

# Improvement of Urban Environmental Sanitation Services (UESS) in Ban Hatsady Tai, Vientiane City, Lao PDR

---

Saykham Thammanosouth<sup>1</sup>, Maniseng Duangnouluck<sup>1</sup>, Thongdom Chanthala<sup>1</sup>, Antoine Morel<sup>2</sup>

<sup>1</sup> Public Works and Transport Institute (PTI), Vientiane, Lao PDR

<sup>2</sup> Asian Institute of Technology (AIT), Pathumthani, Thailand

*The Urban Environmental Sanitation Services (UESS) improvement project in Ban Hatsady Tai, Vientiane City (Lao PDR) is currently being implemented by the Public Works and Transport Institute (PTI) in collaboration with the Swiss Federal Institute of Aquatic Science and Technology (Eawag) and the Asian Institute of Technology (AIT), Bangkok, Thailand. Hatsady Tai was selected as case study for the field testing of the Household-Centered Environmental Sanitation Planning Approach (HCES). The HCES approach and related preliminary guidelines for decision-makers and municipal planners was developed by the Water Supply and Sanitation Collaborative Council (WSSCC) back in 2005. The HCES approach is a radical departure from past central planning approaches as it places the household and its neighborhood or the community at the core of planning process, and looks at environmental sanitation services (including water supply, storm water drainage, and sanitation and solid waste management) in a comprehensive manner. Using the HCES approach to plan and implement urban environmental sanitation services offers the promise of overcoming the short coming often observed in conventional approaches which largely neglect the special situation and the very limited means of the population living in low income areas. Ban Hatsady Tai was selected as case study site for the testing of the preliminary HCES planning guideline as (a) the village lacks appropriate UESS; solid and liquid waste is being discharged within the village boundaries without sound management strategy, thus leading to a deterioration of the living environment and to increased health risks; (b) the local authorities and the community of Hatsady Tai agreed that the problems related to UESS must be tackled urgently and agreed to adopt the HCES planning approach with active participation of all main stakeholders, especially the community in the planning and decision making process; (c) there is an interest on national level for alternative approaches to environmental planning.*

*The paper aims at introducing the HCES planning approach and its underpinning principles, and illustrates the strengths and limitations of its application in Ban Hatsady Tai.*

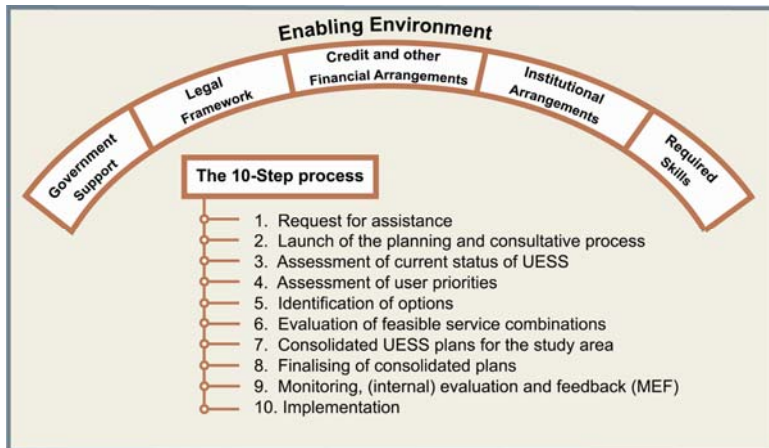
## Introduction

The Household-Centred Environmental Sanitation Planning Approach (HCES) is a novel approach to environmental sanitation based on the understanding that development can only be sustainable if people play a central role in the planning, design and implementation process. In relation to environmental sanitation, this requires a radical change in the attitudes of professionals away from mere services provision towards participatory and locally adapted service creation. HCES is based on the Bellagio Principles focusing on human dignity and quality of life, involvement of all stakeholders in decision making, waste to be considered as a resource with maximum use of recycling and reuse potential, and problems solved as close as possible to where they occur (Schertenleib et al 2003).

The HCES approach deals with the most immediate social priorities of rapidly urbanising areas of the developing world: sanitation, water and waste. While it is a sector specific approach focusing on environmental sanitation, it does address integrated coverage by including basic services such as water supply, storm water drainage, sanitation and solid waste management. It is a radical departure from the centralized planning approach of the past and recalibrates decision making to include those who count most: the end users. Decisions on determining the type of basic services

to be implemented is heavily based on the actual needs and means of the users and is done in close consultation with all stakeholders, including the private sector as potential service provider. As the name implies, the HCES approach is a demand-oriented approach placing the household and neighbourhood at the core of the planning and implementation process without neglecting wider domains of service provision.

