



018530 - SWITCH

Sustainable Water Management in the City of the Future

Integrated Project
Global Change and Ecosystems

Deliverable 5.2.5 (replaces original deliverable 5.2.8)

Dissemination material for Work Package 5.2

Due date of deliverable: M60
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Start date of project: 1 February 2006

Duration: 63 months

Organisation name and lead contractor for this deliverable: ETC (coordinator)

Revision [final]

Project co-funded by the European Commission within the Sixth Framework Programme (2006-2011)		
Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

SWITCH Documents (with RUAF Cities Farming for the Future)

Deliverable 5.2.5: Dissemination material for Work package 5.2

Deliverable reference: D.5.2.5**Author(s) and Institution(s)****Various**

The aim of Work package 5.2 is to contribute to a paradigm shift in wastewater management and sanitation towards a recycling-oriented closed loop approach, by identifying and integrating appropriate productive re-use of urban freshwater, storm and waste-water for agriculture into the policy, legislative and regulatory, planning and decision-making frameworks of cities. The Work package is being implemented in three cities; Accra, Beijing and Lima.

The deliverables of the work package follow a sequence of implementation. Based on a situation and stakeholder review (del. 5.2.1), working groups are formed, meet and are linked to the Learning alliances (del. 5.2.2), they receive training in multi-stakeholder action planning (del. 5.2.3 A), and are involved in, and informed on, specific research by consultants, MSc and PhD or action research linked to the demonstrations, (all under del. 5.2.4). Information has been disseminated in publications, magazines and newsletters (del. 5.2.5), and guidelines and related training material has been developed (del 5.2.3 B and C). The leading institutes here are ETC (WP coordinator), IWMI (Accra), IGSNRR (Beijing) and IPES (Lima), other institutions involved were WUR, IRC and NRI-GUEL.

Contributing products to this deliverable are the following:**A number of these products have been bundled in one file under the titles in bold.**

5.2.5 General Articles in the Urban Agriculture Magazine

5.2.5 Ga1 Urban Agriculture Magazine. No. 20. Water for Urban Agriculture. September 2008.

RUAF/SWITCH in English, Spanish, French, Arabic, Chinese and Portuguese.

(www.ruaf.org)

Articles:

5.2.5 Ga2 Olufunke Cofie and René van Veenhuizen. Sustainable Use of Water for Urban Agriculture (Editorial). In UAM 20.

5.2.5 Gb1 Urban Agriculture Magazine. No. 23. Waste Management for Nutrient Recovery: Options and Challenges for Urban Agriculture. July 2010. RUAF/WASTE/SWITCH in English, Spanish, French, Arabic, Chinese and Portuguese. (www.ruaf.org)

5.2.5 Gb2 Olufunke Cofie, Verele de Vreede, René van Veenhuizen and Stan Maessen. Waste Management for Nutrient Recovery: Options and challenges for urban agriculture (Editorial). In UAM 23.

5.2.5 Accra

5.2.5 Aa1 Cofie, Olufunke and Liqa Rashid. Technology and Institutional Innovation on Irrigated Urban Agriculture, Accra. In UAM 20.

5.2.5 Aa2 Ibrahim S, Lubberding H.J. Drechsel, P. and van der Steen, P. Improving Decision-making

on Interventions in the Urban Water System of Accra. In UAM 20.

5.2.5 Aa3 Adrienne Martin and Joep Verhagen. Urban Agriculture and Social Inclusion: The SWITCH experience in Accra. In UAM 20.

5.2.5 Ab1 Cofie Olufunke, Adeoluwa Olugbenga and Philip Amoah. Introducing Urine as an Alternative Fertiliser Source for Urban Agriculture: Case studies from Nigeria and Ghana. In UAM 23.

Other Products

5.2.5 Ac Options For Simple On-Farm Water Treatment In Developing Countries. IWMI, WHO, IDRC, FAO. Guidance note for National Programme Managers and Engineers. *Third edition of the WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater in Agriculture and Aquaculture*

5.2.5 Ad Olufunke Cofie, Philippe Reymond and Liqa Raschid-Sally. Bringing wastewater treatment on the farm: Multi-purpose ponds in urban farming in Accra, Ghana. Powerpoint Presentation. Stockholm Water Meeting, 2009.

5.2.5 Ae Poster on Accra Demo; waste water use (Scientific Meeting in Lodz, 2010)

5.2.5 Af Poster on Accra Demo; urine storage and use (Scientific Meeting in Lodz, 2010)

5.2.5 Ag Poster on Accra PhD (Scientific Meeting in Lodz, 2010)

5.2.5 Ah Raschid-Sally, L. and D. van Rooijen 2011. Prospects for resource recovery through wastewater reuse. Peri-urban water and sanitation services. Policy, planning and method. Springer, The Netherlands

5.2.5 Ai Rooijen van, D. J., T. W. Biggs, I. Smout and P. Drechsel, 2010. "Urban growth, wastewater production and use: A comparative study of Accra, Addis Ababa and Hyderabad." *Irrigation and Drainage Systems* 24(1-2): 53-64

5.2.5 Aj Darteh, B., M. Adank, D. Assan and D. van Rooijen, 2010. RIDA Analysis of Water Resources, Infrastructure, Demand and Access to Urban Water Services in Accra, KNUST IRC IWMI, SWITCH Project, Accra.

