

ANNEX-5 Booklet to instruct how to build toilet

PHỤ LỤC 5: Sách hướng dẫn xây dựng nhà vệ sinh

**Booklet to instruct how to build toilet
For Cartridge Type Dry Toilet**

**Sách hướng dẫn xây dựng nhà vệ sinh
Dành cho NVS khô với bồn chứa phân di động**

Xây nhà vệ sinh tại gia đình Nhà vệ sinh khô với bồn phân di động

Có ống thoát khí
Không có mùi khó chịu

Bệ xí thích hợp

1

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in the Rural Provinces of the Southern Coastal Zone in the Socialist Republic of Vietnam

Nơi xây dựng

Nơi có ánh nắng mặt trời

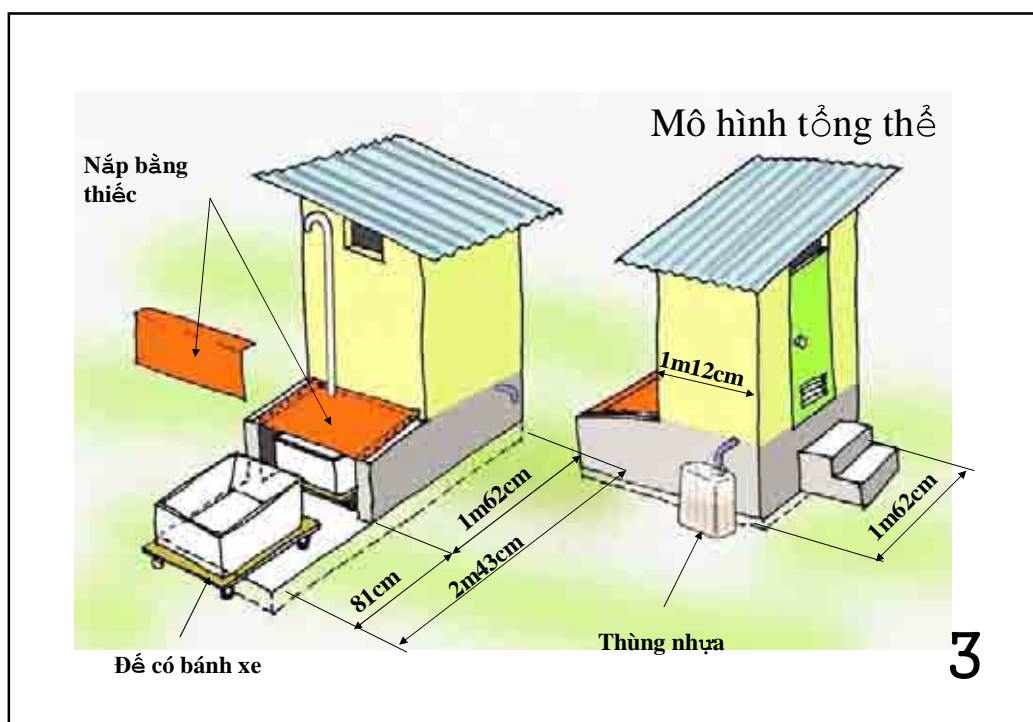
Tiện lợi và gần nhà

Nơi thoáng gió

Gần nơi có nước

Gần ruộng

2

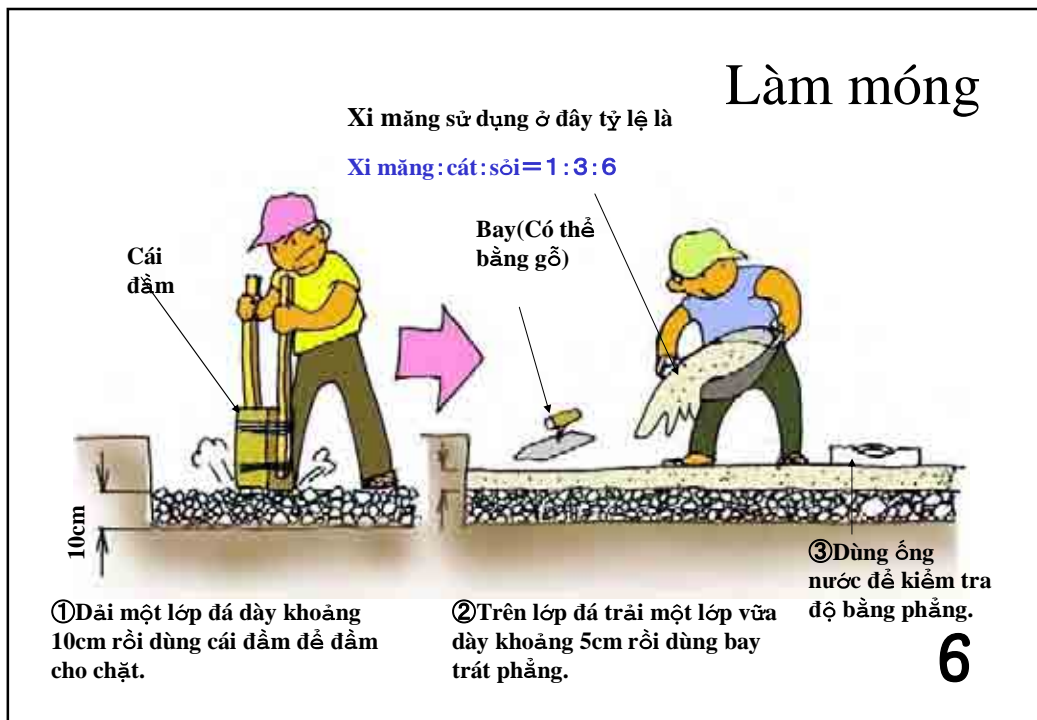
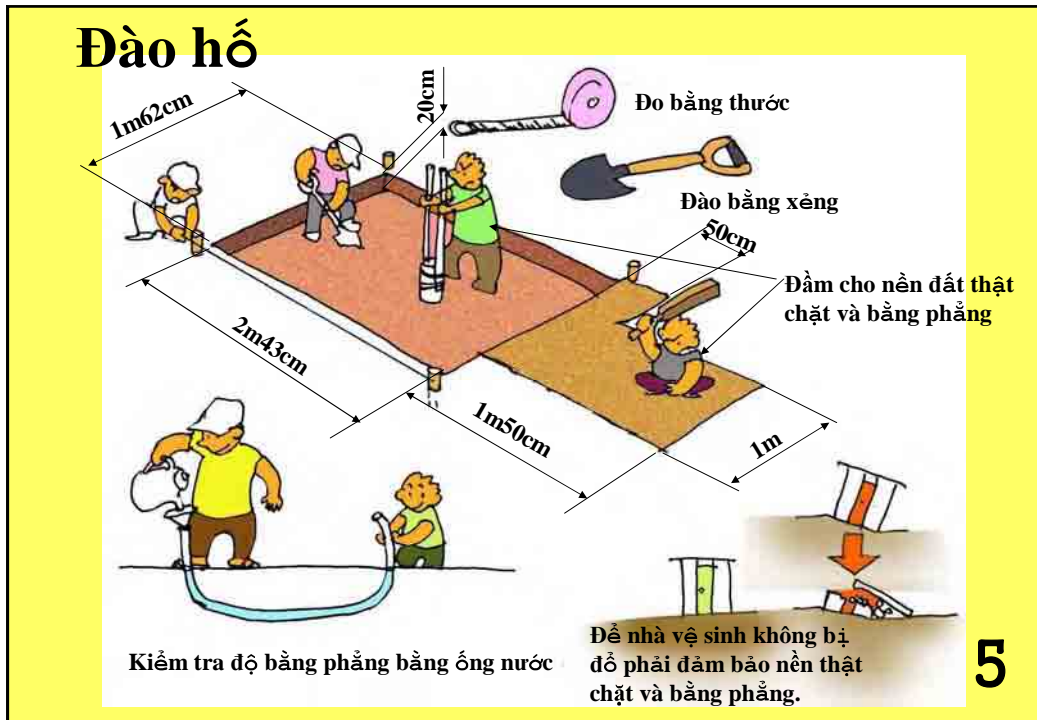


Bảng nguyên vật liệu

Tổng cộng các nguyên vật liệu cần thiết để xây dựng nhà vệ sinh khê

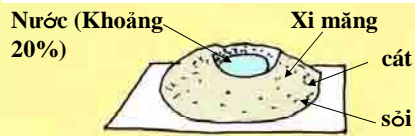
Danh mục	Số lượng	Đơn vị	Danh mục	Số lượng	Đơn vị
Thê tích đá râm	0,4	m ³	Ống cut (gắn trên ống thoát khí)	1	cái
Xi măng	0,4	m ³	Vật gia cố	1	bộ
cát	0,4	m ³	Lưới bọc trên đầu ống thoát khí	1	bộ
sỏi	0,2	m ³	Ống dẫn nước tiểu	1	m
diện tích vữa chát (trong, ngoài trờng)	31	m ²	Ống cut (90°)	2	cái
gạch	1000	m ²	Diện tích gạch ốp	5	m ²
cốt thép (đường kính 8mm)	24	viên	Diện tích vôi quét	24	m ²
vật liệu phụ trợ dùng cho bê tông sàn	1	m	bộ xi	1	bộ
Tấm lợp mái (1,2m x 1,8m)	1	bộ	Giá treo giấy vệ sinh	1	bộ
Vật tư làm mái (tre)	9	bộ	Điện điện	1	bộ
Đẩy thép để bước	1	m	Đẩy điện	1	bộ
Đinh	1	bộ	Công tắc	1	bộ
Cửa 70cm x 2m (gỗ)	1	bộ	Đế có bánh xe	1	chiếc
Bản lề cửa, tay nắm...	1	cái	Xô đựng tro	1	cái
Tấm thiếc làm nắp	2	tấm	Cọc mục tro	1	cái
Ống thoát khí	2,7	m	Xô hoặc kết đựng nước tiểu	1	cái

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Đổ bê tông sàn

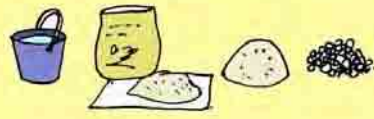
1. Trộn đều xi măng và cát
2. Cho sỏi nhỏ vào và trộn đều lại
3. Tạo một hố ở giữa, cho nước vào từ từ và trộn đều (không quá ướt hoặc quá khô)



