



# NEXUS



## Integrated Resource Management in Asian Cities: the Urban NEXUS

- *Third Regional Nexus Workshop*
- *Da Nang, June 25-27, 2014*
- *Overview of project and progress since 2<sup>nd</sup> regional Workshop in December 2013 in Bangkok*



## Participating countries:

- **China**
- **Indonesia**
- **Mongolia**
- **Philippines**
- **Thailand**
- **Vietnam**



## Participating cities:

- Ba'nan 920.000
- Rizaho 2.880.000
- Weifang 9.000.000
- Pekanbaru 1.000.000
- Tanjungpinang 230.000
- Ulaanbaatar 1.200.000
- Naga City 180.000
- Santa Rosa 330.000
- Chiang Mai 150.000
- Korat 180.000
- Da Nang 900.000



# Integrated Resource Management in Asian Cities: the urban Nexus (water, energy, food/land use)



- Time frame: 2013 - 2015
- Political Partner: UN ESCAP (Bangkok, Thailand)
- Implementation Partner:  
International Council for Local Environmental Initiatives (ICLEI SEAS)
- Financed by BMZ (German Federal Ministry for Economic Cooperation & Development)





# Integrated Resource Management in Asian Cities: the urban Nexus (water, energy, food/land use)



## Approach:

- Introduction of innovative engineering technologies in the area of waste water and solid waste management, generation of energy, link to (urban) agriculture, EE in/of buildings
- Holistic/integrated urban planning/breaking open of „silo“ mentality (creation of Nexus Task Forces in cities)
- Multi level approach (micro, meso, macro, supraregional)
- Private sector, civil sector, state/communal
- Grounded/concrete demonstration projects/PFS/FS/scaling up



german cooperation

DEUTSCHE ZUSAMMENARBEIT



Implemented by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



# NEXUS Organisational Structure

## National Level

### Mongolia:

Ministry of Environment & Green Development  
Ministry of Energy  
Ministry of Construction & Urban Development

### Philippines:

Department of Environment & National Resources  
Home Development Mutual Fund

### Thailand:

Ministry of Natural Resources & Environment/ONEP  
National Housing Authority

### China:

Ministry of Housing, Urban - Rural Development

### Indonesia:

Ministry of National Development & Planning

### Vietnam:

Ministry of Natural Resources & Environment  
Ministry of Construction

## Meso Level

Assoc. of Municipalities, Utilities, Training/Research Inst.

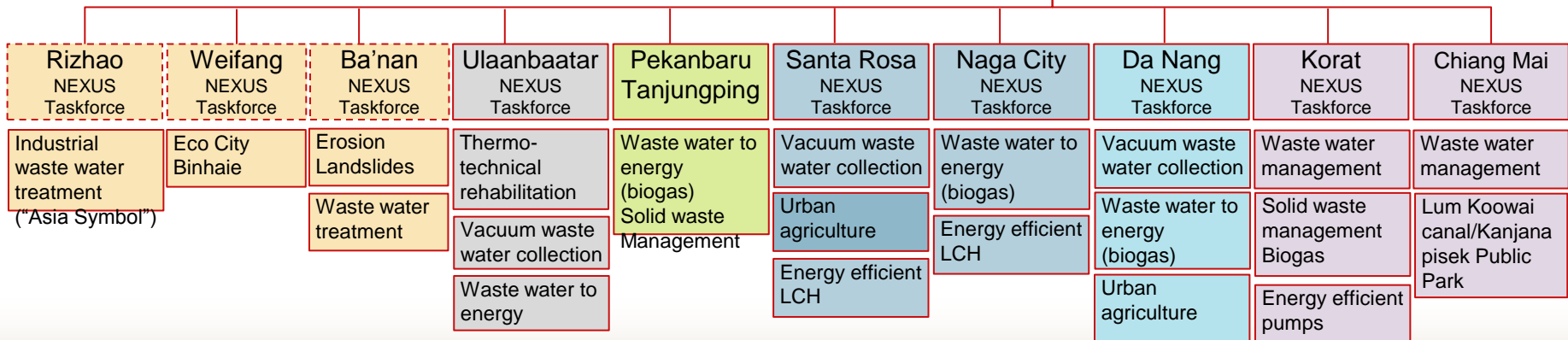
Private Sector/private enterprises  
Bilfinger Water Technologies GmbH, WEHRLE Umwelt GmbH, KSB, SEDC

UN ESCAP  
Political Partner

BMZ  
Finance/political directives

GIZ NEXUS

ICLEI-SEAS  
Implementation Partner





## Update



- Nexus project initiatives in all Nexus cities present in Nexus Workshop are underway
- Chinese cities rejected to participate
- Yogyakarta/Indonesia lost interest, replacement underway, waiting for final green light from BMZ; proposed cities to participate Pekanbaru and Tanjungpinang
- Strong support of BAPPENAS in this process
- Baguio/Philippines would like to join Nexus