5.2.5 Ak Rooijen, van D and Cofie O. 2009. Directions for improving urban sanitation in Ghana. The water, wastewater and agriculture component. Water Africa Conference 2009. Accra

5.2.5 Al Raschid-Sally L, van Rooijen D and Abraham E 2008. Analysing productive use of domestic water and wastewater for urban livelihoods of the poor – a study from Accra, Ghana. International Symposium on Multiple-Use Water Services, Addis Ababa.

5.2.5 Am van Rooijen D and Drechsel P 2008. Exploring implications of urban growth scenarios and investments for water supply, sanitation, wastewater generation and use in Accra, Ghana. 33rd WEDC International Conference, Accra, Ghana.

5.2.5 Beijing

5.2.5 Ba Innovations in Greenhouse Rainwater Harvesting System in Beijing, China Zhang Feifei, Cai Jianming and Ji Wenhua. In: UA Magazine no. 19 - Stimulating Innovation in Urban Agriculture

5.2.5 Bb1 Jianming and Ji. Adapting to Water Scarcity: Improving water sources and use in urban agriculture in Beijing. In UAM 20.

5.2.5 Bb2 IGSNRR: produced the Urban Agriculture Magazine no. 20 in Chinese
www.cnruaf.com.cn

5.2.5 Bc1 IGSNRR: produced the Urban Agriculture Magazine no. 23 in Chinese
www.cnruaf.com.cn

5.2.5 Bd IGSNRR: produced and maintained the website in Chinese

5.2.5 Be IGSNRR: produced the SWITCH folder in Chinese

5.2.5 Bf IGSNRR poster Beijing 23July09 for Scientific Committee Meeting Lodz

5.2.5 Bg SWITCH presentation Shanghai Exhibition June 2010

Further under development and forthcoming (not yet finalized and based on SWITCH research and demo, all in Chinese with English abstract):

- 5.2.5 Bh Cost-benefit analysis of a typical model of Agricultural Rainwater Harvesting based on a demo-project in Beijing. Ji Wenhua, Cai Jianming, Wang Kewu, Wang Zhiping & René van Veenhuizen. To be published in "Academic Journal of China Agriculture University".
- 5.2.5 Bi Analysis of Rational Rain Harvest Model and its Spatial Applications in Beijing, Ji Wenhua, et al.
- 5.2.5 Bj Comparison of Different Agriculture Rain Harvest Models in Beijing, Ji Wenhua, et al.
- 5.2.5 Bk Application Guidelines for Agriculture Rain Harvest in Beijing, Cai Jianming, Ji Wenhua, Wang Kewu and Wang Zhiping

5.2.5 Lima

- 5.2.5 La1 Merzthal, Gunther and Ernesto Bustamente. Using Treated Domestic Wastewater for Urban Agriculture and Green Areas; The case of Lima. In UAM 20.
- 5.2.5 La2 Moscoso, Julio. The Use of Reservoirs to Improve the Quality of Urban Irrigation Water (Lima). In UAM 20.
- 5.2.5 La3 IPES: produced the Urban Agriculture Magazine no. 20 in Spanish
http://www.ipes.org/index.php?option=com_content&view=article&id=110&Itemid=177
- 5.2.5 Lb1 IPES: produced the Urban Agriculture Magazine no. 23 in Spanish
- 5.2.5 Lc IPES: produced and maintained the website in Spanish
<http://www.ipes.org/>
- 5.2.5 Ld IPES: produced the SWITCH folder in Spanish

Various Presentations and papers for the SWITCH Scientific meetings

Papers and powerpoints for SWITCH Scientific meeting in Birmingham, 2006

-Abraham, Ernest Mensah, Daan van Rooijen, Olufunke Cofie, Liqa Raschid-Sally. 2007. Planning urban water-dependent livelihood opportunities for the poor in Accra, Ghana.

Papers and powerpoints for SWITCH Scientific meeting in Tel Aviv, 2007

-Van Veenhuizen, René, Olufunke Cofie, Adrienne Martin, Cai Jianming, Gunther Merzthal, Joep Verhagen. 2007. Multiple sources of water for multifunctional urban agriculture.

-Ji Wenhua, Cai Jianming, Zhang Feifei; 2007 Water management and urban agriculture development in peri-urban Beijing: towards a demonstration proposal

Papers and powerpoints for SWITCH Scientific meeting in Belo Horizonte, 2008

-Van Veenhuizen, René en Adriaan Mels. 2008. Decentralised waste and wastewater systems.