Trộn đều từ trong ra ngoài



Trộn bê tông trên tấm kim loại và gạch



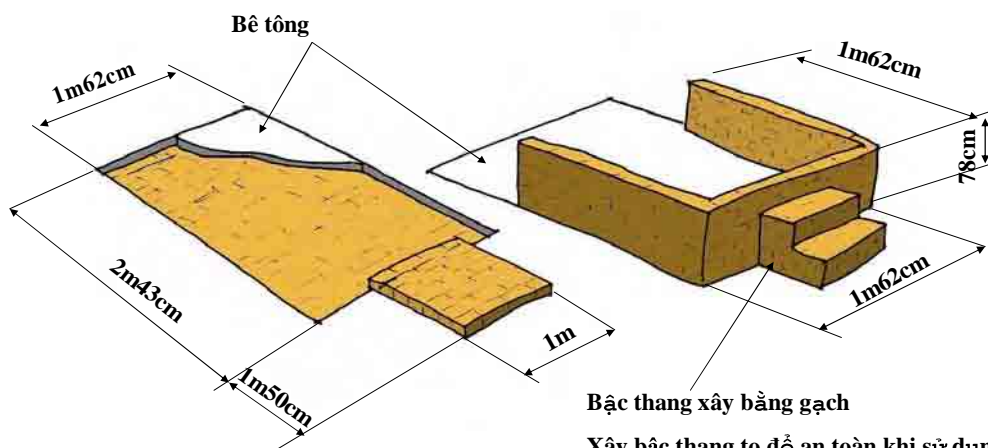
nước Xi măng cát sỏi



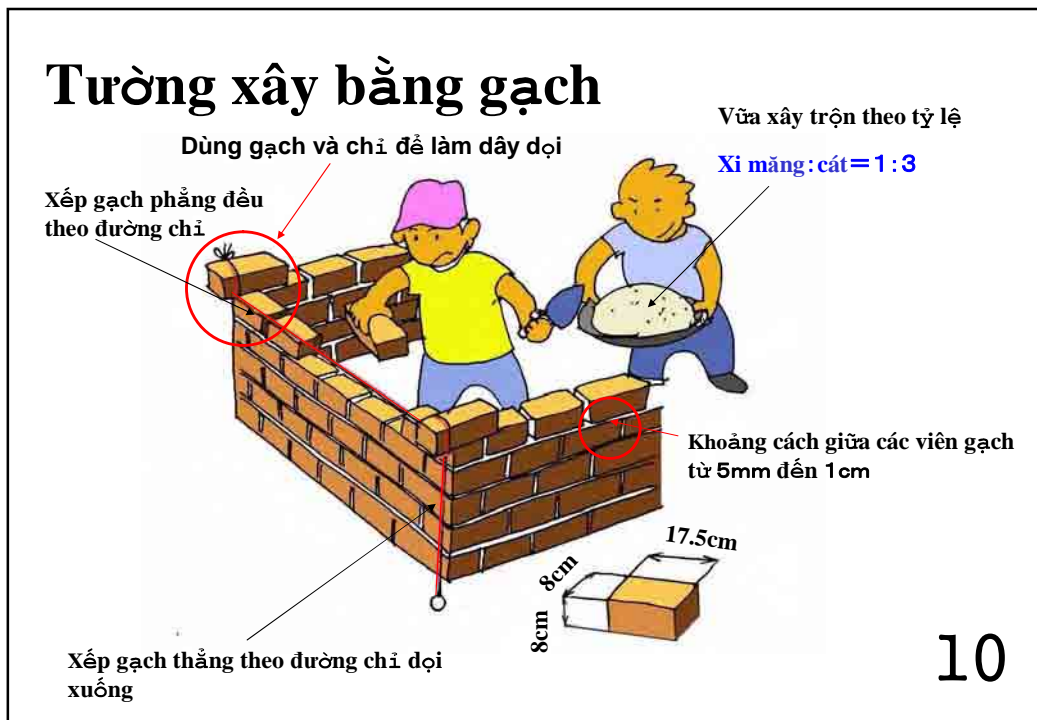
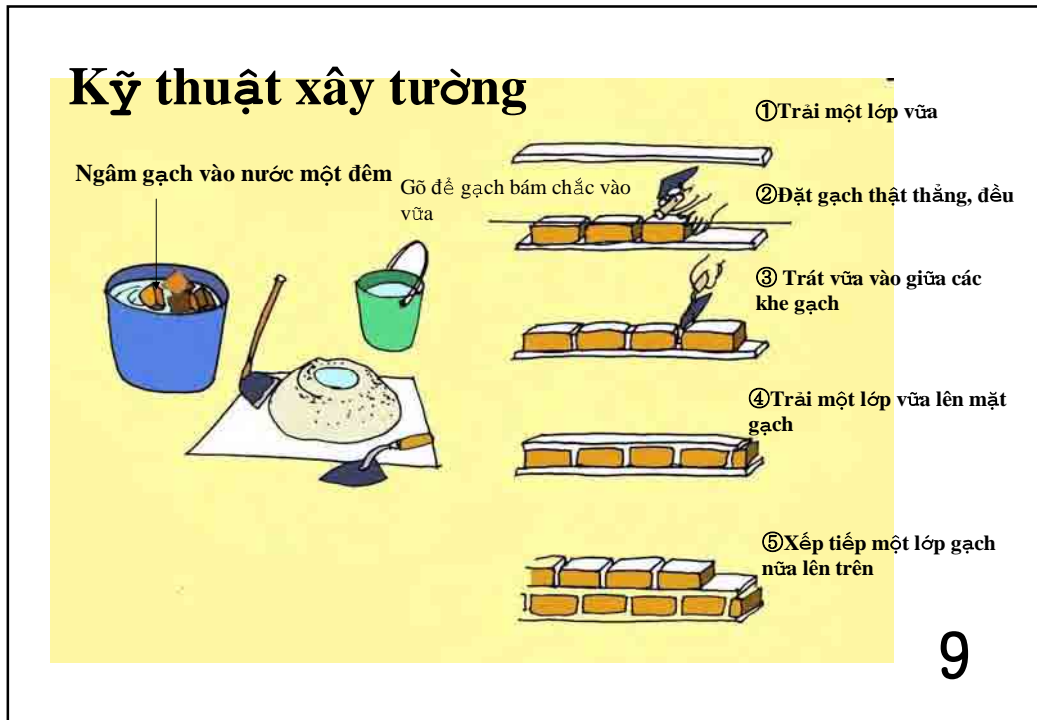
Bê tông (đáy hố và sàn) Xi măng:cát:sỏi=1:3:6
 Vữa (Trát tường và xây gạch) Xi măng:cát = 1:3

7

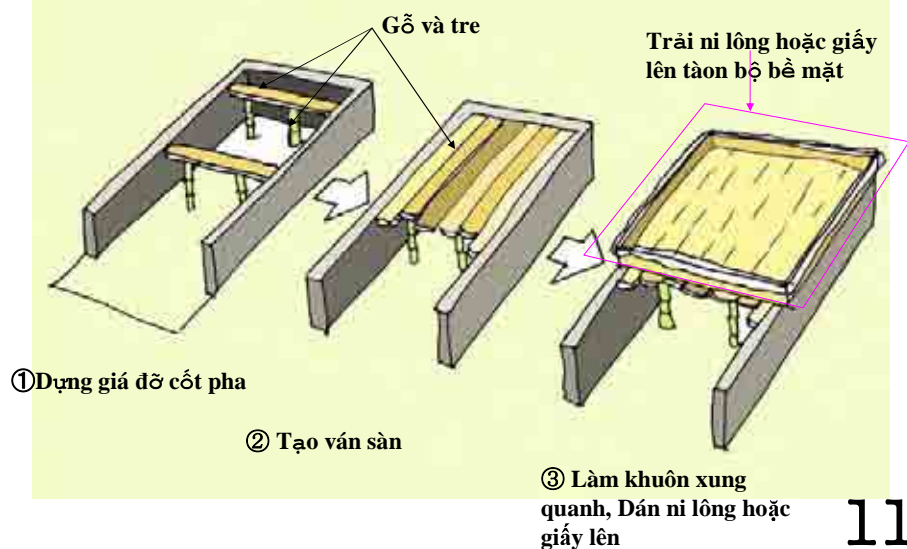
Từ sàn xuống xây bằng gạch



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Tạo khuôn đổ bê tông



Đan dầm thép để tạo cốt đỡ bê tông

Phía dưới của tường sau xếp hai thanh sắt liền nhau để đỡ lực. (Khoảng cách giữa hai thanh sắt này khoảng 7~8cm)

Đường kính cốt thép 8mm

Khoảng cách giữa các thanh thép khoảng 15cm

Độ dày bê tông sàn là 6cm

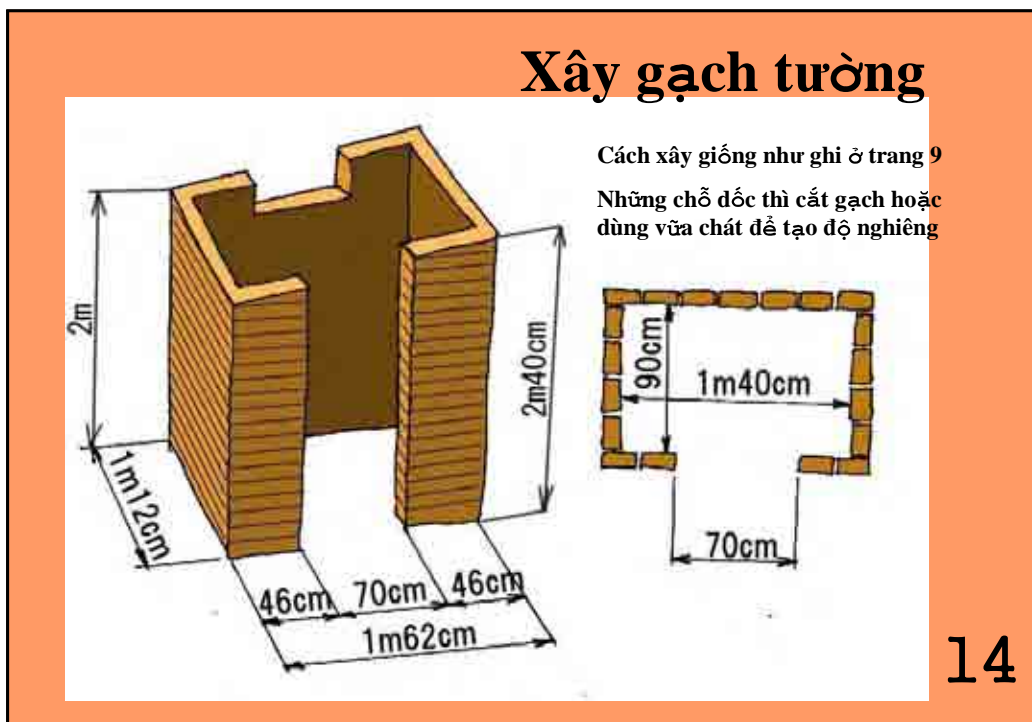
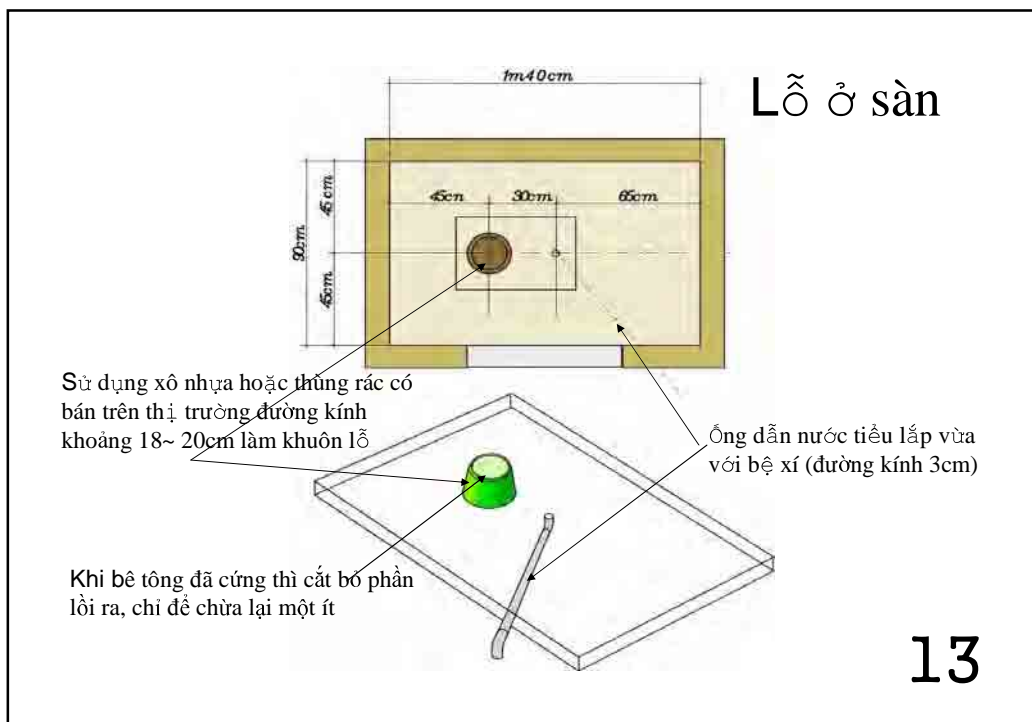
Ống dẫn nước thải (đường kính 5cm)

Có thể sử dụng xô hay thùng rác bán trên thị trường để làm khuôn tạo lỗ hố (Đường kính 18~20cm)

