps)
- South-South and self-contained regional training programmes (second-tier targeted organisations, eg local authorities, schools, entrepreneurs, etc.)
- Semi-annual reports
- Yearly performance reviews will be used to assess progress

#### **Phase 3 Implementation projects**

- Larger scale projects for demonstration and pilot purposes
- Full-scale implementation and scaling-up projects
- Funding from various external sources eg bilaterals and multilaterals
- Multiple criteria for acceptable projects provided by the funding sources with technical advice from ESR Programme
- Legal agreements on cost-sharing formulas (shared between domestic/local and foreign sources)
- Following of criteria and content requirements for project approval by the funding sources
- Project Document with LFA and budget
- Semi-annual reports

#### **Phase 4 Scaling Down of ESR Programme Support**

- Once the node organisation and region have successfully built capacity in order to mainstream ecological sanitation, the financial linkage to the ESR Programme will be terminated
- Exit strategy, timing and process to be agreed upon between the node organisation and the ESR Programme subject to the approval by the Board

##### **6.2.5. Node selection process**

Through mapping and inventory potential nodes will be canvassed. A transparent process will be carried out in the selection of the best candidates. Potential nodes will then be able to include the following components in a programme proposal:

- a statement of relevant qualifications



- review and status of sanitation practices in the region,
- a description of the sanitation challenges at hand formulated in terms of meeting the MDG on water and sanitation
- a well formulated plan of action for the region centred on the introduction and promotion of sustainable sanitation, advisory services, capacity building, training, R&D, pilot projects, demonstration, testing and development, scaling up, etc.
- a well formulated regional communications programme including publications, website, and electronic discussion group in the common local language
- a list and description of potential participating organisations within the regional network, including universities, NGOs, government authorities, businesses, etc.
- a list of potential projects with personnel requirements and budget lines that could be carried out over a five year period to 2010
- an overall budget over the period to 2010
- an LFA covering the entire proposal, including objectives, milestones, required inputs, indicators for monitoring plus an evaluation of critical assumptions and project risks

Selection of candidate node organisations will be done by following a number of important criteria. The Node Development Manager will provide the ESR Review Panel a number of candidate proposals for assessment. The final selection will be made by the ESR Board.

#### **6.2.6. Examples of criteria for selection:**

Criteria for selection will be further elaborated upon in collaboration with selected regional institutions and these will then be vetted and approved by the ESR International Board. Some examples of possible criteria are listed as follows:

- successful track record in the development of local ecological sanitation, solid waste and water management projects with use of best practices
- established institution with base funding already present for staff, buildings, communications and equipment
- demonstrated capability in the management of human resources also using policies that provide gender equity
- experience in broad-base stakeholder involvement and gender mainstreaming
- previous experience in regional networking
- fund-raising capacity
- experience with private sector involvement
- experience in social marketing and consumer behaviour
- capacity for knowledge development, R&D and policy development
- capacity for training and educational services
- capacity to provide a regional communications programme
- capacity to work in an international language and the local languages of the region

### **6.3. Knowledge Development Team**

#### **Terms of Reference**

- The 6-8 specialized topics will be tackled by a team within SEI by recruiting a total of 2 P/Y of staff divided between 4 experts
- The team will work as an integrated group under the direction of the Capacity Building Manager
- Development of the existing knowledge base on ecological sanitation
- Updating and refining of guidelines for the safe use of human excreta and greywater
- Formal liaison with WHO in the implementation of the new WHO guidelines dealing with ecological sanitation
- Assistance in setting up curricula in ecosan for educational institutions
- Development of materials for education, curricula and training
- Semi-annual status reports, fact sheets and publications will be produced by this team

### **6.4. Thematic Working Groups**

#### **Terms of Reference**

- Four international working groups will be set up to deal with important sustainable sanitation topics
- 4 designated chairpersons (Swedish and international expert leads) will be appointed and international membership acquired
- Report to the Capacity Building Manager and Communications and Networking Manager
- electronic discussion groups and workshops
- production of guidelines, manuals and publications
- semi-annual reports

### **6.5. Communications and Networking**

The job description and necessary qualifications for the Communications and Networking Manager (1 P/Y) are listed in Annex 5.

#### **6.5.1. Commissioned Services to Support Communications and Networking**

To fulfil the role of the Communications and Networking function, it will be necessary to commission selected services to specialists and partners in the North and South, in particular within the regional node system. These services include many tasks and can be divided into two types, namely substantive work and services of a more practical kind as follows:

#### **Necessary substantive tasks**

- Commissioning of research reports, scientific papers, books, guidelines, fact sheets, etc.
- Editing of research reports, scientific papers, books, guidelines, fact sheets and other print material
- Preparation of summaries of research reports for the issuance of fact sheets
- Layout services in preparation for printing

- Costs associated with translation and editing of research reports, scientific papers, books, fact sheets, and other print material
- Costs associated with layout of translated research reports, scientific papers, books and other material for printing
- Layout of graphic material
- Costs associated with preparations of ads for recruitments and training opportunities, including content preparation, layout, target audience identification, translation, etc.
- Database maintenance for global programme and nodes
- Preparation, incl. writing, editing, etc. of Annual Reports
- Drafting of reports from conferences and other meetings
- Layout of reports from conferences and other meetings
- Translation of reports from conferences and other meetings
- Organisation of conferences and international meeting
- Promotion of conferences and international meeting
- Staffing of selected conferences and international meeting
- Management, incl. preparation, logistics, etc., of exhibits and meetings in international contexts
- Development of content of sessions at international fora, conferences, symposia, etc.
- Technical support to web-based internet discussions
- Summaries of web-based internet discussions for distribution within the ESR network and to a wider audience
- Information provision for publication in newsletters, etc. of other networks
- Presentations of ESR 2 in international meetings
- Services for establishing mailing lists of appropriate target groups
- Purchase of web designer
- Acquisition of web maintenance services
- Work associated with translation of website material
- Helpdesk functions

#### **Necessary services**

- Printing of publications, fact sheets, etc.
- Delivery of bulk print material, posters, etc.
- Postage, wrapping and logistics for worldwide distribution of printed material, posters, etc.
- Purchase of photo rights
- Printing of posters and large size fact sheets
- Purchase of equipment to be used in association with exhibits
- Purchases of international databases
- Printing of reports from conferences and other meetings
- Renting of physical space and equipment in association with meetings and conferences
- Copying functions during conferences
- Distribution costs related to reports from conferences and other meetings
- Travel costs associated with conferences and international meeting
- Registration fees for participation and exhibit booths at conferences and international meeting

- Transportation cost and logistics associated with conferences and international meeting
- Costs associated with policy development and networking missions
- Acquisition of professional literature and journals

## **7. Governance and Management of the Programme**

The overall strategy in the programme is that the regional partners will be encouraged to be independent from the onset. The aim with the capacity building programme is to create independence. The success of the Programme will be measured in terms of how self-sufficient the regional nodes and the respective national and regional resources become.

### **7.1. Programme Management**

ESR Phase 1 had a very low core management capacity costing ca 3-3.5% of the total budget. ESR Phase 2 is much more ambitious what with the addition of a regional nodal structure for capacity building, the ongoing pilot projects connected to an independent sanitation fund, a governance structure involving a Board and Review Panel, knowledge development, thematic groups and broader international coordination. All this will require a strengthened core team made up of a Director (1 P/Y) and Administrative/Financial Assistant (1 P/Y). The job descriptions for these are found in Annex 5.

#### **7.1.1. Management Strategy**

##### **Strategic Planning Team**

Management of ESR 2 will be focussed on performance and efficiency. This will involve creating a Strategic Planning Team (SPT) made up of the Programme Director, the Communications/Networking and the Capacity Building and Node Development Managers. ESR1 had a Project Advisory Committee (PAC) which provided the Programme Manager with advice and critical review. The SPT will take up where the PAC leaves off at the end of 2005. In addition, the Review Panel and Board will provide an overall governance function that was lacking in ESR 1.

The activities of the SPT will include:

- Strategic programme planning including how the various components of the Programme mesh,
- Detailed project planning
- financial management,
- project and financial monitoring
- project evaluations, reviews, assessments and reporting

##### **Administrative Procedures**

- All activities will be managed using contracts which specify work plans with identified milestones and budgets for fees and reimbursables
- All contracts will contain LFAs to streamline the workload of monitoring and assessment
- A transparent financial tracking system will be used including monthly financial reports in order to keep strict control over each contracted activity.
- Time reports and invoices will be filed on a monthly basis by each contracted organisation.
- Monitoring of progress will be done using both the monthly and more substantive semi-annual reports that include details of activities and results.

- Regional node organisations that are performing their own operations will also be required to follow these similar procedures.

### **Responsibilities in the South**

Although the ongoing pilot projects will still be managed through the EcoSanRes Phase 2 Programme, a stepwise process of decentralisation will begin from day one in 2006. To start with there will be more delegation of activities to the lead organisations in the South and this will require extensive planning, budget reviews, frequent communication and parallel project monitoring. Some duplication over a period of time will be necessary in order to ensure that the delegation has been properly carried out. This process of delegation and shift of management will be carried out through training and use of similar routines for administrative procedures.