-Jianming, Cai, Ji Wenhua. 2008. Diversification of water sources and more efficient use in urban agriculture in Beijing, paper for SWITCH Scientific meeting in Belo Horizonte

-Ji Wenhua, Cai Jianming. 2008. Innovations in rainwater harvesting, the case of Huairou, Beijing.

-Cofie, Olufunke and Liqa Rashid. 2008. Closing the loop between sanitation and agriculture in Accra, financial potential, stakeholder opinions and strategy for upscaling

-Castro, Cecilia, Gunther Merzthal, Ernesto Bustamente. 2008. Analysis and demonstration of the use of treated wastewater for green areas and other uses in Lima, Perú

Papers and powerpoints for SWITCH Scientific meeting in Delft, 2009

-Ji Wenhua, Cai Jianming and René van Veenhuizen. Diversification of water sources and efficient water use for urban agriculture in Beijing, China

-Ji Wenhua, Cai Jianming. Analysis of an adapted rainwater harvesting technology for peri-urban agricultural production in Huairou, Beijing

-Lijuan, Li and Li Jiuyi. Water resources for Beijing.

-Abraham, Ernest, Adrienne Martin, and Olufunke Cofie. Water-dependent livelihoods in selected

communities, analysis of practices and perception of water quality in Accra, Ghana.
-Reymond, Philippe, Olufunke Cofie, Liqa Rashid, and Doulaye Kone. Design Considerations and constraints in applying on-farm wastewater treatment for urban agriculture in Accra, Ghana.
-Moscozo, Julio and Gunther Mertzhal. Promotion and use of treated wastewater for irrigation of green areas and food production in urban and periurban zones in Lima, Peru.
-Overview Subtheme, Decentralised Wastewater Systems (powerpoint, by René van Veenhuizen).

Papers and powerpoints for SWITCH Scientific meeting in Lodz, 2010

- Rooijen, van D and Cofie O. 2009. Directions for improving urban sanitation in Ghana. The water, wastewater and agriculture component

Various

-van Veenhuizen. 2008. Sustainable Sanitation and Urban Agriculture, as part of decentralised wastewater systems. Paper and powerpoint for IHE Summercourse. September 2008.

-SWITCH Brochures (in Spanish)

-SWITCH Website in Spanish: <http://www.ipes.org/au/switch/>

-SWITCH Brochures for Accra.

-The Accra CD on information available in Accra related to Water.

-SWITCH Brochures (in Chinese):

-SWITCH Website in Chinese

Publication date:

-Various, see above

Audience : UA working group and LA members in Accra, Beijing, Lima, and Hamburg, WP 5.2 participants, and SWITCH wide audience (SC meeting).

Purpose :

The various materials were produced to disseminate the findings under WP 5.2 and related work packages to wider national and international audiences.

Background (one to two paragraphs describing the research and why it was needed):

The Urban Agriculture magazine is published two times a year by RUAF Foundation, and is translated in Chinese, Spanish, French, Portuguese and Arabic. It is distributed in hardcopy to over 6000 subscribers and downloadable from www.ruaf.org. In a special with SWITCH (UAM no. 20 on urban water management) and in a later issue with SWITCH and WASTE (UAM no. 23 on resource recovery and reuse) ongoing research and the findings in Accra, Beijing and Lima have been highlighted.

Other articles have been published in Journals and Newsletters and a number of presentations have been made by the persons and institutions involved in SWITCH Work Package 5.2.

The SWITCH Lima Project has been linked to the Ministry of Housing, Construction and Sanitation, (in charge of regulation on sanitation and water). The project has been presented in the Peruvian Sanitation Conference "PERUSAN 2008" in October sponsored by DIGESA, SEDAPAL, SUNASS, GTZ, KFW, CEPIS, JICA, USAID, IPES, etc.

All partners distributed copies of brochures, UA Magazines, and other papers, the video of SWITCH, etc. to wider local, national and international networks.

ETC, IGSNRR, IPES and IWMI presented SWITCH at the World Urban Forum in Nanjing (2008) and Rio De Janeiro (2010).

ETC participated in a European network on awareness raising of nutrient depletion (notable phosphorous) and closing the loop systems.

SWITCH has been linked by IPES with the Conference "LATINOSAN" and with the Network of Management Waste water for Latin America and the Caribbean (REGAR-LAC), spreading the knowledge acquired in the process of investigation and exchanging experiences with other countries of Latin America. This has allowed to extend the horizons of investigation of the project SWITCH and to know new technologies and managing of the residual water that can be applied in Lima and other cities.

IWMI and ETC participate in the Sustainable Sanitation Alliance (also in UAM no. 20).

IGSNRR informed other cities in China on SWITCH. And presented its findings at the Shanghai EXPO in 2010.

IWMI in collaboration with the SWITCH LA in Accra, has developed material to inform wider public on the impact of human activities on water pollution and livelihoods depending on water.

Potential Impact

Recommendations (Direct at target audience above).