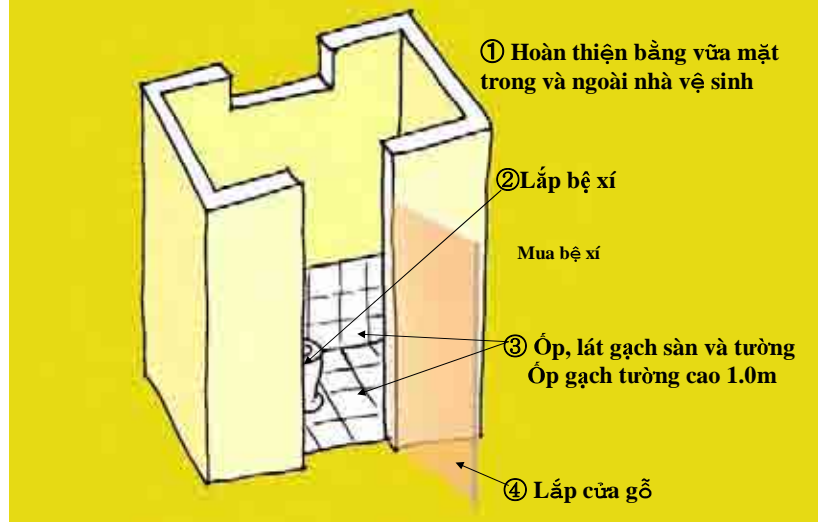
Xỉ măng sử dụng tại đây tỷ lệ là

Xỉ măng:cát:sỏi= 1:3:6

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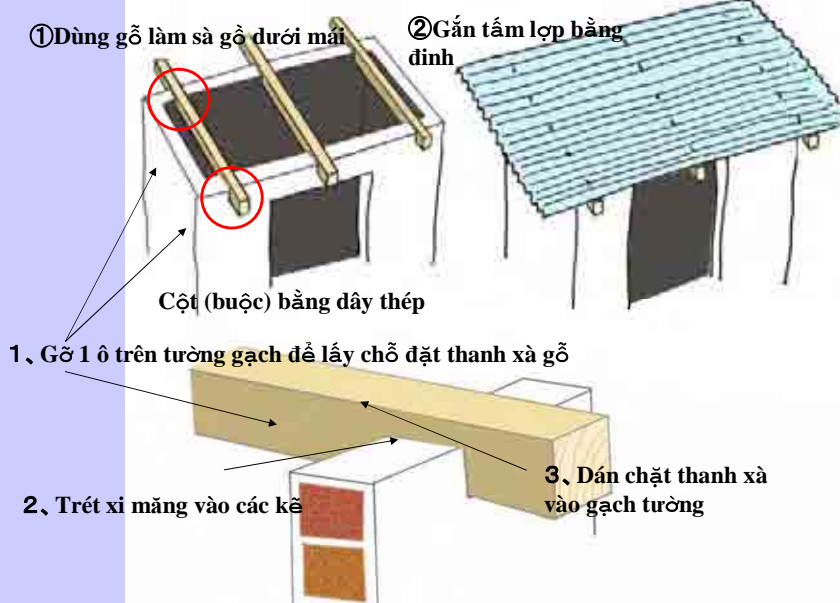


Hoàn thiện Quét vôi và lát, ốp gạch

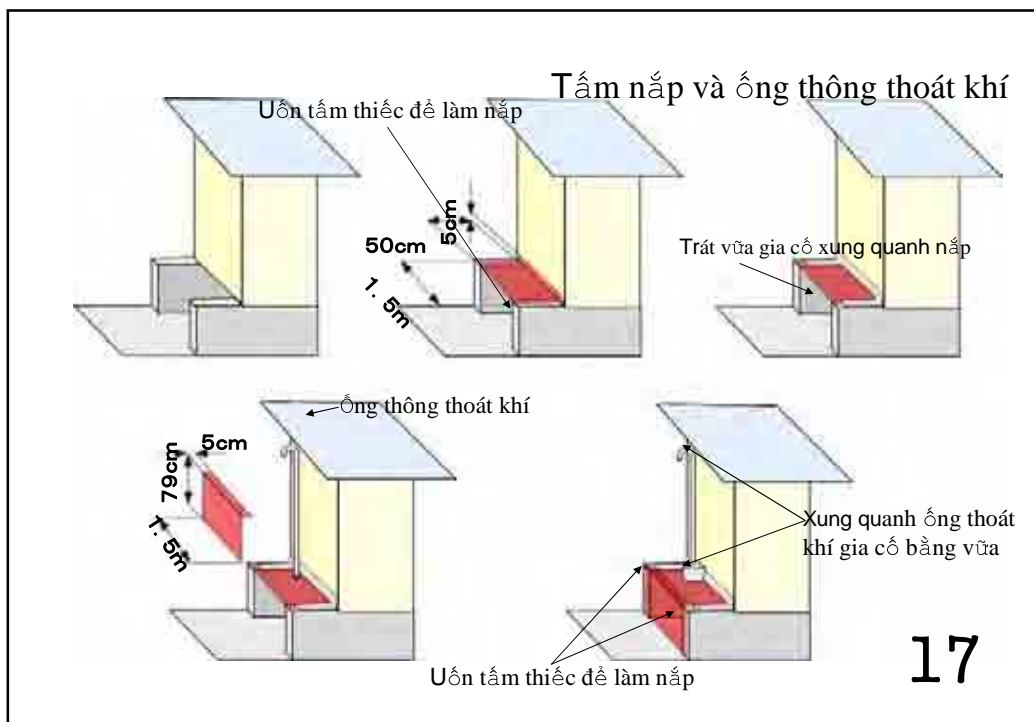


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Làm mái



16



Cách sử dụng nhà vệ sinh - 1

Vứt giấy vệ sinh vào
thùng rác



Rắc một cốc tro hoặc vôi
bột lên, sau khi đi vệ
sinh rồi đóng nắp lại



Tuyệt đối không
được dội nước vào
bồn cầu



Đốt giấy đã sử dụng

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Cách sử dụng nhà vệ sinh - 2

Nếu hồ phân đầy thì kéo ra, đập
nắp lại và làm khô dưới ánh nắng
mặt trời.



Dàn trải đồng phân ra



Đưa bể phân mới vào

Cần chuẩn bị một số bể phân

20

Cách tạo chất cải thiện đất



Phân khô có thể dùng làm chất cải thiện đất
Bón ra ruộng, trộn đều với đất hoặc làm phân bón.

Hoà loãng nước tiêu, tưới ra vườn, ruộng.

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Booklet to instruct how to build toilet

For Urine-Feces Separation Septic Tank Toilet

Sách hướng dẫn xây dựng nhà vệ sinh

Dành cho NVS tự hoại tách rời phân và nước tiểu

**Xây nhà vệ sinh tại gia đình
Nhà tiêu tự hoại dôi nước**

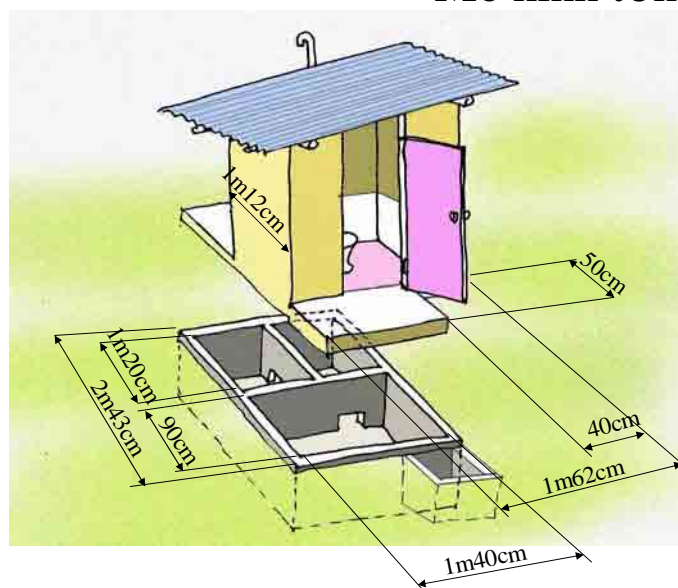
1

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Nơi xây dựng

2

Mô hình tổng thể



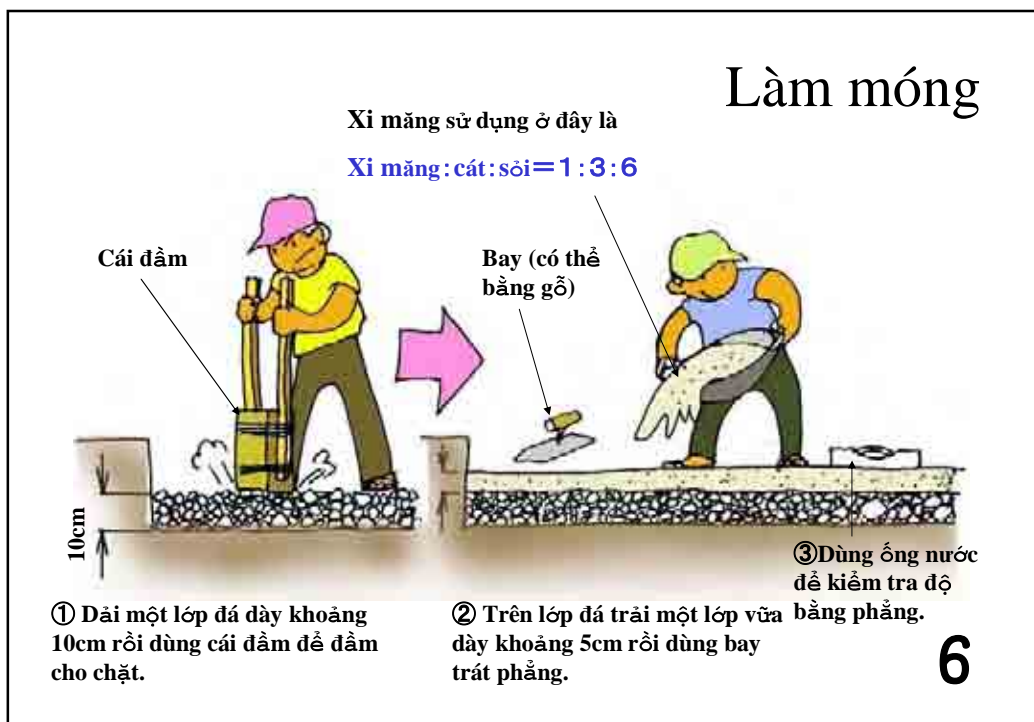
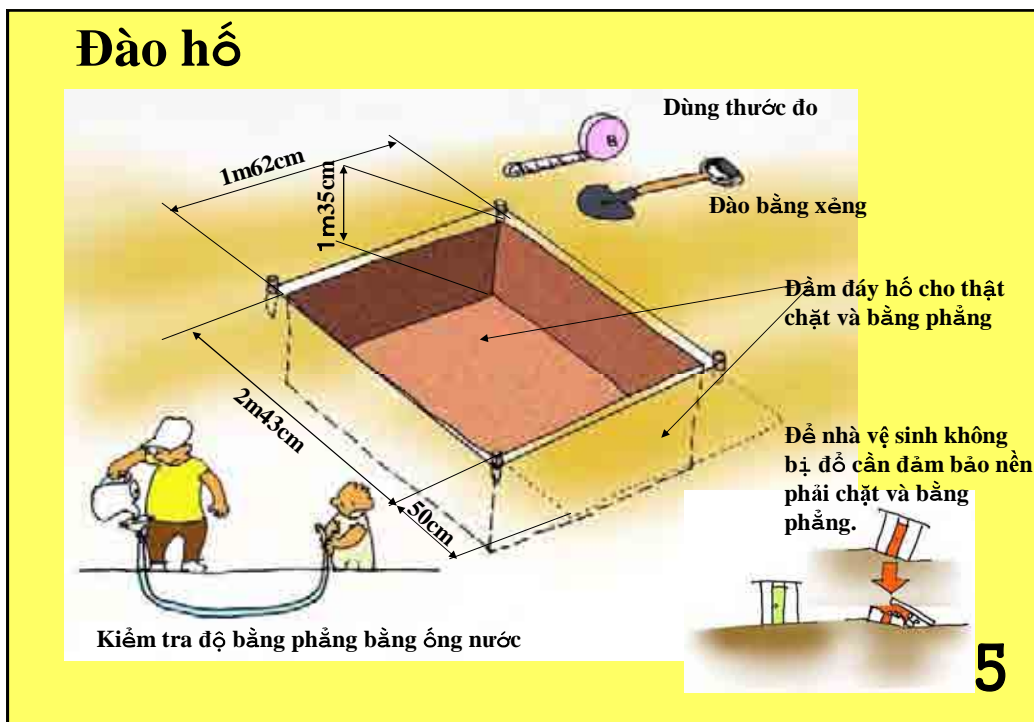
3

Bảng nguyên vật liệu

Tổng công việc nguyên vật liệu theo bản thiết kế xây dựng nhà vệ sinh tự hoại

Danh mục	Số lượng	Đơn vị	Danh mục	Số lượng	Đơn vị
Thê tích đá rậm	0.4	m ³	Ống cút (gắn trên ống thoát khí)	1	cái
Xi măng	0.5	m ³	Vật gá có	1	bộ
cát	0.4	m ³	Lưới bọc trên đầu ống thoát khí	1	bộ
sỏi	0.2	m ³	Ống dẫn nước tiểu	1	m
diện tích vữa chát (Tường trong và ngoài)	33	m ²	Ống cút (90°)	2	cái
diện tích vữa chống thấm (trong bể phốt)	18	m ²	Diện tích gạch ốp	5	m ²
gạch	1200	viên	Diện tích vôi quét bê xi	12	m ²
cốt thép (đường kính 8mm)	46	m	Già treo giấy vệ sinh	1	bộ
vật liệu phụ trợ dùng cho bê tông sàn	1	bộ	Đèn điện	1	bộ
Tấm lợp mái (1.2m x 1.8m)	1	bộ	Dây điện	1	bộ
Vật tư làm mái (tre)	9	m	Công tác	1	bộ
Dây thép để buộc	1	bộ	Vòi nước rửa	1	bộ
Đinh	1	bộ	ống dẫn nước rửa	1	bộ
Cửa 70cm x 2m (gỗ)	1	cái	Nắp hồ	3	bộ
Bản lề cửa, tay nắm...	1	bộ	Xô hoặc két đựng nước tiểu	1	cái
ống thoát khí	2.7	m			