*This activity will be managed by the Programme Director.*

## **7.2. Governance**

It is premature to dictate the exact strategy of the governance component of the ESR Programme. The Board and Review Panel will be required to create these in liaison with the SPT and partners in the North and South. The main strategy however will be to provide a non-partisan capability for assessment of project activities and overall direction using highly qualified individuals chosen on the basis of their track record and current status.

### **7.2.1. International Board**

- **Objective:** to provide programme oversight, strategic advice, programme governance; review of overall performance of the Programme based on review of semi-annual reports
- **Terms of Reference for the Board**
  - Chair plus 5 members plus secretary
  - One meeting per year; fees for the Chairperson; travel financed by the ESR Programme
  - Membership from a wider community of organisations not involved in any implementation funded under the ESR Programme e.g. university, government, NGOs, private sector, financial institutes, bilateral and multi-lateral organisations, with senior competence in water and sanitation, health, agriculture, urban planning, architecture, sociology, economics, etc.
  - Representatives from Sweden, Europe, LAC, Africa, South Asia, SE Asia, EECCA, China
  - Members and chairperson appointed for 3 year periods
  - Meeting secretary: Programme Director
  - Observers: Sida and other potential funding agencies

### **7.3. International Review Panel**

- **Objective:** To assess and select all capacity building, research and pilot projects requiring sub-contracts; to develop a review capacity for the Sustainable Sanitation Fund, when it commences later in 2006
- **Terms of Reference**
  - Selection criteria to be drafted by the Review Panel and approved by the Board

- Chair plus 3 members plus secretary; members must not be involved in implementation of the ESR Programme
- Members to be experts in sanitation, ecological sanitation, capacity building, research and development, MDGs, gender issues, health, agriculture, urban planning, architecture, participatory planning, etc.
- Members to be from Sweden, Europe, LAC, Africa, South Asia, SE Asia, EECCA, China
- One meeting per year plus periodic electronic meetings using videoconferencing
- Meeting secretary: Capacity Building Manager
- Observers: Programme Director and Communications and Networking Manager

**Budget lines:**

- Programme Director (1 P/Y)  
990.606 SEK in salary costs and 120.000 SEK in travel costs
- Administrative/Finance Assistant (1 P/Y)  
711.604 SEK in salary costs and 20.000 SEK in travel costs
- Board (6 members) Chairperson (0.5 P/M)  
50.000 SEK in salary costs and 120.000 SEK in travel costs
- Review Panel (4 members) (4 P/M)  
400.000 SEK in salary costs and 80.000 SEK in travel costs

## **8. Brief Outline of the Programme Implementation Strategy**

### **8.1. Programme Initiation**

The following lists the various steps required in launching the Programme in 2006:

#### **8.1.1. Organisation**

- Hiring of the Programme Director in concert with Sida
- Hiring of the core team staff
- Writing the detailed terms of reference for the International Review Panel and International Board in concert with Sida
- Appointment of Panel and Board members in concert with Sida

#### **8.1.2. Knowledge Development**

- Formation of the international thematic groups and appointment of member experts

#### **8.1.3. Communications and Networking**

- Launching of the communications programme including media releases

#### **8.1.4. Node Development and Capacity Building**

- Development of criteria for node selection through collaboration with regional institutions followed by vetting and approval by the International Board
- Decision on what regions to prioritize for node development (suggest starting with West Africa, Southern Africa, South America and possibly East Asia in 2006)
- Survey of potential node organisations in the priority regions
- Initial meetings with potential node organisations
- Request for proposals to candidate regional nodes including details on present status and potential for regional development of ecological sanitation; general needs profile and assessment of capacity gaps for the region e.g. policy, legislation, expertise, networking, national partners; stakeholder participation, private sector involvement, linkages with government structures in order to feed experience and guidelines into the policy making arenas
- Review of regional node proposals by Review Panel and final proposal made to the Board
- Approval of the first 2-4 regional nodes by the Board
- In 2007, production of phased project documents for the multi-year regional node development programme (with collaboration between regional node and ESR core team; a list of suggested capacity building elements is provided in section 10.1.2)
- Project documents for each node reviewed by the Review Panel
- Approval of projects by the Board
- Funding of phase 1 projects via the Global Sanitation Fund
- Initiation of phase 1 projects in collaboration with ESR core team
- Project monitoring and reporting

#### **8.1.5. Reporting**

- 6-month inception report to Panel, Board and Sida by July, 2006
- Annual report by January 2007
- First annual meeting including Board, Review Panel, Senior Staff, Regional Nodes - January 2007



## **9. Calls for Proposals, Contracts and Invoicing**

### **9.1. Suggested approach for calls for proposals**

The ESR Programme and regional nodes will announce periodically “Calls for Proposals” covering specific topics and activities identified by the regional nodes, including the exact requirement, timing, deadlines and budget limits. These Calls will be made on the ESR website and publicised via the global network of organisations. Proposals received will be sent to the Review Panel for independent assessment and ranking upon which a decision will be made regarding letting a contract. Contract negotiations will take place between the Programme Director and the contractee.

### **9.2. Contracted Projects**

The following list describes how the contracted projects are proposed to be managed:

- One-year (or less) contracts between SEI and sub-contracted organisations with the possibility of extension depending on the longevity of the specific project
- All sub-contractees will provide semi-annual performance/status reports and a final report at the end of the contracted period. Research investigations will provide reports worthy of publication within the ESR Publications Series
- Continuous/dynamic financial tracking by SEI with monthly check points
- Monthly reports for all staff and sub-contractors stating the total amount of time spent per month and what has been done
- Monthly invoicing of SEI
- Individual financial tracking by all sub-contractees. A monthly financial report is to be appended with the monthly time reports and invoices
- For auditing purposes, all sub-contractees are to provide copies of receipts for all reimbursables

## **10. Review, Evaluation and Monitoring**

### **10.1. Performance Monitoring of the ESR Programme**

#### **10.1.1. Monthly Project and Financial Tracking**

SEI will organise all the Programme activities in a numbered series of projects. SEI will produce each month with a list of the ongoing projects, the amount of time spent on each project according to the agreed to budget lines and an account for all fees and reimbursables. Monthly developments within each project will be measured against the project document time plan and LFA including the inputs, outputs and results. This work will also be performed by the regional nodes with assistance from the central programme financial controller.

#### **10.1.2. Monitoring of Regional Capacity Building**

To assess capacity building efforts requires a prior definition of the benchmark components being developed. These include such things as:

- formulation of sanitation development objectives, strategic plans and specific needs
- gender balance and gender mainstreaming capacity
- professional competence and knowledge development
- intellectual and analytical capability
- technical capacity
- documentation and writing capacity
- outreach and marketing capacity
- learning capacity
- human resources management staff organization and team functionality
- administration
- delegation and leadership
- accountability (contractual agreements, budgets and finances)
- procurement capability
- IT capacity
- implementation potential
- service capacity
- involvement of local people
- co-ordination capability
- partnership and networking
- organisational flexibility
- physical resources, buildings, equipment and sustainability of finances

#### **10.1.3. Monitoring Impact**

Important indicators to assess impact depend on the specific project e.g.

- numbers of households involved
- number of successful sanitation installations that are used by households
- amount of agro-reuse source-separated products per household
- success of agro-reuse programme

- success of pathogen reduction in the sanitation cycle
- level of greywater treatment
- social acceptance of the sanitation system
- number of people trained
- degree of women involvement in planning and implementation
- level of entrepreneur involvement in installation, service and maintenance
- degree of NGO involvement in planning and execution
- promotion of government policy dialogues and policy documents
- successful local agreements
- level of stakeholder participation and linkage to community needs
- level of training success
- prevalence of information programmes to users
- level of staff quality and stability
- evidence of multiplier and scale-up effects
- household impacts (user feedback, convenience and health)
- environmental impacts
- closed loop implementation (source separation, treatment and agro-reuse)
- quality of workmanship, buildings, equipment, etc.
- publications and seminars
- research and development successes
- national, regional and international interest
- financial performance and cost-effectiveness
- media impact

#### **10.1.4. Semi-annual Status Reports**

Every six months a general status report will be produced for all ongoing projects and sent to Sida and the Board

#### **10.1.5. Annual Review Meetings**

Every 12 months there will be a general meeting held to inform Programme partners on the accomplishments of the previous year and plans for the next year. This will be timed to coincide with the annual Board meeting.

#### **10.1.6. Mid-Term Review**

An evaluation of the Programme will take place at mid-term by an external consultant supplied by Sida. This will involve neutral experts not connected to the Programme. South-south peer review of individual regional node projects and general nodal development will be a key feature. The mid-term review will include a review of SEI overhead costs for 1) management/administration and 2) reimbursables/transfers. The respective percentages will be adjusted to reflect actual costs.

## 11. Risks, Prior Obligations and Pre-requisites

### 11.1. Sustainable Sanitation Fund

As suggested in the Sida review of ESR Phase 1, for ESR Phase 2 to work as planned, a **Sustainable Sanitation Fund** for local initiative projects within the nodal regions needs to be set up. This would cover the needs as described in the Sida preliminary report of May 31, 2005 dealing with the so-called “Environmental Billion” or proposed increased funds for environment and sustainable development beginning in 2006. It was proposed in the Report that about 200 MSEK be made available per year by 2007 to cover the costs for an expanded EcoSanRes Programme, school sanitation, capacity building (water and sanitation), and regional projects e.g. Lake Victoria and EECCA. A significant part of this could be managed through an independent global Sustainable Sanitation Fund.