The HCES approach was conceived by a working group of the WSSCC and developed by



Eawag/Sandec based on a series of international workshops. Preliminary guidelines were published in June 2005 targeting public officials and decision makers and sector specialists (Eawag 2005). The household-centred planning approach is based on two main elements: the creation of an 'enabling environment' and the 10 steps planning process of the HCES approach (Figure 1). The 10

Figure 1: Enabling environment and 10-Step process of the HCES approach

steps are presented in sequence, but in practice they usually overlap, some steps needing to be repeated more than once in an iteration to find acceptable solutions.

In 2007, Eawag began testing the HCES planning approach in pilot projects at six sites – in Costa Rica, Burkina Faso, Kenya, Tanzania, Lao PDR and Nepal. In each case, cooperation was initiated with local partners. The main objectives of the pilot projects are (a) to develop, based on the HCES planning methodology and in close collaboration with the village members, UESS plans for the selected villages; (b) to successfully submit the developed proposals to national and international agencies willing to financially support the implementation of the UESS plans; (c) to identify the strengths and weaknesses of the HCES planning approach; and (d) to develop context specific HCES guidelines for Decision-Makers. Ultimately, the validation process will lead to the revision and finalisation of the HCES Provisional Guideline for Decision-Makers (Eawag 2005).

### Case study in Lao PDR

The overarching development goal of the Government of Lao PDR is to quit least developed countries status by the year 2020 (MPI, 2006). Increased access to adequate urban environmental sanitation services (UESS) is recognised as an important element of socio-economic development, and is highlighted as a priority intervention in the government's Sixth Five-year Socioeconomic Plan 2006-2010 (SFSP). The Prime Ministerial Decree 14 (2000) provides for a decentralised planning system, delegating planning and implementation responsibilities to the district and village level, respectively, and promoting community participation in the development process. However, a number of factors hamper the effective implementation of the decentralisation policy, including the lack of supportive planning guidance. In practice, participatory planning has usually

not been successfully applied in sub-district planning. The HCES planning approach is seen as a promising tool by national and provincial authorities to overcome some of the hindering factors.

A HCES project was launched in Ban Hatsady Tai, an urban village (“Ban”) of Vientiane in 2007. Hatsady was established more than 50 years ago, on a former wetland in the centre of the city which was filled to cope with the increasing population growth. In 1988, Hatsady was divided into two villages (Hatsady Tai and Hatsady Neau). Nowadays, the area is highly congested and undergoes rapid changes (i.e. expanding commercial areas). Ban Hatsady Tai counts currently 180 households (889 inhabitants). Most low-income households are grouped in the congested centre of the village, where environmental sanitation services are least developed. This centre (counting 72 households) was delimited as the project area by the local authorities and the community (HCES Step 3).

The project is coordinated by the Public Works and Transport Institute (PTI), under the Ministry of Public Works and Transport (MPWT). PTI is backstopped by Eawag and the Asian Institute of Technology (AIT). Ban Hatsady Tai was selected as project site following an official request for assistance submitted by the village authorities to PTI (HCES Step 1, see Figure 1). Project site, project coordination committee and planning methodology (i.e. the HCES planning process) were discussed and approved by all relevant stakeholders at a project launching workshop conducted in February 2007 (HCES Step 2). During that workshop, participants further concluded that the current political and legislative environment of Lao PDR was enabling the application of a participatory, multi-sectoral planning approach such as the HCES approach.

The project is managed by a project coordination committee (PCC), chaired by PTI. Other members of the committee include the head of the village (Naiban) and the Village Environmental Unit (VEU). The VEU was created during Step 4 of the HCES planning process. It consists of 12 members, including community members and representatives of the different mass organisations on village level (Lao People’s Revolutionary Party, Lao Women Union, Lao Elderly Association, Lao Youth Organisation). The PCC is assisted by governmental and private organisations on a mandate basis in the various phases of the project cycle. For example, the coordination of the people-centred solid waste management component was handed over to the Water Resources and Environment Administration of Vientiane (VT-WREA). The PCC is supported by Eawag and AIT.