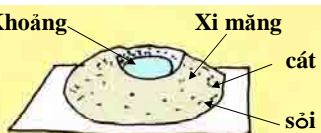
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Đổ bê tông sàn

1. Trộn đều xi măng và cát
2. Cho sỏi nhỏ vào và trộn đều lại
3. Tạo một hố ở giữa, cho nước vào từ từ và trộn đều (Không quá ướt hoặc quá khô)

Nước (Khoảng 20%)



Trộn đều từ trong ra ngoài



Trộn bê tông trên tấm kim loại và gạch



nước Xi măng cát sỏi

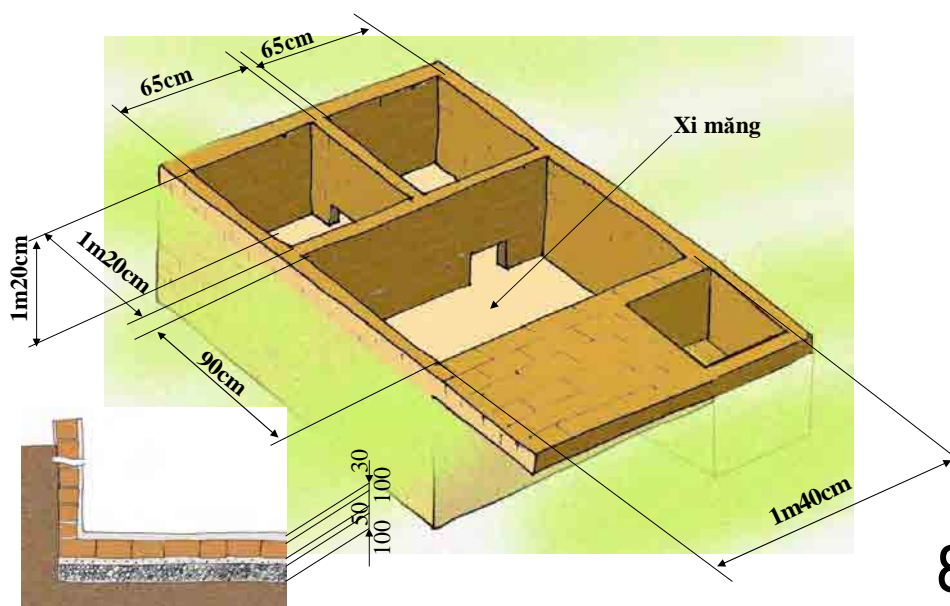


Bay

Bê tông (đáy hố và sàn) Xi măng:cát:sỏi=1:3:6
 Vữa (Trát tường và xây gạch) Xi măng:cát = 1:3

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Xây tường ngăn giữa các bể bên trong hố bằng gạch



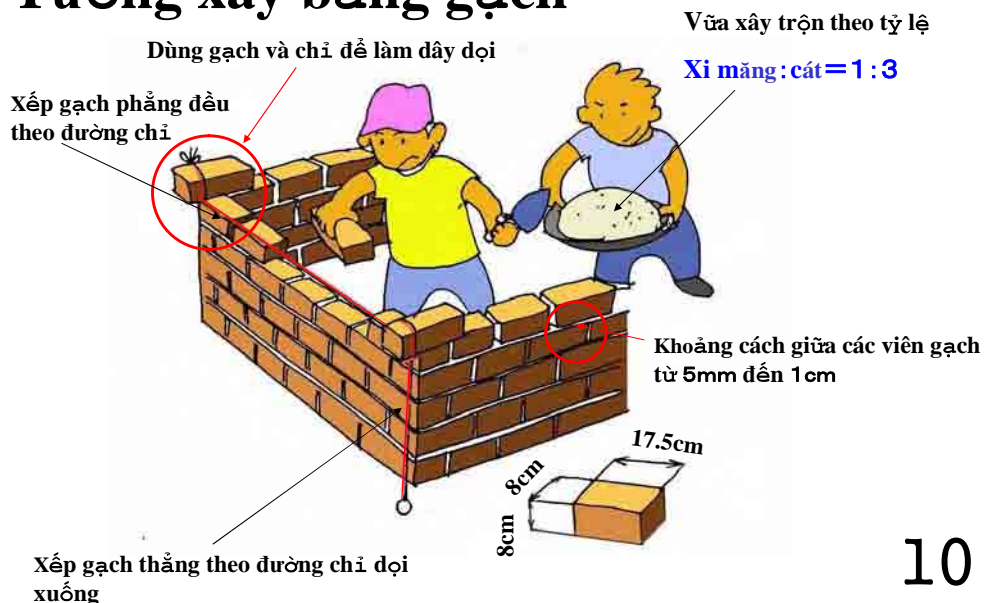
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Kỹ thuật xây tường



9

Tường xây bằng gạch

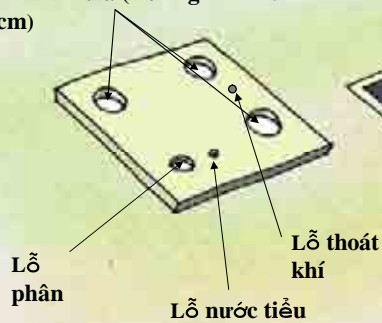


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Đổ bê tông và trát vữa

② Đổ bê tông sàn ở gần hồ bê phốt

Lỗ kiểm tra (Đường kính 45 cm)



Lỗ phân

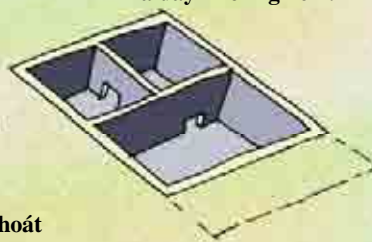
Lỗ nước tiêu

Lỗ thoát khí

Độ dày bê tông sàn là 6.0cm

①-1 Trát một lớp vữa toàn bộ bề mặt bên trong bể.

①-2 Trát một lớp vữa chống thấm nửa dày khoảng 1cm.

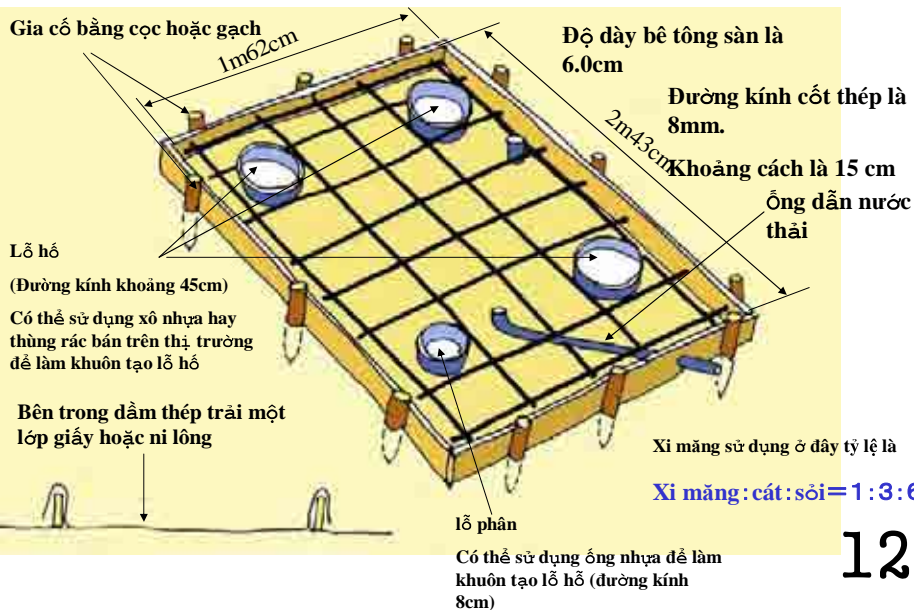


③ Khi bê tông sàn khô, thì bê đặt lên miệng hồ. Cần 8~ 10 người để bê.

Khi bê cần chú ý kéo bị thương

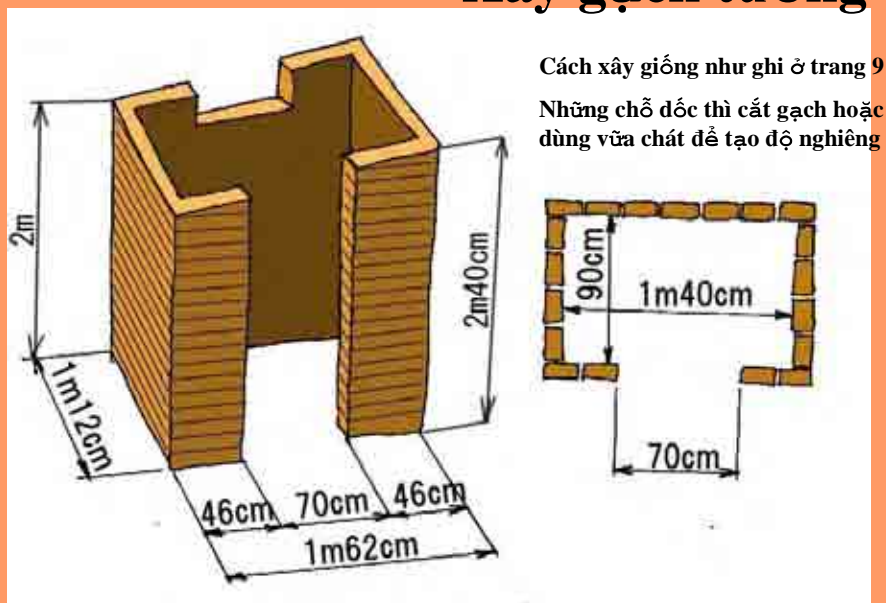
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Đan dầm thép để tạo cốt đổ bê tông



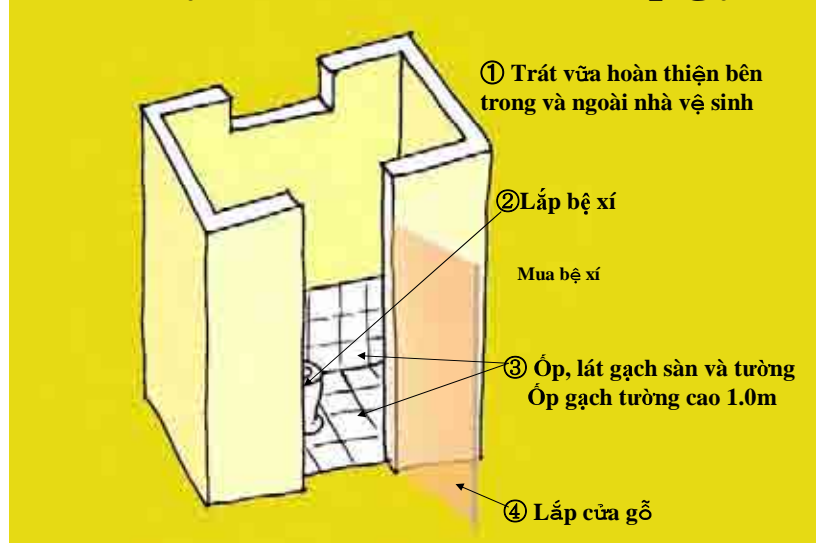
12

Xây gạch tường

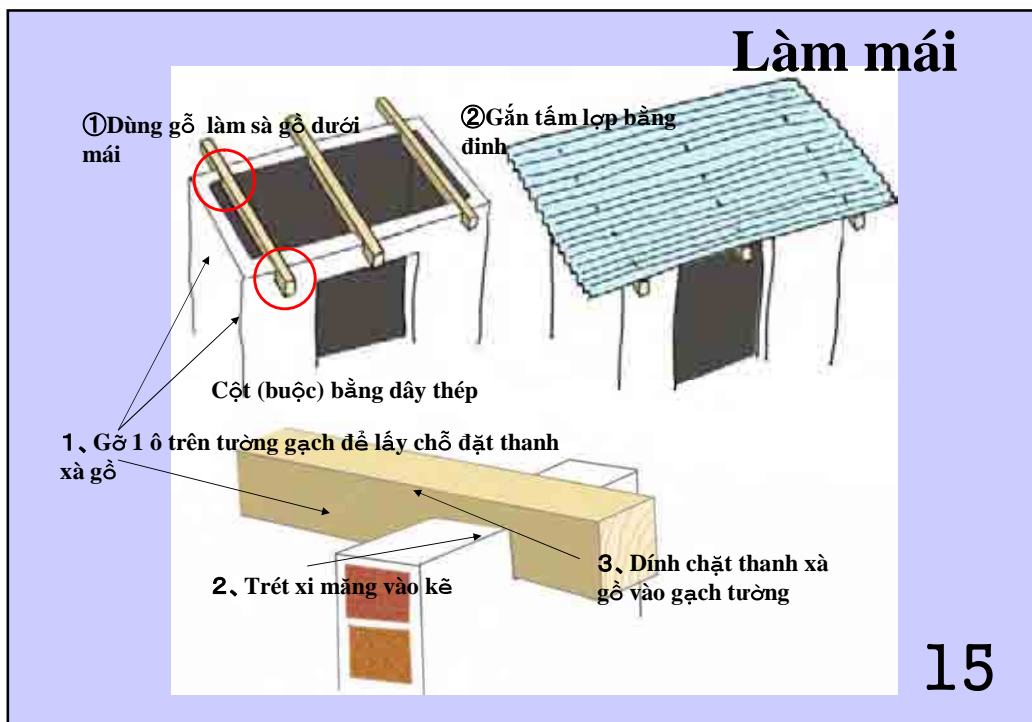


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Hoàn thiện Quét vôi và lát, ốp gạch