*A decision to launch the Fund needs to be taken by Sida before the end of December 2005.*

### 11.2. Funding of the Ongoing Pilot Projects

The ongoing Pilot Projects where commitments have already been made between SEI and local governments would require support under the proposed Fund. *If the Fund is not launched at the beginning of 2006, then the pilot projects will have to be funded within the EcoSanRes Programme. This would require that the pilot projects dominate the ESR Programme as is the case today in Phase 1. And such things like added programme management, networking, capacity building, node development, etc. would not be carried out.*

The development of the Regional Nodes can be very much linked to the successful completion of the ongoing pilot projects. So by ensuring that the ongoing pilot projects are funded will enhance the regional node development.

Connected to the pilot projects is the whole area of further capacity building, testing and development. It is envisioned that the pilot projects will provide the basis for follow-up R&D projects in order to assess how ecosan works in an urban setting. This will provide great opportunity for not only Swedish experts to apply their skills, but also the entire international community of ecosan experts.

### 11.3. Possible Risks

There are several risk areas worth naming that could have impacts on the success of the second phase of EcoSanRes. The Programme is aimed around moving the agenda on ecological sanitation to the South. This requires a careful selection of partners and well thought through working agreements on how best to use the time and resources available to achieve the objectives of the Programme. The financial and management stability of the partner organisations is therefore crucial. Even if the partnerships appear sustainable, changes can occur in mid-stream over the project period due to external factors due to changes in government (local and national), changes in the organisation itself in terms of priorities, staff changes of great significance or base funding changes for the organisation. It is therefore necessary to keep the level of liaison very high in order to detect changes of this kind so that contingency plans can be enacted.

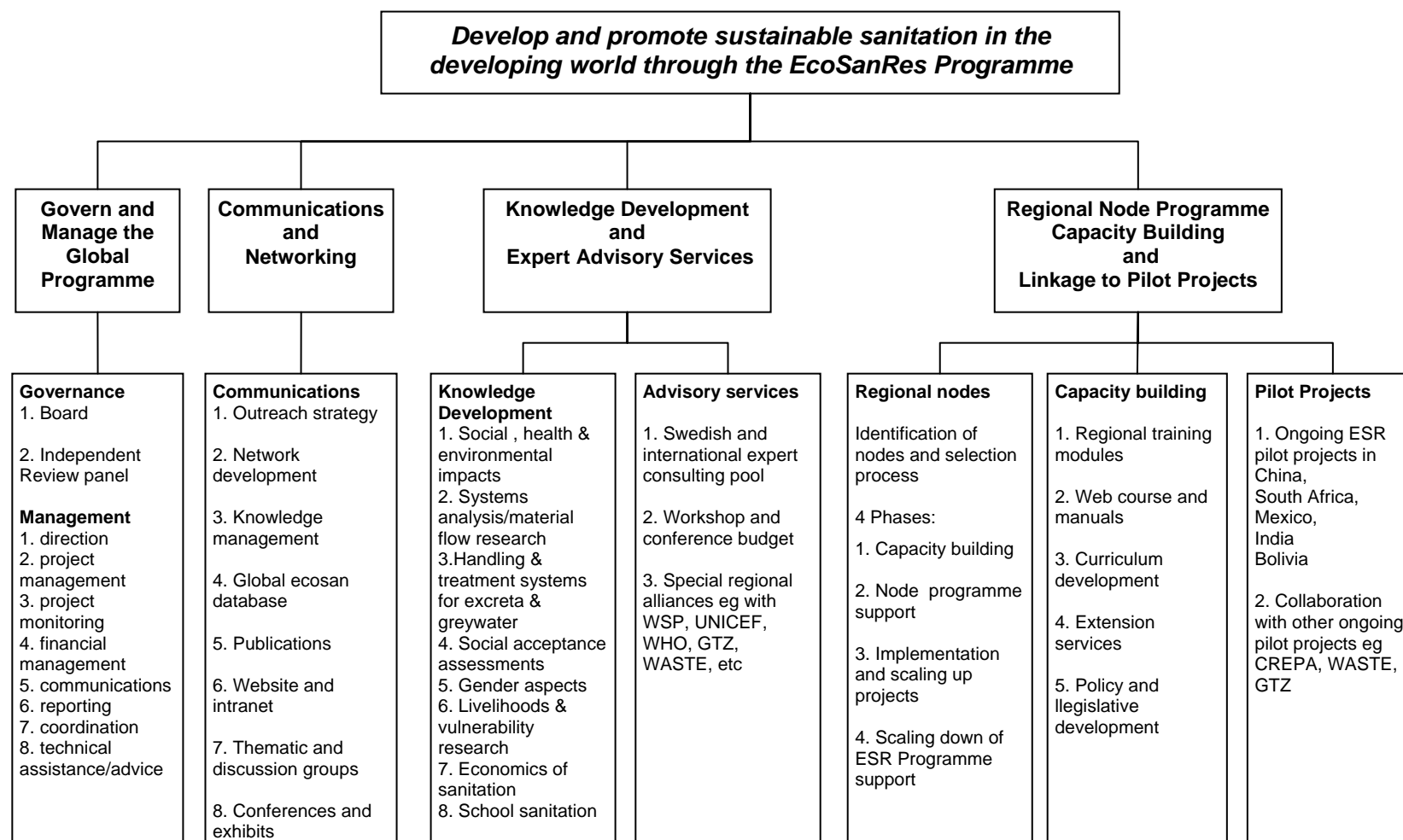
Ecological sanitation itself is a new field and there will be many new challenges among all the stakeholders and the day to day users of the ecosan systems including the toilet users but also the maintenance personnel. Training and complete information are important but there are risks that if the systems are not used or maintained properly people can be exposed to pathogens from faeces. Ecosan is based on source separation, containment and sanitisation which build in a high capacity of safety for both humans and the external environment. Monitoring of the routines within the ongoing and future pilot projects will therefore be necessary to ensure that good performance is maintained. Still there is the risk of human error or misjudgement. The fact that present inadequate sanitation systems result in ca 4000 child deaths per day and 1.5 billion people infected by enteric parasites is an indication of what the risks are if these systems are abused.

#### **11.4. Exiting Strategies**

The regional nodes will be kept online and financed for capacity building within the Programme until they have shown that they are capable of running a regional programme independently. The four phases of node development should ensure that this process is well monitored. The final phase deals with decoupling from the Programme and this will be written into the MoUs to ensure that all stakeholders are aware that support from ESR will have a time limit. Indicators of capacity and institutional performance will be built into the monitoring activities. If node organisations fail to meet minimum requirements, contracts and agreements will be terminated and alternative organisations engaged.

## **12. LFA Analysis**

### **12.1. LFA Strategic Analysis**



## 12.2. LFA Project Planning Matrix

Intervention Summary	Objectively Verifiable Indicators	Means/Sources of Verification	Important Assumptions and Risks
<b>Main Objective</b>			
<b>Develop and promote sustainable sanitation in the developing world</b>	Successful penetration of ecological sanitation into communities in Asia, Africa and Latin America	Regional and national development of policies and institutional capacity for widespread use of sustainable sanitation	National and local legislative or regulatory approval of the safe containment, sanitisation and recycling of treated human excreta
<b>Specific Objectives</b>			
<b>Regional Node Development/Capacity Building</b>			
<b>Setting up a capacity building system of regional nodes</b>	Development of two-three regional nodes per year that are carrying out a battery of capacity development projects within the regional network.	Project document approved by Review Panel and Board. MoU with SEI, regional organisation, project plans, semi-annual reports; regional meetings and workshops; active annual meeting between nodes.	Contracted node organisations perform function as regional hub; participating organisations provide personnel and resources.
<b>Knowledge Development and Advisory Services</b>			
<b>Setting up a system for knowledge development and advisory Services</b>	Development of an integrated series of knowledge development activities within a team to serve the capacity building work and advisory function within the Programme.	Strategy document produced by knowledge development team. Publications; fact sheets; workshops; semi-annual progress reports	Strong linkage to the node development and integrated approach to capacity building requirements
<b>Setting up international thematic working groups</b>	Communication between actors in the South involved in carrying out local implementation of ecological sanitation. Successful penetration of new ideas, strategies and technologies in ecological sanitation. Improved coordination of activities in the South between partner organisations.	Strategy document produced by each thematic working group. Electronic discussion groups; guidelines and specialist publications; workshops, semi-annual progress reports	Adequate participation from the partner organisations.
<b>Communications and Networking</b>			
<b>Setting up a communications and networking system for the programme</b>	Functioning and catalytic global communications and networking programme to serve the many partners within the international ecological sanitation community.	Publications programme; central and regional websites; central and regional discussion groups; global database over activities; International Coordination Group, conferences; workshops; exhibitions; media	Participation from international partners