## Studies & consultancies implemented



- Fraunhofer Institutes on city profiling/benchmarking (“city of tomorrow”), innovative waste water treatment, energy efficiency and climatically adapted construction and retrofitting of buildings, July 2014;
- Thermo-technical retrofitting of schools and kindergartens in Ulaanbaatar/Mongolia/IVA/G. Saran Engineers Association/Mongolia, May 2014;
- Thermo-technical retrofitting of public & private buildings in Khoroo 16, eastern most khoroo of Ulaanbaatar/Mongolia/GIZ Nexus, February 2014;
- Survey on High rise Buildings in Eastern Coastal Area of Da Nang/Central of Viet Nam Technologies JSC, April 2014
- Survey on Hotels and Resorts in Eastern Coastal Area of Da Nang/Central of Viet Nam Technologies JSC, April 2014;



## Studies & consultancies implemented



- Report on research on vacuum sewer collection system for Pilot Project Bac Ward in Eastern Coastal Area of Da Nang, Vietnam/GIZ Nexus/Sang Environmental Design Consultancy Service J.S.Co (SEDC), April 2014;
- Surface water and waste water quality monitoring in Chiang Mai/Thailand, SGS/Thailand, March 2014
- Household survey in Klong Mae Kha Community in Chiang Mai/Unchulee Lualon/Thailand, July 2014
- Surface water and waste water quality monitoring in Korat/Thailand, SGS/Thailand, March 2014;
- System Efficiency Service of Water Pump System/Lamtaklong and Makamtheo Pumping Stations in Korat/KSB Pumps Co. Thailand, May 2014;
- Using vacuum sewer system towards an environmentally friendly Da Nang/GIZ/Bilfinger Water Technologies/SEDC, Vietnam, June 2014





## Consultancy service & intern



- 6 person months advisory service for Low cost Housing Site, Del Rosario and BICOL State College of Applied Sciences and Technology (BISCAST)/January/April 2014;
- Intern in Korat for Biogas reactor / June/August 2014;
- 6 person months advisory service at National Housing Authority/Thailand for affordable and energy efficient housing/July-December 2014;
- Affordable housing and neighborhood designs for Santa Rosa/GIZ-Nexus, March 2014.



## “Mainstreaming” Nexus



- Nexus is spreading on international level with high pace;
- Nexus to be integrated in formulation of the indicators for the Sustainable Development Goals (SDGs) to replace the MDGs in 2015;
- SDGs need Nexus to become operational, measurable & sustainable;
- The UN is even considering the establishment of an UN Nexus coordinating mechanism;
- International nexus conferences and workshops are being organized on a regular basis since the kick-off Nexus Conference in November 2011 in Bonn;
- Big problem:
- Consumption patterns of growing middle classes in Asia have to change;
- Cultural changes and new concepts of well-being required;



## Outlook on Nexus perspectives (*broadening approach?*)



*Actual discussion on Nexus governed by:*

- Globally adapted approach;
- Establish legal basis for Nexus;
- Combine the Nexus approach with resilience; integration of Nexus with resilience
- Strengthen the evidence that Nexus pays off (assess transaction costs of Nexus governance);
- NEXUS is looked at in a **trans boundary dimension** (e.g. water does not respect national boundaries)
- Strong sectoral forces as constraints/mainstreaming at national level biggest challenge/constraint?



## Technical innovations / main topics



### ***Waste water management***

- Vacuum sewer collections as alternative to conventional gravity system
- Septic tanks no solutions for dense urban settlements
- Generation of energy out of sludge and additional organic waste
- Generation of well-treated water for irrigation and parks
- Generation of fertilizer and night soil for (urban agriculture)

### ***Solid waste management***

- Does separation at source work?
- Alternative processing concepts (MYT/Maximum Yield Technology/innovative waste treatment technology)



## Technical innovations



### ***Energy efficient affordable and resilient housing***

- Appropriate designs, adjusted to climate (including natural hazards) , location, plot etc. (one size does not fit all);
- Detailed cost calculation for contracting, monitoring & evaluation;
- Qualified workers essential (on-job-training), coopertion with training institutes, TVET Schools, Universities;
- Strict supervision required to guarantee quality;
- Basic infrastructure provision (also in case of low-cost housing);
- Low construction quality and ethics of some NGO;



## Meso level organizations & private sector participation



### *Meso level: the third dimension*

#### City Networks:

- Disseminating the Nexus approach beyond or partner cities and partner countries – becoming “Nexus” Ambassadors!



#### Training/Research institutes:

- Training people how to implement the Nexus approach (on-job training, training of students and teachers)/technical and managerial skills;



### *Private sector: the fourth dimension*

- Reinforcing sustainability, PPP, “win-win” situation!