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Cách sử dụng nhà vệ sinh - 1



Vệ sinh bằng nước

Bỏ giấy vệ sinh
vào thùng rác

Hãy thường xuyên
cọ rửa cẩn thận

Đốt giấy vệ sinh đã sử
dụng



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Cách sử dụng nhà vệ sinh - 2



Hoà loãng nước tiểu, tưới ra vườn, ruộng.

Van khóa nước nổi phía trên luôn phải khóa Hút phân bằng xe hút hầm

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ANNEX-6 Presentation in IWA Seminar

PHỤ LỤC 6: Tham luận tại hội thảo IWA

Model Sanitation Program in Vietnam

Dissemination of the new model toilet

TOHDA Naoto
SATO Yurai
JICA STUDY TEAM

JICA Study Team on Groundwater Development in the Rural Provinces of the Southern Coastal Zone in the Socialist Republic of Vietnam

Contents

- Introduction: **Issues on rural sanitation**
- **Model sanitation program under the JICA Study**
- **Recommendations on improvement of rural sanitation**
- Conclusion

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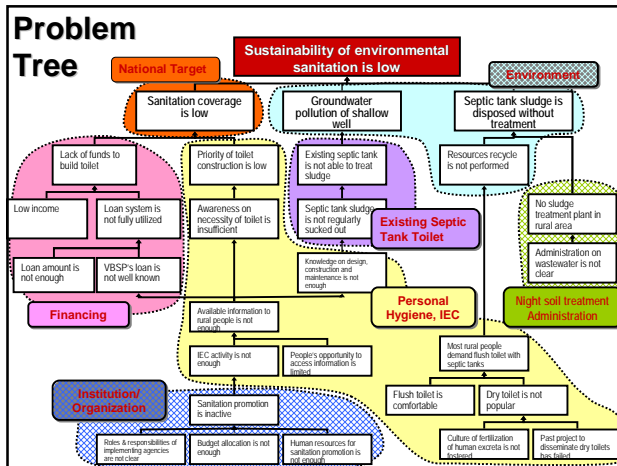
1. Introduction

Issues on rural sanitation:

1. **Sanitation coverage is low**
2. **Institution and organization in provincial level is weak**
3. **Personal hygiene is insufficient**
4. **Lack of funds to build sanitation facility**
5. **Groundwater pollution by effluent from septic tank**
6. **Poor administration for night soil treatment**
7. **Environmental degradation by untreated sludge disposal**

Sustainability of environmental sanitation is low

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Growing issue -1: Septic tank effluent

- Existing septic tank doesn't treat sludge
- Effluent pollutes groundwater (domestic water source)
- Most people aren't aware of the fact



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Septic tank sludge and effluent quality

	Septic tank sludge	Effluent	Effluent standard (Japan)
Fecal coli. (nos/100mL)	93 x 10 ⁵	2100 x 10 ⁵	3.0 x 10 ⁵
BOD (mg/L)	1 387	691	20
COD (mg/L)	1 900	965	120
SS (mg/L)	4 613	2 208	50
Nitrogen (mg/L)	829	795	60

- Water sample: Nguyen Tri Secondary School, Cam An Bac commune, Khanh Hoa
- Effluent standard (Japan):
 - Water pollution control law, Japan (Fecal coli., COD, Nitrogen)
 - Septic tank law, Japan (Fecal coli., BOD, SS)

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Growing issue -2: Untreated sludge disposal

- ❑ There is no night soil treatment plant in rural area
- ❑ Collected septic tank sludge is untreated and disposed into field
- ❑ Environmental degradation



Sludge disposal site (Khanh Hoa province)

2. Model Sanitation Program under the JICA Study

- ❑ Objective
- ❑ Target communes, schools and toilet type
- ❑ Design Concept
- ❑ School toilet
- ❑ School garden
- ❑ Sanitary education and IEC
- ❑ Monitoring of the program
- ❑ Construction Cost

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2-1 Objective

- ❑ To find out better **approaches toward sanitary improvement**, by provision of **model sanitation toilet and sanitary education** to the target schools
- ❑ Approach:
 - Dissemination through **school education**
 - Introduction of new **urine-feces separation type toilet** (dry/septic tank)
 - Dissemination of **resource recycling of human excreta** as fertilizer to school garden
 - Collaboration with CERWASS, MOH/DOH in **IEC activity**
 - Recommendations from **lessons learned**

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2-2 Target communes, schools and toilet type

Commune / Province	Place	Type
Suio Bac (Phu Yen)	Primary, secondary and three demonstrations	DVCL
Cam An Bac (Khanh Hoa)	Secondary and three demonstrations	Septic Tank
Cong Hai (Ninh Thuan)	Primary and three demonstrations	Septic Tank
Moung Mang (Binh Thuan)	Primary and three demonstrations	Septic Tank

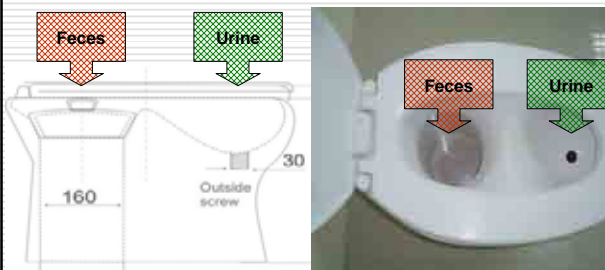
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2-3 Design concept

- ❑ To be **ecological** by **resource recycling** of excreta as fertilizer
- To be **ecological** by **mitigating groundwater pollution** from septic tank effluent
 - **Urine-feces separation type**
- ❑ To be **comfortable** and friendly for anybody
 - **Chair type stool**
- ❑ To provide **options** to be chosen by customers
 - **Dry and pour flush with septic tank types**
- ❑ To be **reasonable price**
 - **Stool made in Vietnam (USD 45.-)**

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Chair type toilet stool (Dry Type)



- ❑ Teachers' toilet and demonstration (residents) toilet in Phu Yen province

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Chair type toilet stool (Pour Flush with Septic Tank)

Teachers' toilet and demonstration (residents) toilet in Khanh Hoa, Ninh Thuan and Binh Thuan provinces

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2-4 School Toilet

For Teachers

Female

Male

Hand washing basin

Chair type urine-feces separation toilet stool

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2-4 School Toilet

For Students

Students shall:
 ✓ urinate in urine space
 ✓ excrete feces in booth
 To separate urine from feces

Keep dry

Septic tank

Feces booth

Urine space

Girls

Boys

Hand washing basin

Urine tank

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2-4 School Toilet

Photos

Feces booth (Pour Flush)

Feces booth

Urine space

Feces booth (DVCL)

Urine space (for girls)

2-5 School garden: resource recycling

Washing water

Rain water

Excreta

Flushing water

Flush toilet

Separation

Urine

Feces

Store

Treatment, Disposal

Dilution

Disinfection

Ash

Dry toilet

School garden

Fertilizer

Fertilizer

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2-5 School Garden

- Urine with hand-washing and rain water flows by gravity
- Diluted urine (as fertilizer) is penetrated into the field through perforated pipes
- Dry feces to be used (case of dry toilet)


Garden

Underground perforated pipe


Cong Hai Primary School (Under Construction)

2-5 School Garden (Crops)

- Pumpkin field






- Crops (Pumpkin)



Primary School in Moug Mang (Binh Thuan Province) 19

2-5 School Garden (Crops)

- Rice
- Bean
- Corn

Primary School in Moug Mang (Binh Thuan Province)
Cam An Bac (Khanh Hoa Province) 20

2-6 Sanitary Education and IEC

- Sanitary education to students
 - Educational posters for students
 - Posters to instruct how to use toilet
- IEC materials for rural residents
 - Booklets for how to make toilets
 - ✓ Cartridge type dry toilet
 - ✓ Septic tank separating urine from feces
 - DVD video
 - ✓ Sanitation promotion (urine-feces separation)
 - ✓ How to build toilet

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2-6 Sanitary Education at primary school



2



2-6 One of posters: How to use toilet



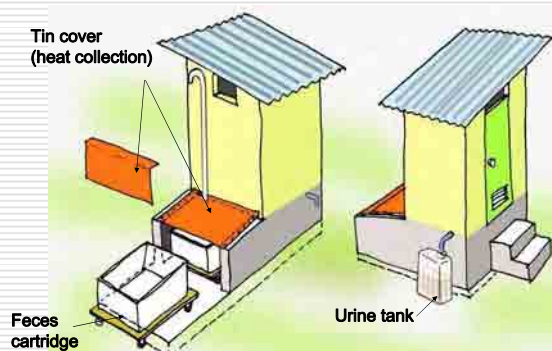
JICA 3

2-6 Booklet for how to make toilet

- Cartridge Type Dry Toilet
- Septic Tank Separating Urine from Feces

2-7 Monitoring-1: Cartridge type dry toilet



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2-7 Monitoring-1: Cartridge type dry toilet

□ Benefits:

- Small space, no bad smell and no insects
- Chair type stool is comfortable than squat type
- Diluted urine is sprinkled on farm land for fertilizing to vegetables and feces is drying under the sun
- Resources recycling
- Prevention of groundwater pollution

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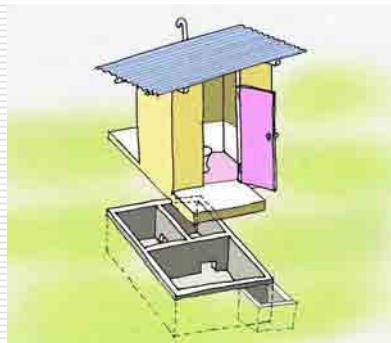
2-7 Monitoring-1: Cartridge type dry toilet

□ Difficulties/ Problems:

- Difficulty in getting wooden ash without help by students
 - Gas & electricity use is increasing
- Little difficulty in cleaning toilet (feces hole) without water
 - Small amount of misty water is accepted
- Water intrusion by rain and flooding
 - Results in failure of composting
 - Generation of bad smell
- In case toilet for public use (e.g. school toilet), without practice of keeping toilet clean, chair type stool is not used.
 - Squat type is used more than dirty chair stool
 - Personal use is kept clean by owner.

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2-7 Monitoring-2: Pour flush with septic tank



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2-7 Monitoring-2: Pour flush with septic tank

□ Benefits:

- Urine separation works well
 - Rich nutrient contents: good fertilizer
 - Easy to use: only water dilution is required
 - Mitigating groundwater pollution: e.g. 88% of Nitrogen removed from excreta
 - Less water consumption: flushing only after defecation
- Very comfortable as conventional pour flush toilet
 - No bad smell
 - Chair stool is friendly for aged and handicapped people
- Difficulties / Problems:
 - Necessity of water supply is often overlooked: no water and no use.
 - In case that teachers are not interested in school garden, diluted urine is not used for fertilizing farm products

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2-7 Monitoring-2: Pour flush with septic tank

□ Vacuum car fee

Demonstration toilet tank volume: 3.8 m³

Teachers' toilet tank volume: 9.4 m³

Students' toilet tank volume: 15.1 m³

- Can people pay vacuum car fee?
- Who pay vacuum car fee of schools?
- If people can't pay vacuum car fee, is dry toilet selected by them?