		releases; semi-annual progress reports	
<b>Programme Outputs and Activities</b>			
<b>Strategy documents</b> <ul style="list-style-type: none"> <li>• Project selection strategy and criteria</li> <li>• Capacity building strategy</li> <li>• Research and development strategy</li> <li>• Demonstration and pilot project strategy and criteria</li> <li>• Communications, knowledge management and networking strategy</li> <li>• International coordination strategy</li> </ul>	Strategies of the Programme components are agreed to by main collaborating partners and being used on a daily basis in the execution of the Programme	<ul style="list-style-type: none"> <li>-6 Brief documents generated by the HQ-team after consensus from partners 2006</li> <li>-Published documents on general website</li> <li>-agreed to strategies built into the various project documents, project proposals and agendas of working groups</li> </ul>	<ul style="list-style-type: none"> <li>-Consensus among partners in the North and the South</li> <li>-Strategies are well communicated, agreed to and understood by individual organisations and their senior management</li> </ul>
<b>Regional Node Development/Capacity Building</b>			
<b>Development of regional nodes</b> <ul style="list-style-type: none"> <li>• Identification of lead organisations</li> <li>• Identification of participating regional organisations</li> <li>• Development of ToR for regional nodes</li> <li>• Sign MoU between SEI and regional node lead organisation</li> <li>• Develop activity profile and budget lines for each regional node</li> </ul>	<ul style="list-style-type: none"> <li>-Start 2006;</li> <li>-Identification of node organisations</li> <li>-Selection and approval process</li> <li>-MoUs with SEI for 3 nodes which are prioritised</li> </ul> 4 Phases of development: <ol style="list-style-type: none"> <li>1. Capacity building</li> <li>2. Node programme support</li> <li>3. Implementation projects (going to scale)</li> <li>4. Scaling down of ESR programme support</li> </ol>	<ul style="list-style-type: none"> <li>-Project Documents</li> <li>-LFAs</li> <li>-Budgets</li> <li>-Progress reports</li> <li>-Indicators of capacity development</li> </ul>	Assumption is that capable and promising organisations can be identified and their senior management and staff put high priority on developing capacity in the field of sustainable sanitation
<b>Thematic Groups</b> <ul style="list-style-type: none"> <li>• North-South-South working groups to share</li> </ul>	<ul style="list-style-type: none"> <li>-4 lead experts identified</li> <li>-regional members identified</li> </ul>	<ul style="list-style-type: none"> <li>-Meeting minutes and frequency of use of the Yahoo/Google discussion groups</li> </ul>	

<p>up to date information on ecological sanitation methods and approaches</p> <ul style="list-style-type: none"> <li>• identification of topics</li> <li>• identification of group leaders</li> <li>• identification of participants in the South</li> <li>• develop forum for communication</li> <li>• electronic media application</li> </ul>	<p>-virtual meetings held -Built as well into the communications and networking activity</p>	<p>-summary publications and guidelines -semi-annual reports</p>	
<p><b>Monitoring and R&amp;D of ongoing regional pilot projects</b></p> <ul style="list-style-type: none"> <li>• continued participation within the ongoing ESR Programme pilot projects</li> <li>• studies, testing and evaluation of ongoing ESR pilot, demonstration, capacity building and awareness raising projects</li> </ul>	<p>-project management, review, research and testing, training, communications within the ongoing ESR Programme pilot projects in China, South Africa, and Mexico to be completed by 2007, India and Bolivia by 2008.</p>	<p>-Project Documents; workplans, meeting summaries, workshops/seminars, technical reports, semi-annual progress reports within the pilot projects</p>	<p>-To be financed through bridge funds until the the Sustainable Sanitation Fund is installed by mid-2006 -budget requirement ca 15 MSEK for 2006 -not funded by the EcoSanRes Phase 2 budget -completion of these projects in 2007-2008 -management of the projects to be successfully shifted to the local partners/authorities</p>
<p><b>International Training</b></p> <ul style="list-style-type: none"> <li>• conducting the annual training course</li> </ul>	<p>Management and execution of the ecosan training course held each year in two global regions</p>	<p>-Contract to 2008 with Sida/ITP -Annual report including participant evaluations</p>	<p>Financed separately through Sida/ITP (3.3 MSEK per yr)</p>
<b>Knowledge Development and Advisory Services</b>			
<p><b>Knowledge Development Topics</b></p> <ul style="list-style-type: none"> <li>• Social, health and environmental impacts</li> <li>• Systems analysis /material flow research</li> <li>• Handling and treatment of excreta and greywater</li> <li>• Social acceptance assessments</li> <li>• Gender aspects</li> </ul>	<p>-Call for 4 lead experts to form a knowledge development team -Integrated programme proposed to work as a team -2-3 yr proposals reviewed and decided on by Review Panel -Workplans completed in 2006 -Projects commenced</p>	<p>-Project proposals, workplans, contracts, technical reports, guidelines, assessments, semi-annual reports</p>	<p>Creation of a team of experts that will work in an integrated fashion. Applying their efforts in a coordinated fashion to needs in the South</p>

<ul style="list-style-type: none"> <li>• Livelihoods and vulnerability research</li> <li>• Economics of sanitation</li> <li>• School sanitation topics</li> </ul>			
<b>Advisory Services</b> <ul style="list-style-type: none"> <li>• Provision of expert advice to node and regional organisations in the South working on ecosan projects</li> <li>• identification of local needs</li> </ul>	-Same lead experts as in the knowledge development team -identify and create routine lines of communication for follow-up	-Advisory memoranda; meetings; workshops; semi-annual reports	
<b>Communications and Networking</b>			
<b>Publications Programme</b> <ul style="list-style-type: none"> <li>• reports</li> <li>• fact sheets</li> <li>• scientific papers</li> <li>• web publication</li> </ul>	-publication of the book "Ecological Sanitation" in Spanish, Chinese and French in 2006; translation and publication of selected ESR guidelines reports in Chinese, French and Spanish;	-Publications distributed to target groups	
<b>Websites</b> <ul style="list-style-type: none"> <li>• general website</li> <li>• regional websites</li> </ul>	-Ongoing; regional websites in coordination with node development; start 2006	<a href="http://www.ecosanres.org">www.ecosanres.org</a>	
<b>General Discussion Group</b>	-participation between global partners	-Topics and frequency of use of the Yahoo/Google discussion group	
<b>Coordinated Network</b> <ul style="list-style-type: none"> <li>• global database</li> <li>• identification of participants</li> <li>• develop forum for communication</li> </ul>	MoUs with WSP, CREPA, WaterNet, SARAR, UNICEF, GTZ, WASTE, IHE-Delft and other organisations; Activity profiles specified	-Semi-annual reports; meeting summaries	
<b>Governance</b>			
<b>International Board</b>	-Board formed in 2006 -ToR developed and accepted	Board meeting once per year with full attendance; meeting minutes with decisions made	Financial support for the ESR Programme secured for the period 2006-2010 and subject to renewal 2010-2015
<b>International Review Panel</b>	-Review Panel formed in 2006 -ToR developed and accepted; -Functioning high capacity non-partisan reviewing function of all sub-contracted projects	Review panel meetings once per year and periodic vetting process and reporting system (using a closed website system) set up for of all funded projects, minutes from	Project proposals are submitted by participating organisations

*EcoSanRes Phase 2 Project Document 2006-2010*

		meetings and list of assessments carried out	
<b>Management</b>			
<b>Management Team</b>	Appointment of the Programme Director and Administrative and Financial Assistant; carrying out project and financial management of contracted activities	Monthly financial reports; semi-annual progress reports; sub-contracts, general annual programme meeting coinciding with Board meeting	Contracted partners perform and fulfil requirements and responsibilities within set out budget frames
<b>Programme Inputs</b>			
<b>Board</b>	6 members appointed to Board in 2006 Support for travel to the annual meeting 0.5 P/month for chairperson	120.000 SEK in travel costs 50.000 SEK in fees	
<b>Review Panel</b>	4 member review panel appointed 4 P/Months starting 2006	400.000 SEK in fees 80.000 SEK in travel costs	
<b>Programme Director, Administrative and Financial Assistant</b>	2 P/Y within core group starting 2006	1.702.000 SEK in fees 140.000 SEK in travel costs	
<b>Communications/Networking Manager, Librarian, Editor, Layout, Webmaster</b>	2 P/Y within core group start 2006	1.387.000 SEK in fees 745.000 SEK in costs	
<b>Node Development Programme and Linkage to Pilot Projects</b>	Programme support to the South start 2006	4.800.000 SEK in contracted costs 513.300 reserve	
<b>Capacity Building and Node Development Managers</b>	2 X 0.5 P/Y within the core group start 2006	885.405 SEK in fees 120.000 SEK in travel budget	
<b>Knowledge Development Team and Regional Advisory Services</b>	4 X 0.5 P/Y within the core group start 2006	1.770.811 SEK in fees 160.000 SEK in travel budget	
<b>Thematic Working Groups</b>	4 international working groups	460.000 SEK in contracted costs	
<b>Overhead on SEI staff</b>	(40% of 5.745.035 )	2.298.014 SEK	
<b>Overhead on reimbursables and transfers</b>	(4.9% of 7.588.300)	368.651 SEK	

### 13. Budget

#### 13.1. Project Budget Lines for 2006-2010

The projected budget for Phase 2 of the EcoSanRes Programme is estimated at 75 MSEK over the period 2006 to 2010. The Node Development Programme and Linkage to the Pilot Projects has a budget of about 6,7 MSEK per year. Each node will receive a budget of 0.65 MSEK per year. As the number of nodes increases the funds can be shifted from the pilot projects to other activities by the node organisations. Eight nodes are prioritised during the period 2006-2010. Part of the strategy in node development is that the nodes will have the capacity to seek external funds for larger implementation projects. Projects of this size will not be covered by the ESR Programme but by the Global Sanitation Fund and other international sources.