### **Current UESS in Hatsady Tai (HCES Step 3), definition of priorities (HCES Step 4)**

In the framework of HCES Step 3 (see Figure 1), the current environmental sanitation services were assessed by a multi-disciplinary team in close collaboration with the community and the local authorities. Household interviews and surveys were used as main methodological tools.

The UESS assessment revealed that (a) most households (90%) rely on old and defective cesspits for wastewater disposal; (b) as there is no sewer system, greywater and effluent from cesspits and septic tanks are discharged into the rudimentary drainage system (open earth channels); (c) the project area is regularly flooded due to inadequate stormwater drainage; (d) solid waste dumping and burning within the project boundaries is still a common practice, (e) access roads are very narrow and not accessible for service vehicles such as solid waste collection



*Image 1: Current environmental sanitation services in Hatsady Tai are very poor.*

trucks or vacuum trucks, (f) fire protection is very difficult (Thammanosouth et al 2008a). Lack of awareness of the community on the benefits of adequate environmental sanitation services add to the serious situation.

The assessment report was approved by the community and the local authorities during the Step 4 workshop (Priority setting workshop). A gender specific pocket voting exercise was conducted to assess the level of agreement of the workshop participants with the assessment report. The methodology was also used to define the UESS to be prioritised in the next project steps, and the willingness of the community in actively participating in the project planning and implementation.

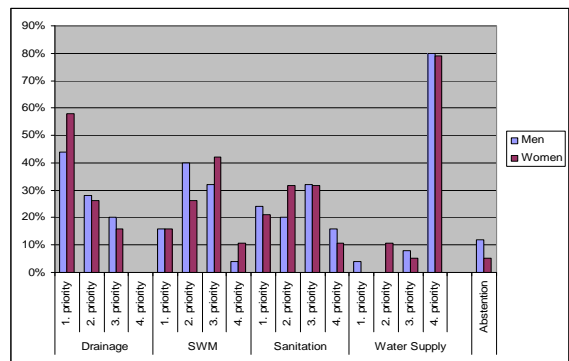


Figure 2: Priorities set by the community related to UESS in Hatsady Tai; result of the pocket voting exercise.

More than 50% of the workshop participants defined drainage as the priority issue related to UESS in Hatsady Tai (see Figure 2). Solid waste management and sanitation were rated in a similar way, with slight prioritization of solid waste management by the male voters. Water supply was clearly defined as least pressing issue in the village, with approximately 80% of both women and men defining it as 4th priority.

### Definition of options to improve UESS (HCES Step 5)

The determination of possible options to improve current UESS in Hatsady Tai (HCES Step 5) was conducted in a series of steps (Figure 3). The UESS assessment report (outcome of HCES Step 3), the priorities defined by the community (outcome of HCES Step 4) and a draft version of the Compendium of Sanitation Systems and Technologies (Tilley et al, 2008) were used as entry point. The Sanitation Compendium promotes a *system* approach to environmental sanitation rather than a technology approach. It is divided into five sections: User Interface, Collection and Storage, Conveyance, Treatment, and Use and/or Disposal. Rather than being offered ready-made “packages”, users can select one or more options from the various sections to build an entire system that is optimally adapted to local conditions and ensures sustainable management of wastes and wastewater.

The applicability of different sanitation systems was first assessed by a group of national and international experts (urban planners, environmental engineers, architects). The main factors which influenced the pre-selection include: (a) people traditionally use water for flushing and anal cleansing, (b) reuse of human waste (including urine)