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Importance of urine-feces separation

- The three major nutrients of **nitrogen, phosphorus and potassium** are contained more in **urine** rather than in feces
- Urine collection contributes to prevent **nitrate pollution** to groundwater and other environmental problems

Nutrient	Urine (g/person/day)	Feces (g/person/day)
Nitrogen (N)	11	1.5
Phosphorus (P)	1	0.5
Potassium (K)	2.5	4

(Source) "A Proposal of Advanced Sanitation System and Attempts to Improve Vietnam Sanitation", Hidenori Harada, 2007

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Value of excreta as fertilizer

- **Human excreta** can be recycled to use as **organic fertilizer**, which revitalizes degraded lands
- To enable the sustainable use of **limited resources of phosphorus**

Value of excreta as fertilizer

Assumptions:

- ✓ A family of 6 persons
- ✓ All nutrient is collected by toilet
- ✓ Price of fertilizer in Japan (2006)

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2-8 Construction Cost

- Chair type urine-feces separation stool: **45 USD**
 - It was produced as a **prototype** (firstly introduced in Vietnam)
 - It **isn't sold in market**
 - Production cost **doesn't include profit margin** of distributors
 - **Mass production & distribution** reduces cost
- **Construction cost:**
 - Cartridge type dry toilet: Approx. **USD 500**
 - Pour flush with septic tank toilet: Approx. **USD 600**
 - If toilet is installed **in house**, construction cost becomes **half**

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3. Recommendations on Improvement of Rural Sanitation

- Establishment of **Provincial Taskforce**
- Raising Personal Hygiene through **IEC**
- Dissemination of **New Model Toilet**
- **Financial Support**
- **Night Soil Treatment**

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3-1 Establishment of Provincial Taskforce

- Cross-sectoral taskforce in provincial level recommended

Member	DARD (leading agency), P-CERWASS , DOH , DOET , DONRE , DPC , etc.
Main functions	<ul style="list-style-type: none"> • Policy formation: discussion of priority subject and decision making • Needs identification and analysis: monitoring knowledge, attitude and practice (KAP) • Cooperation with local authorities: information sharing with DPC and CPC • Implementation of pilot project • Support to grass-roots activity

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3-2 Raising Personal Hygiene through IEC

Proposed activity:

- **P-CERWASS fosters IEC specialists** (training by N-CERWASS)
- **P-CERWASS provides training for local motivators**
- **Collaboration** with related organizations to IEC activity (DOH, health workers, schools, mass media, etc.)
- Ensuring **supportive working conditions** for IEC motivators
- **Public announcement** through mass media
- **Public awareness campaign event**

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3-3 Dissemination of New Model Toilet

Issues for dissemination:

- Design approval by MOH:**
 - The new model toilet is in progress for approval by MOH
- Commercialization of the new stool:**
 - Manufacturing and market system should be developed.
- Cost reduction (prototype stool cost: USD45)**
 - Mass production, financial subsidy can reduce cost.
- Advertisement and public information:**
 - Advertisement, technical guidance, information on hygienic and ecological benefits should be provided to rural people
- Long time to disseminate:**

3-4 Financial Support

Proposed activity:

- Advertisement and public information**
- Increasing loan amount:**
 - to be VND 6-8 million (currently max. VND 4million)
- Provision of technical guidance by P-CERWASS:**
 - Appropriate technical options, construction skills, how to use and maintain toilet properly
- Incentive strategy:**
 - E.g. premium financial support for urine-feces separation toilet, for ecological contribution
- Cost reduction:**
 - Standardization of design, bulk-purchasing by beneficiary groups
- Technical evaluation and monitoring for transparency and sustainability**

3-5 Night Soil Treatment

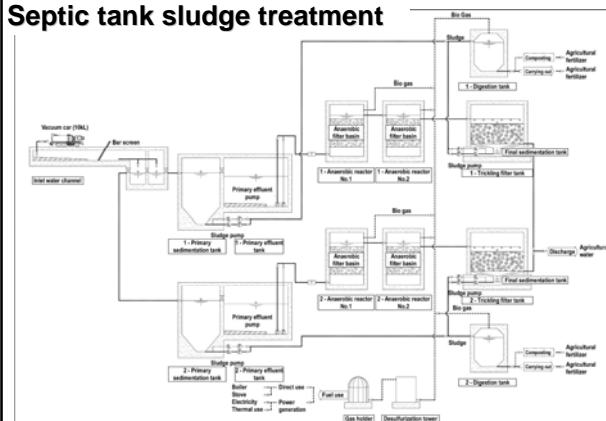
- Formation of **institutional framework** for environmental administration on night soil treatment and disposal
- Night soil treatment system:**
 - Construction of treatment plant & procurement of vacuum cars
 - O&M treatment plant

Case study on septic tank sludge treatment plant:

- Approx. 620,000 rural people
- Septic tank sludge volume: 1,800 m³/day
- BOD: 3,400 mg/L (inlet) → 20 mg/L (treated)
- Treatment process: Anaerobic reactor and trickling filter method
- Digestion gas: 650 m³-methane gas/day (reduction of GWG)

Process flowchart:

Septic tank sludge treatment



4. Conclusion

- In addition to increasing **sanitation coverage**, measures should be taken to growing **environmental issues** (septic tank effluent, night soil treatment).
- Dissemination of **new type urine-feces separation toilet** is recommended.
 - Many benefits are found out
 - Some issues should be solved (O&M, cost, commercialization, etc.)
- More efforts** for sanitary promotion are needed by cross-sectoral collaboration in all levels.

Appreciate your time

Let's continue further activities on sanitary improvement

ANNEX-7 Monitoring Check Sheet

PHỤ LỤC 7: Phiếu theo dõi

Monitoring Sheet of Suoi Bac in Phu Yen 1

School name: Truong Tieu Hoc Primary School

Good: 3pts, Marginal: 2pts, Bad: 1pt.

User	Item	Date															
		03	04/08	05/08	06	09/08	10/08	11/08	12/08	01/09	02/09						
Students	A1	28	7	21	7	21	9	12	30	13	16	1	17	2	17	1	17
	A2	3	3	3	3	-	-	3	3	3	3	3	3	3	3	3	3
	A3	3	3	1	1	-	-	2	2	2	2	2	2	2	2	2	2
	A4	3	3	2	2	-	-	2	2	2	2	2	2	2	2	2	2
	A5	3	3	3	3	-	-	3	3	3	3	3	3	3	3	3	3
	A6	3	3	3	3	3	3	3	-	-	-	2	2	2	2	2	2
	A7	2	2	2	2	3	3	3	3	3	3	2	2	2	3	2	2
	A8	3	3	3	3	3	3	3	-	-	-	3	3	3	3	2	3
	A9	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	A10	2	3	2	2	3	3	3	2	2	2	2	2	2	2	2	2
	A11	2	3	2	2	3	3	3	2	2	2	2	2	2	2	2	2
Teachers	B1	3	3	2	2	3	3	2	2	2	3	3	-	2	2	2	
	B2	3	3	3	3	3	3	-	-	-	3	3	3	3	3	3	
	B3	3	3	2	2	3	3	3	3	3	3	3	3	2	2	2	
	B4	2	2	2	2	3	3	2	2	2	2	2	2	3	2	2	
	B5	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	
	B6	3	3	3	2	3	3	3	3	3	3	3	3	3	2	2	
School garden	B7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	B8	3	3	3	2	3	3	3	3	3	3	3	3	2	2	2	
	C1	-	2	-	-	-	-	3	3	3	1	1	1	1	1	1	
	C2	-	2	-	-	-	-	-	-	-	1	1	1	1	1	1	
	C3	-	2	-	-	-	-	-	-	-	1	1	1	1	1	2	
	C4	-	2	-	-	-	-	-	-	-	1	1	1	1	1	1	
	C5	-	2	-	-	-	-	-	-	-	1	1	1	1	1	2	

Monitoring Sheet of Suoi Bac in Phu Yen 2

School name: Truong Trung Hoc Secondary School

Good: 3pts, Marginal: 2pts, Bad: 1pt.

User	Item	Date															
		03	04/08		05/08		06	09/08		10/08	11/08		12/08	01/09	02/09		
Students	A1	28	7	21	7	21	9	12	30	13	16	1	17	2	17	1	17
	A2	3	3	2	2	-	-	3	3	3	3	3	3	3	3	3	3
	A3	2	2	1	1	-	-	2	2	2	2	2	1	2	1	2	2
	A4	2	1	1	1	-	-	2	2	2	2	2	2	2	2	2	2
	A5	3	3	3	3	-	-	3	3	3	3	3	3	3	3	3	3
	A6	3	3	2	2	3	3	3	2	3	3	2	2	1	2	2	2
	A7	1	1	1	1	3	3	3	2	2	2	2	2	2	2	2	2
	A8	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3
Teachers	A9	2	2	2	2	3	3	2	2	2	2	2	2	2	1	2	2
	A10	2	2	2	2	3	3	2	2	2	2	2	2	2	1	2	2
	A11	3	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2
	B1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	B2	1	2	1	1	3	3	3	3	3	3	2	2	2	2	2	2
	B3	3	3	2	2	3	3	3	3	3	3	2	2	3	2	2	2
	B4	1	3	1	1	3	3	3	3	3	2	2	2	2	3	2	2
	B5	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3
School garden	B6	3	3	2	2	2	2	3	3	3	3	3	-	2	3	2	2
	B7	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	2
	B8	3	3	2	2	3	3	-	-	-	2	2	2	2	2	2	2
	C1	-	2	-	-	-	-	3	3	3	1	1	1	1	1	1	1
	C2	-	2	-	-	-	-	-	-	-	1	1	1	1	1	1	1
	C3	-	2	-	-	-	-	-	-	-	1	1	1	1	1	1	2
	C4	-	2	-	-	-	-	-	-	-	1	1	1	1	1	1	1
	C5	-	2	-	-	-	-	-	-	-	1	1	1	1	1	1	1

Monitoring Sheet of Cong Hai in Ninh Thuan

School name: Truong Tieu Hoc Primary School

Good: 3pts, Marginal: 2pts, Bad: 1pt.

User	Item	Date																		
		03/08	04/08	09/08	10/08	11/08	12/08	01/09	02/09	03/08	04/08	09/08	10/08	11/08	12/08	01/09	02/09			
Students	A1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
	A2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
	A3	3	3	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
	A4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	A5	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	
	A6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	A7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	A8	3	3	3	3	3	3	-	-	-	1	1	2	3	3	3	3	3	1	2
	A9	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2
Teachers	B1	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	3	2	1	
	B2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	
	B3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	1	2	
	B4	3	3	3	3	3	3	3	3	3	2	2	2	2	2	-	2	2	1	
	B5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	B6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
School garden	C1	2	3	2	2	1	1	1	1	3	1	1	1	1	1	1	1	1	1	
	C2	2	2	2	2	3	3	3	3	1	1	1	1	1	1	1	1	1	1	
	C3	2	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	
	D1	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Demonstration 1 CPC	D2	3	3	3	3	3	3	3	3	-	2	2	3	3	3	3	3	2	3	
	D3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	
	D4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	D1	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Demonstration 2	D2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	D3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	-	2	2	3	
	D4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	-	3	3	3	
	D1	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	
Demonstration 3	D2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	D3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	
	D4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	D1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	

Monitoring Sheet of Muong Mang in Binh Thuan

School name: Truong Tieu Hoc Primary School

Good: 3pts, Marginal: 2pts, Bad: 1pt.