**General Budget Lines (MSEK)**

	2006	2007	2008	2009	2010
<b>Capacity Building/Node Development Programme</b>	3,928	4,683	5,783	6,283	6,783
<b>Node Linkage to Pilot Projects</b>	2,85	2,1	1	0,5	0
<b>Knowledge Development and Advisory Services</b>	1,931	1,93	1,93	1,93	1,93
<b>Communications &amp; Networking</b>	2,132	2,13	2,13	2,13	2,13
<b>Management</b>	1,842	1,84	1,84	1,84	1,84
<b>Governance</b>	0,65	0,65	0,65	0,65	0,65
<b>Overhead on SEI staff (40% of 5.745.035 )</b>	2,298	2,298	2,298	2,298	2,298
<b>Overhead on reimbursables and transfers (4.9% of 7.588.300)</b>	0,369	0,369	0,369	0,369	0,369
<b>Total</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>

A detailed budget for 2006 follows on the next page.

## 13.2. Budget 2006

<b>Budget ESR phase 2 2006</b>				
	<b>total salary cost/yr</b>	<b>sum reimb</b>	<b>sum salaries and reimb</b>	<b>sub-totals</b>
<b>Management</b>				
Programme director 1P/Y	990606	120000	1110606	
Administrative/finance assistant 1 P/Y	711604	20000	731604	
<b>subtotal</b>	<b>1702210</b>	<b>140000</b>	<b>1842210</b>	<b>1842210</b>
<b>Communications/networking</b>				
Communications/network manager 1P/Y	792405	80000	872405	
6 service functions as below (1 P/Y)	594204		594204	
librarian (help desk) 2 P/M		6000	6000	
Publications (reports, fact sheets, brochures, posters) 3 P/M		525000	525000	
Global database development 2 P/M		36000	36000	
Exhibits (SWS) 1 P/M		50000	50000	
Website production and maintenance (3 P/M)		36000	36000	
Web intranet disc groups (1 P/M)		12000	12000	
<b>subtotal</b>	<b>1386608</b>	<b>745000</b>	<b>2131608</b>	<b>2131608</b>
<b>Capacity Building/Node Development</b>				
Capacity Building Manager 0.5 P/Y	442703	60000	502703	
Node Development Manager 0.5 P/Y	442703	60000	502703	
<b>Node Development Programme</b>				
Node 1 (node manager; networking; regional plan; initial workshop)		650000	650000	
Node 2 (node manager; networking; regional plan; initial workshop)		650000	650000	
Node 3 (node manager; networking; regional plan; initial workshop)		650000	650000	
Node 4				
Node 5				
Node 6				
Node 7				
Node 8				
<b>Linkage to Pilot Projects</b>				
Erdos (performance studies; south-south workshop; training of regional partners)		1050000	1050000	
BCM/Kimberley (south-south workshop; training of regional partners)		500000	500000	
Tepoztlan (training of regional partners)		400000	400000	
India (contribution to demonstration project)		600000	600000	
Boliva (contribution to demonstration project)		300000	300000	

<b>Thematic Working Groups</b>				
four chaired working groups w/ international participation		460000	460000	
<b>subtotal</b>	<b>885405</b>	<b>5380000</b>	<b>6265405</b>	<b>6265405</b>
<b>Node Programme Reserve</b>		<b>513300</b>	<b>513300</b>	<b>513300</b>
<b>Knowledge Development</b>				
Health Expert 0.5 P/Y	442703	40000	482703	
Social acceptance & gender Expert 0.5 P/Y	442703	40000	482703	
Eco-agriculture Expert 0.5 P/Y	442703	40000	482703	
Environmental Impacts Expert 0.5 P/Y	442703	40000	482703	
			0	
<b>subtotal</b>	<b>1770811</b>	<b>160000</b>	<b>1930811</b>	<b>1930811</b>
<b>Governance</b>				
Board (6 members) 0.5 P/M	50000	120000	170000	
Review Panel (4 members) 4 P/M	400000	80000	480000	
<b>sub-total</b>	<b>450000</b>	<b>200000</b>	<b>650000</b>	<b>650000</b>
<b>Budget total</b>	<b>6195035</b>	<b>7138300</b>	<b>13333335</b>	<b>13333335</b>
<b>Overhead on SEI staff (40% of 5.745.035 )</b>				<b>2298014</b>
<b>Overhead on reimbursables and transfers (4.9% of 7.588.300)</b>				<b>368651</b>
<b>Total programme cost</b>				<b>16000000</b>

## **Annex 1 Fund for Sustainable Sanitation**

### **Excerpt from the Sida DRAFT REPORT**

#### **A Programme for Environmentally Sustainable Water Resources Management, Water Supply and Sanitation (July, 2005)**

### **3 Fund for sustainable sanitation**

#### **3.1 Background and justification**

Some 2.4 billion people lack access to improved (and safe) sanitation (UN, 2004), which has devastating consequences for human well being and health as well as for the environment. Moreover, conventional solutions for excreta disposal, such as pit latrines and water closets, are in many cases not adequate or suitable and therefore not sustainable in the long term. This could be for instance due to, for instance:

- Limitations of physical space in marginal urban areas.
- Flooding, and “voluntary” or “non-voluntary” emptying of pits and tanks during the rainy season.
- High groundwater levels.
- Lack of water for flushing toilets.
- Non-existent or deficient sewage treatment facilities which results in pollution of water resources and water bodies.
- High costs.

A sanitation system<sup>11</sup> can be considered sustainable when it protects and promotes human health and at the same time does not contribute to environmental degradation or depletion of the resource base, and is technically and institutionally appropriate, economically viable and socially acceptable<sup>12</sup>. An alternative to conventional solutions, “ecological sanitation” is based on the principles of no pollution, recycling and water conservation, and may be defined as a system that turns human waste into something useful and valuable, without polluting the environment or misusing any other natural resource, and without causing health hazards. Ecological sanitation is, with the definition used above, a sanitation system that is sustainable in many geographical and socio-economic environments.

Ecological sanitation has been developed and implemented, mostly at small scale, in many parts of the world. Successful projects have been reported from several countries including Bolivia and Mozambique. The current EcoSanRes programme is implementing pilot projects in China, South Africa and Mexico. Furthermore, ecological sanitation is becoming increasingly known and accepted, and sector actors who did not previously consider it a feasible option are now showing more interest. In some countries like Bolivia, several important sector actors such as the Ministry for Basic Sanitation and UNICEF are promoting and implementing ecological sanitation. At the same time, the approach is still quite new and un-known in many countries. In order to promote ecological sanitation, it needs to be further developed and implemented on a larger scale. Based on the success of these larger-scale projects ecological sanitation can be validated, documented and promoted nationally, regionally and internationally.

The number of people who have direct experience of implementing ecological sanitation is still limited, and would need to increase for the approach to be able to spread more widely.

Sweden has a unique experience and competence in the field of ecological sanitation. The system is commonly utilised in some areas of the country, e.g. in the Stockholm Archipelago<sup>13</sup>, and there are institutions and individual experts with considerable experience and knowledge. Moreover, Sida has financed projects and programmes promoting ecological sanitation in developing countries for more than a decade. Since 2001, the Stockholm Environmental Institute (SEI) is implementing the

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<sup>11</sup> A system for sanitation can be defined as the users of the system, and the collection, transport, treatment and management of end products of human excreta, grey water, solid waste, industrial waste water and storm water.

<sup>12</sup> Kvarnström E.; Bracken P.; Ysunza A.; Kärrman E.; Finnson A. and Saywell D.: Sustainable Criteria in Sanitation Planning. Paper produced for People Centred Approach to Water and Environmental Sanitation, 30<sup>th</sup> WEDC International Conference, Lao PDR, 2004.

<sup>13</sup> In most cases as a toilet system, but without re-cycling of nutrients.



EcoSanRes programme, financed by Sida. EcoSanRes works with research, technological development, training, development of guidelines, publications, networking and pilot projects.

It is proposed to set up a Fund to finance sanitation projects benefiting the rural and urban poor in developing countries. The focus will be on ecological sanitation, but the Fund will also be open to finance other sustainable sanitation systems for excreta disposal, and management of grey water and storm water which benefit the urban and rural poor. In the following text, all these systems are referred to as sustainable sanitation systems.<sup>14</sup> The main work area of the fund would be to finance investments, although applied research and capacity development can also be tied to the investment projects.

The Fund would be an add-on component to EcoSanRes with the purpose of further strengthening that programme and its impact.

### **3.2 Contents**

The objectives of the Fund are to:

- Improve the living conditions of poor people in developing countries by introducing systems for sustainable and affordable sanitation.
- Increase the knowledge and experience of sustainable sanitation systems, in order for these to be considered feasible options which are more widely used.