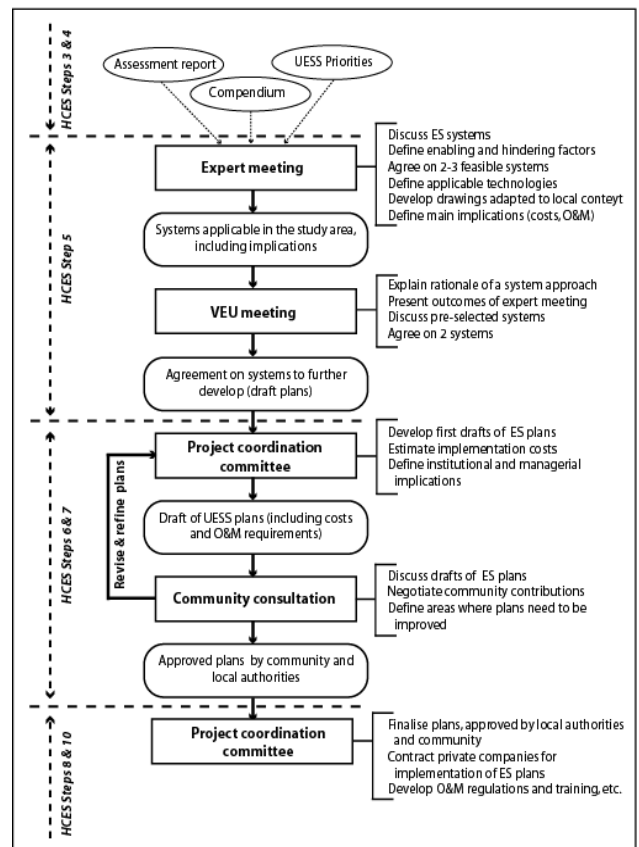


Figure 3: Processes, activities and outcomes of Step 5 to 7 of the HCES planning process

is culturally not yet accepted in Lao PDR, (c) the housing density is very high, (d) soil infiltration capacity is low and hinders local infiltration of wastewater, (e) the existing water based sanitation system is well accepted.

3 systems pre-selected by the expert group were then adapted to the local context (translated and simplified system templates) and discussed with the VEU and the Naiban (Image 2). The PCC concluded that a combination of 2 sanitation systems was most adapted to efficiently manage the main sanitation products (stormwater, blackwater, greywater), building on the existing sanitation services (pour-flush latrines with cesspits or septic tanks, rudimentary drainage system). The adapted system consists of rehabilitating and retrofitting existing cesspits to sedimentation chambers for black- and greywater pre-treatment, connecting these chambers to a solids-free shallow-depth sewer system with semi-centralised anaerobic treatment systems. The effluent of these systems is discharged together with effluent from existing household septic tanks to an improved stormwater drainage network, which connects to the city drainage network. Faecal sludge management is handed over to private service providers.

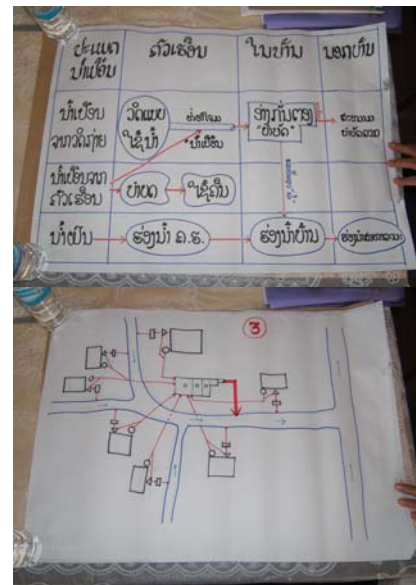


Image 2: System templates were adapted to the local context

### Development of UESS plans (Step 6 and 7)

Subsequently (HCES Step 6), first plans of the UESS were drafted by the environmental sanitation experts of the PCC (i.e. PTI). The plans include possible layout of the system (i.e. placement of drainage channels, sewer and semi-centralised treatment systems, technological options for drainage and wastewater treatment), cost estimations and O&M requirements for each component. The drafted plans (Thammanosouth et al 2008b) were first discussed amongst the PCC, and later presented and discussed at a community consultation workshop. While the basic sanitation concept and its implications (Table 1) was approved by the participants, a series of recommendations and requests were formulated (e.g. revision of the topographic map, cost estimation for household infrastructure upgrading).

The project is currently in its iterative stage (HCES Step 7, Figure 3), where plans are gradually adapted and refined following the agreements reached amongst the community, the PCC and city authorities. Approval of the detailed plan is expected in early November 2008; implementation is expected to be finalised in March 2009. In parallel, new regulations and management procedures are being developed for the management (i.e. financial management and O&M) of the new UESS.

### Main observations, conclusions

Demand responsive approaches like HCES are often perceived as slow and too complex and time-consuming to deliver. While it is true that a 12 month multi-stakeholder planning process can be a cumbersome affair for a community who would like to see results fast, there are no shortcuts to a sound, demand-led planning process which achieves real ownership. In our view, the investment in time and human resources is justified, however, because the HCES approach, like other participatory planning methods offers the one result that previous approaches have been unable to deliver: sustainable sanitation.