User	Item	Date																							
		03/08		04/08		05/08		09/08		10/08		11/08		12/08		01/09		02/09							
		15	31	15	29	15	30	15	30	15	31	15	31	16	31	15	30	15	30						
Students	A1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	A2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	A3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	A4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	A5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	A6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2						
	A7	2	2	2	2	1	1	2	2	1	1	1	1	2	2	1	1	1	1						
	A8	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	A9	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	-	3						
Teachers	B1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	B2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	B3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	B4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	B5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	B6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	C1	2	2	2	2	3	3	2	2	2	2	3	3	-	-	2	2	2	2						
	C2	3	3	3	3	3	3	3	3	3	3	3	3	-	-	3	3	3	3						
	C3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	3	3	3	3						
Demonstration 1	D1	-	-	-	-	3	3	3	3	-	-	3	3	3	3	3	3	3	3						
	D2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	D3	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	3	3						
	D4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3						
Demonstration 2	D1	2	2	-	-	3	3	2	2	-	-	3	3	3	3	3	3	3	3						
	D2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	D3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3						
	D4	3	3	2	2	3	3	3	3	2	2	2	2	3	3	3	3	3	3						
Demonstration 3	D1	2	2	-	-	2	2	-	-	2	2	-	-	-	-	3	3	-	-						
	D2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3						
	D3	2	2	2	2	3	3	3	3	2	2	2	2	3	3	2	2	3	3						
	D4	3	3	3	3	3	3	3	3	2	2	2	2	3	3	2	2	3	3						

ANNEX-8 Carte of Toilet

PHỤ LỤC 8: Hồ sơ nhà vệ sinh

Carte of Toilet: School-1

Basic Information	Creation date	2008/12/1		
	Serial No.	P7-Sch-Pry		
	Name of user/Representative	Principal of the primary school		
	Location	Suoi Bac commune in Phu Yen		
	Type of toilet	DVCL		
	Number of users	Students:610, teachers:40		
	Date of commission	2008/3/4		
	Ethnic composition of the commune	Kinh:70%, Cham Hroi:20%, others:10%		
Conditions of site	CPC president decided DVCL type toilet opposed to teachers wishes			
Instruction to users	To get ash helped by students (2008/3/4) To use urine pit in feces booth in case of emergency (2008/3/4) Not to use both vaults at same time (2008/3/4) To fertilize diluted urine for vegetables in school garden(2009/2/11)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Teachers don't use new toilet but use old toilet Cleaning isn't done well	Both male and female students are using well	No smell in teachers' booths. Female teachers' stools are dirty.	
Fertilization of urine/compost	Not fertilizing	Seeds from Japan weren't grown here	Not fertilizing Vegetable seeds were given to school	
Comments of users	Toilet paper was prepared by school for only three months It is difficult to get ash	Little leakage from elevated tank Sometimes no ash, firewood usage is decreasing	Being satisfied with those toilets. All students using new toilets.	
Findings	It seems teachers dislike new type toilet, therefore they aren't interested in cleaning toilet vases. Teachers aren't interested in fertilizing diluted urine to vegetables.			

Carte of Toilet: School-2

Basic Information	Creation date	2008/12/1, 2009/2/11		
	Serial No.	P7-Sch-Sec		
	Name of user/Representative	Principal of the secondary school		
	Location	Suoi Bac commune in Phu Yen		
	Type of toilet	DVCL		
	Number of users	Students:411, teachers:26		
	Date of commission	2008/3/4		
	Ethnic composition of the commune	Kinh:70%, Cham Hroi:20%, others:10%		
Conditions of site	CPC president decided DVCL type toilet opposed to teachers' wishes			
Instruction to users	Don't use both vaults at same time (2008/3/4) To prepare ash bucket in feces booths (2008/3/4) Teachers must use this type toilet (2008/11/12)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Only one booth is used for teachers Only one booth is used for students	Both vaults are being used at same time. Female teachers don't want to use toilet. The booth was locked.	All toilet booths of teachers and students are locked. Nobody can use the booths. Teachers' toilet is dirty.	
Fertilization of urine/compost	Not fertilizing The school explained that school garden is not suitable because of poor and thin soil condition.	Not fertilizing	Not fertilizing Teachers don't show interest	
Comments of users	Ash is enough helped by students Sometimes no ash	Rain water intrusion Generating bad smell Interchange garden soil soon	The principal teacher will change soon. President of CPC said old toilet should be demolished.	
Findings	Teachers and students have hated toilet since rain water intrusion to feces vault Water intruded from small space of wooden cover due to intensive heavy rain. Especially female teachers don't like the model toilet (2008/11/12) DVCL cannot be shared by teachers and students comfortably. Water tightness must be secured for feces vault to prevent water intrusion.			

Carte of Toilet: School-3

Basic Information	Creation date	2008/12/1, 2009/2/9		
	Serial No.	K1-Sch-Sec		
	Name of user/Representative	Principal of the school of K1		
	Location	Cam An Bac commune in Khanh Hoa		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	Students:640 teachers:29		
	Date of commission	2008/2/25		
	Ethnic composition of the commune	Kinh:100%		
Conditions of site	<p>Since new dug well was installed near the toilet by JICA Study team, they can get water in dry season.</p> <p>Only students' toilet was constructed as teachers' was newly constructed.</p>			
Instruction to users	<p>To dilute urine for fertilizing vegetables. (2008/5/15)</p> <p>To prepare waste paper basket in the booth (2008/5/15)</p> <p>To repair roof fan of male toilet because of bad smell. (2008/11/10)</p>			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Separation urine from feces is going well by students but sometimes not well. No basket in feces booths	Cleaning is done by student everyday. Students using it comfortably	Bad smell is resolved in boys' urine booth because of repairing the roof fan by school.	
Fertilization of urine/compost	Not fertilizing	Started fertilizing to grow corn and pumpkin by diluted urine	Continue fertilizing Corn and pumpkin was harvested.	
Comments of users	Rain water is leaking from ceiling Washing water is pooled on the floor	Little smell & not clean in male urine booth (one roof fan is not function)	Need to repair hoses for flushing urine trough. The garden provides educational effects to students.	
Findings	<p>Students are using toilet properly with comfort.</p> <p>Sucking sludge must be done proper interval.</p> <p>The school principal is interested in school garden and cooperative to the Team.</p>			

Carte of Toilet: School-4

Basic Information	Creation date	2008/12/1, 2009/2/10		
	Serial No.	N2-Sch-Pry		
	Name of user/Representative	Principal of the primary school of N2		
	Location	Cong Hai commune in Ninh Thuan		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	Students:543, teachers:34		
	Date of commission	2008/2/26		
	Ethnic composition of the commune	Kinh:33%, Raglay:67%		
Conditions of site	New well was constructed near the toilet by school in December 2007. They couldn't use Toilet because of no electric power line of their own. Since new electric power line was installed, they could pump up well water and restarted using toilet (2009/1/10)			
Instruction to users	To use toilet by preparing water buckets and dippers in each feces booth if they cannot get water but they aren't (2008/5/15) To practice fertilizing (2009/2/10)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Toilet was used only for a few weeks. Stopped to use because of no water in elevated tank due to low electric power.	Since electric power is low, pump cannot send water to elevated tank. Toilet hasn't been used.	New power line was installed (2009/1/5) Teachers' toilets are dirty Some teachers never use this toilet. Students use well	
Fertilization of urine/compost	Not fertilizing	Not fertilizing Teachers aren't interested in fertilizing	Not fertilizing Teachers not interested in fertilizing	
Comments of users	New electric line must be installed, but no budget	New power line will be installed till December. (11/11)	Try to grow vegetables till June 2009 by using seeds given by the Team.	
Findings	It seemed school doesn't need toilet for teachers and students Even if they don't have toilet in their school, they can run education. Non of teachers is interested in fertilizing diluted urine for farm land			

Carte of Toilet: School-5

Basic Information	Creation date	2008/12/1, 2009/2/12		
	Serial No.	B1-Sch-Pry		
	Name of user/Representative	Principal of the primary school		
	Location	Moung Man Commune in Binh Thuan		
	Type of toilet	Urine-Feces Separation Type Pour Flush with Septic tank		
	Number of users	Students: 518, teachers: 27		
	Date of commission	2008/3/5		
	Ethnic composition of the commune	Kinh:99%, Cham and Giarai:1%		
Conditions of site	Since new deep well constructed near the toilet by JICA Study team, they can get water in dry season			
Instruction to users	To sprinkle diluted urine to school garden (2008/3/5) School keepers must help students for cleaning toilets (2008/3/10) To suck up sludge from the tank. (2009/2/12) To repair the clogged urine trough (2009/2/12)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Students and teachers using well	Students and teachers using well Little smell in urine place	Smell in urine place of boys' toilet because of clogging of urine trough	
Fertilization of urine/compost	Fertilizing diluted urine Pumpkin are growing on garden (5/19)	Fertilizing diluted urine Bean and rice are growing on garden (11/13) Harvest will be soon	Fertilizing diluted urine Beans are growing	
Comments of users	Water is pooled on the floor Flushing hose is needed	Toilet paper is prepared by school Ass washing shower is used by students	Four vacuum cars cost is VND 2 million but not yet full.	
Findings	As school keeper is working well for toilet and garden, toilets are always clean and school garden has many kinds of crops. They understand that school has to pay vacuum car fee and they can pay it. But they think that it is not necessary yet because the tank is not full.			

Carte of Toilet: Demonstration-1

Basic Information	Creation date	2008/12/1, 2009/2/11		
	Serial No.	P7-Rst-1		
	Name of user/Representative	Pham Thanh Van		
	Location	Suoi Bac commune in Phu Yen		
	Type of toilet	DVCL		
	Number of users	5 persons		
	Date of commission	2008/3/4		
	Ethnic	Kinh		
Conditions of site	To use firewood for cooking Shallow well was near the toilet Vinyl sheet is provided by the Team to prevent water intrusion (2008/11/25)			
Instruction to users	To prepare a wooden ash bucket in the booth (2008/3/4) Never to put water into feces tank (2008/3/4) To change the vault to the other (2009/2/11)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using toilet well	Since intrusion of rain water to feces tank, they use it in dry season	A few mosquitoes and no fly.	
Fertilization of urine/compost	Not fertilizing Urine is just disposed to the farm land without dilution	Not fertilizing Urine is just disposed	Not fertilizing It is explained that urine is leaked into ground from the container	
Comments of users	Sometimes no ash	Prefer septic tank toilet to DVCL Toilet vase is dirty and bad smell	Want to change it to septic tank toilet	
Findings	Family members don't use toilet in rainy season because of bad smell caused by rainwater intrusion to the feces vault. They want to refurbish this type toilet to septic tank. They aren't interested in fertilizing urine to vegetables			

Carte of Toilet: Demonstration-2

Basic Information	Creation date	2008/12/1		
	Serial No.	P7-Rst-2		
	Name of user/Representative	La Ngoc Son		
	Location	Suoi Bac commune in Phu Yen		
	Type of toilet	DVCL		
	Number of users	5 persons		
	Date of commission	2008/3/4		
	Ethnic	Kinh		
Conditions of site	Firewood is used for cooking. Rain cover sheet is given by JICA Team (2008/11/25)			
Instruction to users	To prepare a wooden ash bucket in the booth (2008/3/4) Never to put water into feces tank. (2008/3/4) To change the vault to the other (2009/2/11)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using toilet well	Rain water intrusion from wooden cover, using during dry season	Using well, taking ash from kitchen not from the booth in the toilet	
Fertilization of urine/compost	Sometimes diluted urine sprinkling to land	The owners explained diluted urine sprinkling to farm land. But no crops were seen grown up.	Not fertilizing It is explained that urine is leaked into ground from the container	
Comments of users	Sometimes no ash	Excreting in open air during rainy season	Feces vault is not full Bringing ash from home every time	
Findings	Family members don't use toilet in rainy season because of bad smell caused by rainwater intrusion to the feces vault. Water tightness must be secured for feces vault to prevent water intrusion. They aren't interested in fertilizing urine to vegetables.			

Carte of Toilet: Demonstration-3

Basic Information	Creation date	2008/12/1, 2009/2/11		
	Serial No.	P7-Rst-3		
	Name of user/Representative	Pham Ngoc Hung		
	Location	Suoi Bac commune in Phu Yen		
	Type of toilet	DVCL		
	Number of users	5 persons		
	Date of commission	2008/3/4		
	Ethnic	Kinh		
Conditions of site	Firewood is used for cooking.			
Instruction to users	To prepare wooden ash in the booth (2008/3/4) Never to put water into feces tank (2008/3/4) When one feces tank becomes full, change the vault to the other.(2009/2/11)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using toilet well Enough knowledge of DVCL	Rain water intrusion from wooden cover Using clean stool No smell	Ash tank is equipped in the booth. No smell, mosquitoes nor flies was found (2009/2/11)	
Fertilization of urine/compost	Not fertilizing	Diluted urine sprinkling to farm land No crops	Just sprinkling urine to the ground (not fertilizing)	
Comments of users	One young boy never use toilet, excrete in open air	All family members using toilet.	Generally satisfied with this toilet.	
Findings	Family has enough knowledge about dry toilet. Family isn't interested in fertilizing diluted urine to vegetables.			