The target group will be urban and rural poor households. They will benefit directly through investments in sanitation and indirectly through an increased capacity within the water and sanitation sector to undertake these types of investments.

In order to become widely accepted and thereby achieving considerable positive environmental impacts, ecological sanitation needs to target all income groups. Otherwise there is a risk that it will be considered a poor peoples' option, something which would reduce the acceptance. Therefore, a maximum of 10% of the Fund's resources could be utilised to promote systems for the middle and higher income groups. However, specific criteria will be applied when financing projects for non-poor, and subsidies of individual household connections should be avoided.

The strict definition of ecological sanitation involves a three step process: the containment, sanitization and recycling of human excreta and urine into nutrients. The recycling brings important benefits to agricultural production for the individual families as well as for society at large. Depending on the society and the culture, the use of recycled material can be a marketing issue for promoting ecological sanitation. This should be promoted when possible. However in some circumstances, recycling may become a barrier to accept ecological sanitation. Therefore the Fund should apply a pragmatic approach and also finance projects where re-cycling is not included as long as the end products are environmentally safe.

The Fund should provide support to direct investments in sustainable sanitation systems, i.e. projects implementing sanitation. A minimum of 90% of the Fund's resources should be utilised for this purpose. In addition, the Fund should finance applied research, and systematisation and documentation of the results of the projects. The applied research should be practical, adapted to the needs of the South and evolve around the implementation projects. Important areas to consider in research would be the safety of the systems (that is the elimination of pathogens), the acceptance and use of toilets, institutional set-up, technology and design, handling and use of urine and decomposed material, economics, and financing mechanisms. In addition, training events can be organised in connection with the projects. The research, systematisation, documentation and training could either be included in the project budgets, or implemented under a separate contract closely linked to the investment projects.

The projects should be encouraged to include training, and to disseminate project results at national and regional levels. The training should be tied to the investment projects.

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<sup>14</sup> Note that this is a limitation of the definition of sustainable sanitation systems utilised before, since the original definition also included industrial waters and solid waste.

### Strategic considerations

The projects to be financed should be carefully selected. The Fund should select strategic projects which can have a substantial impact in the water and sanitation sector. The risk of failure should always be assessed so as to avoid counterproductive impacts. The Fund should strive to finance a few larger projects rather than many small ones. Some smaller projects can be financed but the main effort should be larger ones. The Fund should attempt to finance projects in different geographical regions including Africa, Asia, Latin America and the Middle East. A decentralised mechanism for promoting the Fund and receiving applications for funding needs to be developed by the Fund Secretariate.

The Fund can finance two types of projects. The first would be up-scaling of projects with a proven track record, i.e. where sustainable sanitation has been implemented during considerable time and with good results. Examples are ecological sanitation programmes implemented by UNICEF in Bolivia and by Wateraid in Southern Africa.

The second type would be new projects. These projects may need to be promoted by the Fund itself. The Fund management should actively encourage *important* sector actors to design and implement large projects. Examples of such actors are WSP, UNICEF, WHO and successful bilateral programmes. These new projects should be carefully designed and include participation of all national actors with sector responsibilities such as Ministries, Local Governments, utilities, the private sector, co-operatives and national NGOs. They should be designed so as to achieve considerable national impact and sustainable service delivery.

Geographical areas where ecological sanitation has a unique advantage due to prevailing local conditions should be preferred. This would be for example areas with high groundwater levels, acute shortage of water, or where there is cultural acceptance and a tradition of use of human urine and excreta in agriculture.

Projects need to be designed with the participation of the target groups and relevant sector actors.

All projects must include training of beneficiaries. Total subsidies should be avoided, and beneficiaries should “pay” for part of the system. The integration with micro credit schemes should be encouraged.

The interchange of experience with similar projects in and between regions should be assured. It is important that new projects consider the experience gained in other projects in similar circumstances. Such activities can be included in the budgets of the projects financed by the Fund.

All projects must have a component of training for the implementing institution. The institution must assure the training of its project management and staff. This could be done by visits to and internships with other projects/institutions working with sustainable sanitation, and through specific training. Moreover, a renowned expert on sustainable sanitation with experience from implementation should be attached as an advisor to all projects. The advisor could either work full time with the project or make regular visits a few times a year.

The research and systematisation should be practical and based on the projects’ results. The research should always be done with the participation of universities or other institutions in the country where the project is being implemented and, ideally, with some participation of Swedish professional resources.

It is important to enhance both the Swedish and the international professional competence in sustainable sanitation. Therefore the Fund should be willing to finance training of staff and the involvement of young professionals to work within projects as well as in the Fund Coordination team.

Strategies for replication at the national level and for achieving that sustainable sanitation becomes part of the nationally legal and accepted sanitation solutions need to be considered by the Fund. This requires a strategic focus. For instance, in countries where ecological sanitation is close to being accepted, special efforts to promote it politically could be included in the projects’ budgets.

Coordination with other Sida supported water and sanitation projects/programmes should be considered.

The Fund is considered as an add-on to the EcoSanRes programme and there should be close coordination between the two. The coordination should be pragmatic and could for instance consist of the participation of EcoSanRes in the definition of criteria for selection of projects to be financed. Other important issues for coordination are the utilisation of experiences gained in EcoSanRes, the participation of institutions financed by the Fund in EcoSanRes networking and training events. Institutions which have successfully implemented pilot projects within the EcoSanRes programme, could apply for larger funding from the Fund. Similarly, new pilot projects planned within the EcoSanRes programme could well be tied up with large implementation projects financed through the Fund.

With time the Fund can open up for funding from donors other than Sida. Moreover, financing instruments such as loans and subsidised credits could be considered.

### **3.3 Actors and roles**

In order to secure appropriate coordination with EcoSanRes, the Fund should be administrated by SEI through a Fund Secretariate. It is important, however, that the two programmes are adequately separated into two independent activities. The Fund should have its own Board with members selected by SEI in consultation with Sida. The Board could consist of five members. Its members should be appointed and act as individuals not representing a particular institution. Together the members should possess the following competence:

- Practical experience of planning and implementing sustainable sanitation projects in developing countries.
- Knowledge of water and sanitation sectors in developing countries and the operations of main actors, both national and international.
- Finance, administration and management of similar funds.
- Experience of the organisation and implementation of large development projects and programmes.

It is also important to include one board member with good connections with water utilities, who can help to promote sustainable sanitation solutions within the conventional water and sanitation sphere.

The EcoSanRes Manager and the Fund Coordinator should both participate in the Board meetings, but without the right to vote.

The Board's function would be similar to a company board and include: the approval of strategies, policies and regulations; the analysis and approval of annual work plans and reports; and the handling of financial annual audits of the Fund's activities. The Board should also participate in the approval of projects to be financed. A specific mechanism for approval of projects should be developed which should guarantee transparency of operations while simultaneously avoiding micro management by the Board.

During the set up of operations monthly regular board meetings would be required. Thereafter, the Board would meet at a minimum four times a year.

The Board should select, with the assistance of SEI, a Fund Coordinator who would be responsible for daily operation and implementation. The Fund Coordinator should together with the Board appoint one technical advisor, one financial administrator and one secretary. This team, which will be led by the Fund Coordinator, will constitute the Fund Secretariate. Younger staff could be seconded for assistance to the Secretariate and for learning.

The Fund Coordinator should have substantial experience of the water and sanitation sector as well as the implementation of large development programmes in developing countries. The Fund Secretariate should include French, English and Spanish speaking staff. It is also likely that other external experts are required for specific missions. Moreover, a team of consultants for monitoring and follow up of the projects needs to be identified. The team should consist of Swedish and international consultants from the regions and countries where the projects are being implemented.

The role of the Fund Secretariate would be to promote the Fund, actively search for large projects, assess proposals, disburse funds, and follow-up on the implementation of the contracts. The Fund Coordination should also receive and analyse annual financial audit reports from all projects.

Projects financed by the Fund should be implemented by institutions or programmes located in developing countries, having the necessary implementation capacity.

The supported projects should preferably include several actors, such as ministries, local governments, the private sector, NGOs and resource centres with competence in ecological sanitation<sup>15</sup>. The lead institution would be the contracting party to SEI.

Applied research and training on and in conjunction with the financed investment projects can be undertaken by institutions specialising in this, such as universities and research and study centres. Swedish institutions could work together with the national/regional ones.

### **3.4 Monitoring and follow-up**

The Fund should implement a monitoring and follow-up mechanism which includes annual in-depth monitoring of the main projects. The in-depth monitoring should include interviews with staff of implementing institutions as well as field visits to assess the project results. For large projects, the annual in-depth monitoring will be followed by annual meetings between the Fund Coordination and the lead institution for the project.

The Fund should send annual work plans and reports to Sida. Sida staff will need to make occasional visits to some projects and hold annual meetings with the Board and SEI. It is estimated that the time requirement for follow up would be 10% of a full-time desk officer. Sida should conduct a mid-term evaluation and a final evaluation of the Fund.

All projects financed by the Fund should have a financial audit mechanism complying with Sida requirements.

### **3.5 Cost estimate**

It is estimated that total costs for the component could gradually increase from 5 million SEK to 50 million SEK per year.

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<sup>15</sup> Could be NGOs, or training or research institutions with previous experience in ecological sanitation, for example Aquamor in Zimbabwe.