*Table 1: Implications of the project for beneficiaries and local authorities*

<b>Main implications for the beneficiaries</b>			
Cover investments at household level (retrofitting of cesspits, connection to sewer system).			(✓)
Retrofit some buildings which hinder implementation of UESS.			✓
Provide land for implementation of drainage and semi-centralised wastewater treatment.			✓
Contribute (in kind, labour or cash) to implementation and O&M of UESS.			(✓)
<b>Main implications for the local authorities</b>			
Create instruments to support low-income households in mobilizing funds for household infrastructure improvements.			(✓)
Adapt institutional setup and implement regulations to guarantee sustainable management of UESS (financial management, O&M).			✓
Negotiate with higher level authorities the connection to city services (drainage, maintenance of wastewater treatment systems etc.).			✓
Assure that community contributes to implementation and O&M of UESS.			(✓)
<b>Financial implications (cost estimation)</b>			
	Planning (USD per beneficiary)	Implementation (USD per beneficiary)	O&M (per month) (USD per beneficiary)
Covered by project	50	150	0
Covered by beneficiaries	5	30	0.6
Total	55	170	0.6

*Note: ✓ = approved; (✓) = basically approved, but realisation not defined yet.*

Active participation of the community is important, but given the limited time that people are willing to spend to discuss certain issues, the level of detail of the different inputs has to be reduced to a level which sometimes might affect informed decision-making. This tradeoff has to be accepted as a limitation of consultative planning processes. The community consultation process should not only aim at collecting information and assessing the perception of the community, but much more at creating an environment of trust between the planning team and the community.

Besides being a good methodology to assess people's perception and opinion, the pocket voting method proved to be a good tool to create a sense of responsibility within the community. People realized that their opinion has a certain weight in the decision-making process and that they have the power to steer the project. One workshop participant expressed her gratitude "...to be asked what we want, and to be given the possibility to decide what we get."

The system approach chosen in Step 5 proved to be useful and straightforward. In order to facilitate the discussion, systems should be adapted to the local context. Despite trying to keep a system approach, discussion on specific technologies could not be avoided. The main challenge consists thus in balancing system and technology focus. It could also be observed that experts tend to prioritize systems which are familiar to them. Innovative and unconventional concepts such as urine diversion are unlikely to be considered appropriate unless the contrary can be proven. This would require demonstration projects, awareness raising and information campaigns for all relevant stakeholders (including local environmental sanitation experts). Given the time pressure and the limited human and financial resources, this was not possible in this project, and will most

probably not be feasible elsewhere unless financed and supported by international funding agencies.

## Acknowledgement

The authors acknowledge support from the Swiss National Centre of Competence in Research (NCCR) North–South: Research Partnerships for Mitigating Syndromes of Global Change, co-funded by the Swiss National Science Foundation (SNF) and the Swiss Agency for Development and Cooperation (SDC).

## References

- Eawag. 2005. *Household-Centred Environmental Sanitation - Implementing the Bellagio Principles in Urban Environmental Sanitation, Provisional Guideline for Decision-Makers*. Dübendorf, Switzerland: Swiss Federal Institute of Aquatic Science and Technology (Eawag).
- MPI. 2006. *Sixth National Socio Economic Development Plan (2006–2010)*. Vientiane, Lao PDR: Ministry of Planning and Investment (MPI).
- Schertenleib R, Morel A, Kalbermatten J, Saywell D. 2003. *Guidelines for the Implementation of the Bellagio Principles and the Household-Centred Environmental Sanitation Approach (HCES)*. In: Proceedings of the Second International Conference on Ecological Sanitation in Lübeck, Germany, April 2003. GTZ, Eschborn, Germany.
- Thammanosouth S, Maniseng D, Chathala T, Morel A. 2008a. *UESS Assessment Report of Ban Hatsady Tai, Vientiane Lao PDR. Outcome of HCES Step 3*. Vientiane, Lao PRD: Public Works and Transport Institute (PTI).
- Thammanosouth S, Maniseng D, Chathala T, Morel A. 2008b. *Definition of environmental sanitation system for Hatsady Tai. Outcomes of the HCES project Step 5 and 6, Hatsady Tai*. Vientiane, Lao PRD: Public Works and Transport Institute (PTI).
- Tilley E, Lüthi C, Morel A, Zurbrügg C, Schertenleib R. 2008. *Compendium of Sanitation Systems and Technologies*. Dübendorf, Switzerland: Swiss Federal Institute of Aquatic Science and Technology (Eawag).