Carte of Toilet: Demonstration-4

Basic Information	Creation date	2008/12/1 2009/2/9		
	Serial No.	K1-Rst-1		
	Name of user/Representative	Tran Van Vinh		
	Location	Cam An Bac commune in Khanh Hoa		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	4 persons		
	Date of commission	2008/2/25		
	Ethnic	Kinh		
Conditions of site	Existing dug well was near the toilet			
Instruction to users	To clean toilet stool (2008/2/25) To sprinkle diluted urine to vegetables on farm land (2008/2/25) To use diluted urine for fertilizing (2009/2/9)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Preparing bucket and dipper near the toilet Little dirty	Toilet stool is clean	Toilet stool is clean	
Fertilization of urine/compost	Urine pipe was installed from tank to farm land by owner	Urine is diluted manually every time	Urine flows to farm land without dilution Effluent pipe is extended to farm land (wrong practice)	
Comments of users	Using conveniently	Toilet stool is too high for old age person Front roof is needed Not necessary to suck sludge	Using it comfortably Trying to fertilize flower in their garden	
Findings	The resident is thinking that sucking sludge is not necessary because he laid long effluent pipe to farm land. Although this is wrong practice, they don't understand effluent from the septic tank is awfully contaminated.			

Carte of Toilet: Demonstration-5

Basic Information	Creation date	2008/12/1, 2009/2/9		
	Serial No.	K1-Rst-2		
	Name of user/Representative	Nguyen Thi Tin		
	Location	Cam An Bac commune in Khanh Hoa		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	6 persons		
	Date of commission	2008/2/25		
	Ethnic	Kinh		
Conditions of site	They can get water in dry season Shallow well is near the toilet			
Instruction to users	To dilute urine for fertilizing vegetables (2008/2/25) To keep toilet clean (2008/2/25) To suck up sludge when the septic tank become full (2009/2/9)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	No water bucket in feces booth	No water tank in feces booth but keeping clean toilet	Toilet stool is clean	
Fertilization of urine/compost	Not fertilizing	Not fertilizing	Fertilizing urine for bananas and pumpkin	
Comments of users		Vegetable seeds from Japan wasn't grown Wish seeds of fruits or flowers from Japan	Trying to grow flower in their garden	
Findings	They became interested in fertilizing diluted urine for fruits and vegetables. New type toilet is used by all family members comfortably.			

Carte of Toilet: Demonstration-6

Basic Information	Creation date	2008/12/1, 2009/2/9		
	Serial No.	K1-Rst-3		
	Name of user/Representative	Bui Thi Phan		
	Location	Cam An Bac commune in Khanh Hoa		
	Type of toilet	Urine feces separated type pour flush with septic tank		
	Number of users	3 persons		
	Date of commission	2008/2/25		
	Ethnic	Kinh		
Conditions of site	They have a dug well from which they can get water in dry season Shallow well is near the toilet			
Instruction to users	To dilute urine for fertilizing vegetables (2008/2/25) To prepare a bucket and a dipper in the booth (2008/2/25)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	No water bucket in feces booth	Using clean toilet Water tank installed in feces booth	Toilet stool was little dirty	
Fertilization of urine/compost	Not fertilizing	Not fertilizing Seeds from Japan wasn't used yet	Fertilizing urine for tree in garden but just splashing without dilution	
Comments of users	Family willing to use toilet	Using it comfortably		
Findings	New type of toilet is used by all the family members They aren't much interesting in fertilizing diluted urine for vegetables. It may be quite difficult to suck up sludge when the septic tank becomes full because of lack of money.			

Carte of Toilet: Demonstration-7

Basic Information	Creation date	2008/12/1, 2009/2/10		
	Serial No.	N2-Rst-1		
	Name of user/Representative	President of CPC of N2		
	Location	Cong Hai commune in Ninh Thuan		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	35 to 40 persons		
	Date of commission	2008/10/20		
	Ethnic composition of the commune	Kinh:33%, Raglay:67%		
Conditions of site	<p>Since no piped water and well, water is bought by 40,000VND/m³</p> <p>Piped water will be supplied from the beginning of 2009</p> <p>Toilet was installed on rock ground, no farm land</p> <p>No toilet was around CPC building before</p>			
Instruction to users	<p>To use toilet by preparing water bucket and dipper in the booth (2008/5/15)</p> <p>To sprinkle diluted urine around trees and bushes (2008/11/11)</p>			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Not using the toilet, because of no water Staff use their houses' toilet	Since a lot of people using it, much water was consumed and it was awfully dirty	Toilet is locked to limit users only to the staff. New bigger toilet is under construction. (VND 60 million)	
Fertilization of urine/compost	Not fertilizing	Not fertilizing Just sprinkling urine to the ground	Not fertilizing Just sprinkling urine	
Comments of users	Don't use toilet till getting water	Prohibit visitors to use toilet for too much water consumption. Door is locked to limit to CPC staff	Both of JICA and new toilet will be used.	
Findings	<p>In the beginning the toilet was used by a lot of people because visitors to the open air market come to use. Later, CPC prohibited visitors to use because of big water consumption. But high demand of public use is there.</p> <p>CPC isn't interested in fertilizing diluted urine for vegetables and flowers.</p> <p>Considering that CPC is constructing new septic tank toilet, the importance of separation urine from feces isn't understood by CPC.</p>			

Carte of Toilet: Demonstration-8

Basic Information	Creation date	2008/12/1, 2009/2/10		
	Serial No.	N2-Rst-2		
	Name of user/Representative	Kator Tai		
	Location	Cong Hai commune in Ninh Thuan		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	3 persons		
	Date of commission	2008/2/26		
	Ethnic	Ragley		
Conditions of site	To Prepare a water bucket and a dipper in the toilet booth (2008/2/26) They can get water in dry season.			
Instruction to users	To use urine for fertilizing to vegetables (2008/2/26) To suck up sludge when tank is full (2008/11/11) Effluent pipe must be closed and use toilet (2009/2/10) To empty the septic tank and close the valve of effluent pipe (2009/2/10)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using clean toilet	Toilet is clean, but it is not used for defecation. It is used for bathing or washing clothes	Family don't use to defecate feces.	
Fertilization of urine/compost	Sprinkling diluted urine to farm land	Not sprinkling and not fertilizing	Not sprinkling and not fertilizing	
Comments of users	using it comfortably	Stop excrete in the toilet because effluent from septic tank flows into neighbor's premise		
Findings	As they have small ground, toilet was located near next premise and exposed effluent pipe is problem. Resident has knowledge about contamination of effluent from septic tank, but is concerned about vacuum car fee.			

Carte of Toilet: Demonstration-9

Basic Information	Creation date	2008/12/1, 2009/2/10		
	Serial No.	N2-Rst-3		
	Name of user/Representative	Chamalea Nhanh		
	Location	Cong Hai commune in Ninh Thuan		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	7 persons		
	Date of commission	2008/2/26		
	Ethnic	Ragley		
Conditions of site	To prepare a water bucket and a dipper in feces booth (2008/2/26) They can get water in dry season.			
Instruction to users	To use toilet by preparing a water bucket and a dipper in booth (2008/2/26) To dilute urine for using fertilizer to vegetables (2008/11/11) Don't put used paper into toilet (2008/11/11) To suck up sludge from the septic tank (2009/2/10)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using clean toilet	Keeping toilet clean	Keeping toilet clean	
Fertilization of urine/compost	Sprinkling urine to farm land	Sprinkling urine to corn and banana on farm land	Sometimes sprinkling	
Comments of users	Using conveniently	All family members use this toilet properly.		
Findings	Pour flush toilet is liked by all family members. Sucking sludge is just problem. Both P-CERWASS staff and residents seem not to have awareness of contamination of effluent from the septic tank.			

Carte of Toilet: Demonstration-10

Basic Information	Creation date	2008/12/1, 2009/2/12		
	Serial No.	B1-Rst-1		
	Name of user/Representative	Van Thi Thuy		
	Location	Muong Man commune in Binh Thuan		
	Type of toilet	Urine-Feces Separation Type Pour Flush with Septic tank		
	Number of users	3 persons		
	Date of commission	2008/3/5		
	Ethnic	Kinh		
Conditions of site	They can get water in dry season			
Instruction to users	To sprinkle diluted urine to farm land (2008/3/5) To keep toilet clean (2008/3/5) To suck up sludge from the tank and you have to pay. (2009/2/12)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using well	Using well Keeping toilet clean	No smell but many flies were found in the booth	
Fertilization of urine/compost	No sprinkling urine	Sprinkling diluted urine to farm land Amount of urine is not enough for fertilizing huge farm land of dragon fruits	Sprinkling diluted urine to farm land Pumpkin is growing at small space.	
Comments of users	Light was installed in the booth	Very convenient	Septic tank isn't full. Family use it comfortably	
Findings	All the family members use the toilet properly with comfort. She seemed to understand when tank become full, she have to suck up sludge by her money.			

Carte of Toilet: Demonstration-11

Basic Information	Creation date	2008/12/1, 2009/2/12		
	Serial No.	B1-Rst-2		
	Name of user/Representative	Nguyen Thi Ngoc Hang		
	Location	Moung Man commune in Binh Thuan		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	3 persons		
	Date of commission	2008/3/5		
	Ethnic	Kinh		
Conditions of site	They can get water in dry season. Shallow well is near the toilet.			
Instruction to users	To sprinkle diluted urine to farm land (2008/3/5) To pour enough water in order to flow down feces to septic tank (2008/3/5) To prepare a water bucket in the booth (2008/3/5)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using well	Using well	Cleaning toilet stool No smell and no fly or mosquitoes	
Fertilization of urine/compost	Not sprinkling urine for fertilizing	Not sprinkling urine for fertilizing	Not fertilizing	
Comments of users	Water tank and light was installed in the booth	Using it comfortably Neighbors have used this toilet.		
Findings	Not interested in fertilizing urine for vegetables All the family members use toilet with comfortably.			

Carte of Toilet: Demonstration-12

Basic Information	Creation date	2008/12/1, 2009/2/12		
	Serial No.	B1-Rst-3		
	Name of user/Representative	Ho Bong		
	Location	Moung Mang commune in Binh Thuan		
	Type of toilet	Urine feces separation type pour flush with septic tank		
	Number of users	5 persons		
	Date of commission	2008/3/5		
	Ethnic	Kinh		
Conditions of site	They can get water in dry season Shallow well is near the toilet.			
Instruction to users	To sprinkle diluted urine to farm land (2008/3/5) To prepare a bucket and dipper in the booth (2008/3/5) To pour enough water in order to flow down feces to septic tank (2008/3/5)			
Situation of toilet	Monitoring-1 (May 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using well Cleaning toilet vase	Using well keeping clean toilet	No smell No fly or mosquito Cleaning toilet stool	
Fertilization of urine/compost	Not sprinkling diluted urine	Not sprinkling diluted urine	Not sprinkling Urine is penetrating into ground	
Comments of users		Amount of urine is not enough to fertilize for huge dragon fruits land	Big bottomless tank (soak pit) was installed to connect with the effluent of the septic tank He doesn't want to suck out sludge	
Findings	The family is not interested in fertilizing urine for fruits and vegetables. Toilet is matching to all family members. It is difficult to persuade the owner that effluent from septic tank is so contaminated that effluent shouldn't penetrated into ground.			

Carte of Toilet: Demonstration-13

Basic Information	Creation date	2008/12/1, 2009/2/11		
	Serial No.	K1-Rst-4		
	Name of user/Representative	Dang Van Thang		
	Location	Cam Phuoc Dong commune, Cam Ranh Town, Khanh Hoa		
	Type of toilet	Cartridge type dry toilet		
	Number of users	5 persons		
	Date of commission	2008/6/1		
	Ethnic	Kinh		
Conditions of site	Firewood is used for cooking. They can always get ash.			
Instruction to users	To advertize new type toilet to neighbors (2008/6/1) Never to put water into feces tank (2008/6/1) When cartridge tank become full, to exchange other empty tank. (2008/6/4)			
Situation of toilet	Monitoring-1 (June 2008)	Monitoring-2 (November 2008)	Monitoring-3 (February 2009)	
	Using toilet well Enough knowledge of dry toilet and fertilizing urine	Feces tank was protected from heavy rain keeping stool clean No mosquito and smell	Toilet is kept clean No smells but a few flies were found in the booth	
Fertilization of urine/compost	No fertilization	Diluted urine sprinkling to farm land	A lot of plant vases fertilized by composted feces were in their garden	
Comments of users	Some of neighbors visited us and have interesting.	All members using toilet. Try to compare fertilizing diluted urine to bananas with no fertilizing one	The comparing result wasn't found yet	
Findings	Family has enough knowledge about dry toilet. Some neighbors were interested in this type toilet, but they couldn't install without financial subsidy.			