## **Annex 2 – Assessment of ESR Phase 1**

An assessment of ESR Phase 1 was carried out by Sida's designated consultants during the spring and summer of 2005. The following summarizes the accomplishments and weaknesses:

### **Summary of EcoSanRes Phase 1 Accomplishments**

(taken from the consultant review)

- A growing recognition and acceptance of the need for a more holistic, ecosystem-based approach to sanitation, including the importance of 'closing the loop' with respect to the recycling of nutrients.
- Conducting, publishing and dissemination of relevant and good quality applied **research**.
- The production and distribution of substantive publications, such as the revised version of the book *Ecological Sanitation* (SEL), the compendium *An Ecological Approach to Sanitation in Africa: A Compilation of Experiences* (Aquamor), a number of technical publications and, based mainly on the latter, a series of Ecosan fact sheets.
- Through training and capacity building activities, the development of an expanding human, technical and financial resource base both in Sweden and within regions in the South upon which to draw to support ecosan activities in research, training, project design, implementation, monitoring and evaluation, policy development, and so on.
- Demonstration effects and empirical lessons resulting from pilot projects. Increased awareness and credibility of ecosan concepts in the international policy arena, including an important role in developing internationally accepted guidelines.
- Strengthening and creating links between a range of key institutions and individuals at various levels and in various locations through development and promotion of an ecosan network.

### **Weaknesses in the ESR Programme Phase I**

(taken from the consultant report)

- Inability to respond sufficiently to expectations and demands for support (especially expectations generated at the Nanning Conference, 2001).
- Unclear criteria and procedures for selecting Pilot Projects and research projects.
- Uneven relationships with partner institutions engaged in ecosan work both in Sweden/Scandinavia and in the South.
- Not enough attention paid in research to economic and financial aspects.
- Limited attention to gender and HIV / AIDS aspects.
- Comprehensive impact studies that would show health and social impacts, and effects on the environment, have not been carried out.
- Some level of dissatisfaction with the present nature and extent of networking.
- Lack of distinction between responsibilities for governance, Programme management and implementation of activities, resulting in risk of conflict of interest.
- Unclear formats and procedures for reporting and monitoring, both in terms of activities and outputs, and financial performance.

## **Annex 3 Recommendations from the International Ecosan Community**

### **Lubeck Conference 2003**

Ten recommendations were agreed to at the Ecosan Conference in Lubeck in 2003. These provide a good foundation for developing the ESR Programme Phase 2:

- Promote ecosan-systems as preferred solutions in rural and peri-urban areas
- Accelerate large-scale applications of ecosan principles in urban areas
- Promote agricultural use
- Raise awareness and create demand
- Ensure participation of all stakeholders in the planning, design, implementation and monitoring processes
- Provide for decisions on an informed basis
- Promote education and training for ecosan
- Adapt the regulatory framework where appropriate
- Finance ecosan
- Apply ecosan principles to international and national Action Plans and Guidelines

### **Recommendations from the Durban Conference 2005**

- There is an increased need to develop capacity, alliances with other sectors, and links to food security, agriculture, health, solid waste, energy, housing, etc.
- Ecological approaches to sanitation need to be better communicated and understood.
- Strengthening and widening of our network is necessary, including reaching out to the developed countries that have yet to become involved.
- Working groups are needed to provide continuity in the efforts we are making around the world.
- Ecosan is accepted as an approach to address the sanitation backlog.
- There should be an increased involvement of women at all stages of project implementation.
- User education is critical to the sustainability of any project.
- Ecological sanitation is not just about toilets, especially not just about urine-diversion toilets.
- Research results should be translated into practical guidelines as soon as possible. NB. Guidelines require adaptation to local conditions.
- We need to consult other professionals, e.g. architects, project managers, etc, in order to achieve well-performing projects.
- More case studies of large-scale applications are required.
- Ecological sanitation should be integrated with water resources management.
- We need to counter the perception that ecosan is expensive.
- Customer satisfaction is of cardinal importance.
- Logistics of collection systems for urine and faeces require further development.
- Breakaway groups for discussion would be a useful addition at future meetings.
- Each participant to leave a valuable contribution (a commodity) to inhabitants at site visits.
- Simultaneous translation into various languages at future conferences is recommended, but cost is recognized.
- Themed chat rooms on the internet prior to and following conferences are suggested.
- More agricultural use expertise is required at future conferences in order to balance the engineering input.
- Toilet designs for handicapped people: building norms are required.
- Going to scale means providing options poor people can access. Financial implications are critical and governance aspects need strengthening.
- The amount of information is increasing and more sectors are getting involved. There is a need for more effective dissemination.
- Communication via internet is restrictive for those with slow or no connections, requiring alternative methods to be put in place.
- Municipalities need to be encouraged to participate in future conferences.

- Dialogue on various sanitation options is necessary – beyond ecosan – to achieve participation of a larger diversity of stakeholders.
- South-south exchange of ecosan information/ideas should be enhanced.
- Tolerance is necessary among ecosan practitioners in order to accept a wider range of sanitation solutions.
- Enhanced dialogue with conventional sanitation engineers is necessary.
- Financial comparisons between conventional and alternative solutions need to be done.
- Better toilet designs for women and children need to be developed.
- Sanitation for refugee communities needs attention.
- A strategy to advocate sustainable sanitation at the global level is required in order to link the positive CSD results to the MDG meetings in New York.
- Curriculum development needs to be spearheaded by creating an international network for capacity building.
- Private sector involvement needs encouragement.
- It is necessary to organise how we move from one conference to the next.
- We need to meet in the meantime to help coordinate efforts – international working groups are recommended in order to tackle specific options.
- Presentations and case studies are not enough – there is a gap in marketing to the masses. A strategy is required. Regional working groups are needed to look at this aspect. Outreach and media programmes are necessary.
- University research involvement in ecosan needs to be increased.
- Politics of water, wastage of resources in affluent suburbs, virtual water export, etc are important linked issues.
- Need a balanced view of perception of risk – the health risk of dry sanitation is exaggerated compared to many other risks like chemical pollution from other sources.
- Mayors, ministers, etc from various countries should be invited to attend future conferences.
- Domestic financing of ecosan in developing countries needs to be encouraged and foreign financing reduced.
- In order to create markets, commercialisation of ecosan is required. Proof of functionality will be needed.
- Global conferences are expensive – would it be better to regionalize them instead?
- The municipal involvement in South Africa could be highlighted at a future domestic ecosan conference.
- Ecosan ambassadors need to be appointed in order to increase country participation at future conferences.
- Small businesses need to be developed.
- A clearing house is recommended for coordination of conference content between conferences.
- An ecosan journal is suggested – possibly an e-journal similar to the GTZ newsletter.
- International working groups:
- A series of formal and informal working groups needs to be set up, e.g.
  - **Technical groups** for design, greywater, urine management, nutrient recycling, environment and health aspects, attitudes and norms, etc.
  - **Working groups** on capacity building, standards, regulations and guidelines, socio-economics, policy, scaling up and financing, private sector involvement, communications, information clearing house, etc. And these should be asked to develop professional portfolios for these components.

### **Recommended Directions for ESR Phase 2**

(from the Sida consultant review)

- Facilitate an **organisational development** and **strategic planning** process amongst the primary actors, to clarify the priorities, activities, critical roles, division of responsibilities, staff requirements, criteria for and methods of resource allocation within ESR 2, keeping in view the overall aims of poverty reduction and environmental sustainability.
- While keeping the classic **ecological sanitation concept as the main theme**, open up towards the **broader range of sustainable sanitation** solutions, one or a combination of which would be relevant in different contexts.

- Identify and strengthen existing **regional nodes** in the South, both building on existing concentrations of expertise and experience, and stimulating interest from and capacity in others with more limited competence in ecological sanitation, and supporting their capacity and engaging them in the implementation of Programme activities.
- Identify and develop **improved partnerships** with relevant regional institutions and individuals working in the field.
- Extend both **training and training capacity** to relevant regional institutions in the South, including and especially the regional nodes.
- Extend **research and research capacity**, to relevant regional institutions in the South, including and especially the regional nodes.
- Increase attention to research and studies on **economics and financing**, and **socio-cultural** including gender aspects of ecological sanitation.
- Carry out **environmental, health and social impact** studies as appropriate.
- Continue to facilitate the **implementation of pilot projects**, and whenever feasible and to the extent possible, **shift management responsibility for the pilot projects** to institutions in the South, preferably to the regional nodes.
- If and when the Fund for Sustainable Sanitation is established, use the opportunity to **link research and training activities** with the more large-scale programmes financed under the Fund.
- Improve the mode of access of regional actors to **appropriate advisory services and research capacity**. For decentralised pilot projects, make the Swedish professional resources available on demand. This can be done by establishing a separate budget line for professional assistance, which does not come under the specific pilot project budget.
- Give greater attention to the extent and quality of **networking** at and across all different levels, starting with the development of a **networking strategy**.
- Hold semi-annual **Programme Networking Meetings** that facilitate direct exchange of knowledge and experience among key actors, allow for presentation of both new research and pilot project proposals, and ensure **regular collective Programme reviews**. Such meetings should be rotated amongst established Regional Nodes.
- Initiate a **dialogue on coordination** amongst relevant international stakeholders in the ecosan field, in order to optimise comparative advantages of different institutions.
- In relation to a **new governance and management structure** of the Programme, which delineates the governance, management and implementation functions, improves transparency and reduces the risk of conflict of interest:
  - in place of the current Project Advisory Committee, establish a Programme Board to provide guidance to the Programme; m
  - make a distinction between the Programme Management role/position and other more implementation-oriented roles, which might require additional staff positions;
  - especially with regard to assessment and selection of new proposals for both Research and Pilot Projects, establish an international Review Panel including representatives from selected regions in the South;
  - clarify criteria and procedures for evaluation, selection and support of research and pilot project proposals; and
  - consider dedicating staff resources ,with specific responsibility for (and appropriate skills in) networking, communications and coordination.
- Establish clearer background documentation, including LFAs and work plans, and reporting **formats and procedures to facilitate monitoring**.
- **Invoicing and financial reporting** should be strictly in relation to formally agreed **budgets and work plans**, and based on **costs accrued**.
- In addition, Sida itself needs to work towards **mainstreaming sustainable sanitation** into its overall development cooperation, and to identify the multiple routes through which it can channel resources to support activities.



## Annex 4 Collaborating Organisations

On August 28, 2005 an “Executive Stakeholders” meeting was held at SEI to listen to how a wide variety of agencies could collaborate with ESR in Phase 2.

The following table charts out the organisations and the various areas where collaboration could be focussed. In addition, other organisations of possible interest with regard to global or regional collaboration are listed.

Collaborating organisation	Region	Training & capacity building	Comparative economic assessment	Knowledge networks	Policy development & awareness raising	Demonstration and pilot projects	Thematic groups	Strategies for mainstreaming ecosan	Specialty	Additional funding external to ESR
<b>SARAR (Mexico)</b>	LAC	X		X	X	X	X		-Local and regional capacity -pilot projects	X
<b>GTZ (Germany)</b>	International	X		X	X	X	X		-Pilot projects -communications -capacity building -global network	X
<b>WaterNet (Zimbabwe)</b>	Southern Africa	X		X	X	X	X		-Pilot projects -training -regional pivot	X
<b>WSP-Africa (Nairobi)</b>	Africa	X	X	X	X			X	-Policy -regional	X
<b>CREPA (Burkina Faso)</b>	West Africa	X	X	X	X	X	X		-Pilot projects -training	X
<b>WSP-EAP (Indonesia)</b>	SE & E Asia	X	X	X	X			X	-Policy -regional	X
<b>WASTE (Holland)</b>	International	X	X	X	X	X	X		-Pilot projects -capacity -training	X
<b>UNEP (global)</b>	International		X		X				-Policy	

<b>DST (South Africa)</b>	South Africa		X	X	X	X		X	-Policy	
<b>WECF (Holland &amp;Germany)</b>	E Europe & Central Asia	X	X	X	X	X	X		-school sanitation	
<b>Swedenviro (Sweden)</b>	international	X		X	X	X	X	X	-consulting -training -R&D	
<b>SMI-SLU-LiU (Sweden)</b>	international	X		X	X	X	X		-Training -cap bldg -R&D -link to WHO	
<b>NLH/UMB (Norway)</b>	international	X	X	x	X	X	X		-Training -R&D	
<b>SEI (Sweden, UK, USA, Estonia, Thailand)</b>	international	X	X	X	X	X	X	X	-Programme Management -communications -R&D	X
<b>MUNICIPALITIES</b> Buffalo City Kimberley Erdos Tepoztlan  <b>other selected organisations</b>  <b>UN AGENCIES</b> UNICEF UNESCO-IHE UNESCO-IHP UNDP UN HABITAT FAO WHO UNDESA UNECE UNESCAP UNECA ISDR										

<b>DEVELOPMENT BANKS/IFs</b> WB ADB AfDB IADB EBRD EIB - EU IFAD NDF/NIB IDB  <b>BILATERALS</b> DFID(UK) ADA (Austria) SDC (Swiss) Finnida Danida Norad  <b>NETWORKS</b> NETWAS WSSCC IWA WWC SIWI GARNET ITN Streams of Knowledge CAPNET PS EAU RED CROSS  <b>OTHER ORGS</b> CGIAR (global) SIWI (Sweden) IIED (UK) TUHH (Germany) BOKU (Austria)									
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EAWAG (Switzerland) AQUAMOR (Zimbabwe) CITA (Mexico) CEPP (US) MVULA TRUST (SA) MVURAMANZI TRUST (Zim) ECO-SOLUTIONS (India) HESPERIAN FOUNDATION (US) PASTEUR INST (Vietnam) ESPACIO de SALUD (Mexico) CODIS-PRODEINE (Bolivia) PHG (Palestine) SUDEA (Ethiopia) WATERAID (UK) IRC (Holland) SANPLAT (Swaziland) CSE (India) Sulabh (India) IDE (global) CSIR (SA) Rainwater Club (Bangalore) LSH (UK)  <b>INDUSTRY</b> Wostman Kentainers Clivus Multrum Mei Long ACS Separett Dubbletten Atlas Plastics Cemforce etc									
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## **Annex 5 Job Descriptions**

### **1. Capacity Building and Node Development Managers**

#### **Job Description**

- Two half-time positions stationed at SEI
- Reports to the Programme Director
- Responsible to develop the regional nodes programme
- Assistance in developing institutional capacity in terms of professional staff, accounting, outreach, office practices
- Assistance in developing each region's resource base to cover the various sanitation-linked sectors
- Assistance in the drafting of project documents by the Regional Nodes
- Drafting of MoUs between the Regional Nodes and SEI
- Expert advisory services in capacity building and training for the regional nodes
- Liaison with the Knowledge Development Team and Thematic Working Groups
- Secretary function during Review Panel meetings
- Writing of semi-annual Programme reports

#### **Necessary Qualifications**

- Advanced education in a field related to sustainable sanitation
- Proven expert with at least 10 years of experience within ecological sanitation
- Extensive experience in capacity building and training in developing countries
- In-depth experience in social marketing
- Excellent skills in research and development
- Excellent abilities in institutional organisation and management
- Excellent language skills in English (written and spoken)
- Excellent skills in group communication
- Ability to travel

### **2. Communications and Network Manager**

#### **Job Description**

- Fulltime position stationed at SEI
- Reports to the Programme Director
- Development and implementation of an ESR communications strategy
- Promotion and awareness raising activities, incl. media promotion contacts
- Networking, knowledge management, and international database development
- Policy development initiatives with international agencies, bilateral organisations, financial institutions, national governments, etc.
- Global GIS database of ecosan projects in collaboration with other international programmes
- Co-ordination between bilateral funding agencies
- Organisation of conferences, symposia, exhibits, and workshops and persuasion of appropriate organisers of international events to include ecosan on the agenda
- Management of the publications programme and library services
- Management of the ESR website and electronic discussion groups

- Linkage between ESR and the development community's various elements
- Semi-annual report

### **Necessary Qualifications**

- Advanced education in a field relevant to the topic of ecological sanitation
- A minimum of 10 years of skilled and appreciated working experience at local, national and international levels in the North and South
- In-depth knowledge of sustainable sanitation issues.
- Competence in and working experience with international policy development, communications, publishing, media contacts, and networking, as well as webwork and knowledge management.
- Language requirements include fluency in written and spoken English and Swedish and additional languages such as French, Spanish and German.
- Ability to make public presentations and communicate within multi-cultural settings for the purpose of promoting sustainable sanitation.
- Travel on duty is required.

## **3. Programme Director**

### **Job Description**

- Fulltime position stationed at SEI
- Reports to the Board through a semi-annual report covering progress and financial status
- Responsible for strategic planning, coordination, resource mobilisation, programme and financial management, monitoring and reporting
- Responsible for the overall operation of the ESR Programme
- Direction of the Strategic Planning Team (described above)

### **Necessary Qualifications**

- Advanced education in a field relevant to the topic of ecological sanitation
- Experience in working with and managing complex projects dealing with development
- Excellent comprehension of and experience in implementing ecological sanitation in developing countries
- Proven scientific understanding of the processes surrounding ecological sanitation
- Proven management and leadership skills
- Language skills in at least English and Swedish
- Excellent writing and communication skills in English
- Excellent computer skills
- Excellent organisational skills
- Ability to administer and lead large groups of individuals located in different countries
- Capacity to travel

#### **4. Administrative/Financial Assistant**

##### **Job Description**

- fulltime position stationed at SEI
- Reports to the Programme Director
- Management of contracts and finances
- Production of monthly and semi-annual financial reports
- Programme and office administration
- Logistics and office management
- Writing of progress reports and recording of minutes of meetings
- Production of workplans
- Management of planning meetings

##### **Necessary Qualifications**

- Excellent skills and proven experience in financial management systems
- Excellent computer skills related to database management, file management, layout and word-processing, HTML (web), videoconferencing
- Excellent language skills in at least English and Swedish
- Excellent writing and communication skills in English
- Experience with projects in developing countries
- Ability to work simultaneously with several varied tasks under stress
- Ability to organise and follow workplans
- Proven LFA skills
- Ability to work and to make critical decisions independently
- Ability to delegate work to others
- Ability to travel