

付録1 資産調査書及び契約書

Ministry of Public Works and Transportations
Inter-Ministerial Settlement Committee
For the Improvement of National Road number 1
(A Japan Grant Aid Project)

Survey and Property Assessment

- ✓ A. **Interview No.:**..... National Road No.:..... Date of interview: day..... Month..... Year..... time.....
Name of interviewer:..... Name of monitor:.....
- ✓ B. **Address of settlement and land:** House No.:..... Village:..... Commune:..... District:.....
Province:..... Kilometer No.:..... Left ρ Right ρ (Follow direction from Phnom Penh)
- How many meters from the center line of the road to the land? meters
- How many meters from the center line of the road to the house? meters (counted from the first house's stand or the house's wall)
-
- ✓ C. **Question for head of family** (in case of family's head absence, interview needs to conduct with the family member who has the right to answer for the head of the family)
- ✓ C1. **Name and living condition of the house owner:**
Interviewee's name:..... Nick name:..... (Disable ρ Widow ρ)
Age:..... years, Sex: Male ρ Female ρ Occupation of interviewee:.....
Is interviewee head of family? No ρ Yes ρ (If "Yes", skip to question C2)
If "No", - What relation are you with the family?:.....
- Name of the head of the family:..... Nick name:..... (Disable ρ Widow ρ)
- Age:..... years, Sex: Male ρ Female ρ Occupation:.....
- ✓ C2 **The land within Right of Way (ROW)** (.....m from center line)
1. Have you used the land in the ROW? Yes ρ No ρ (If "No", It is the end of interview)
 2. When have you used the land in the ROW? Month:..... Year:.....
 3. Have you asked permission to use the land in ROW? Yes ρ No ρ
If "Yes", which institution has given permission?.....Date:
 4. Have you spent money to use this land? Yes ρ No ρ
If "Yes", How much?..... (Calculate in US\$.....)
 5. How many family are living in this land? 0 1 2 3 4
 6. How many members in your family? (If there are a lot of families, it should total all the members)

0 – 14 years old : Male:..... person(s) Female:..... person(s)
 15 – 64 years old : Male:..... person(s) Female:..... person(s)
 65 years old up : Male:..... person(s) Female:..... person(s)

Total:..... persons

- ✓ 7. What are the following sources for your family income?
 Wage or Salary = 1 Worker using force = 2 Business = 3
 Agricultural Product = 4 Fishery = 5 Others = 6 (Describe:.....)
- ✓ 8. How much income can your family earn per year?
 (From July 2003 to June 2004)..... (In US\$.....)
 How many percentage of your annual income that can earn from the land within ROW?
 (From July 2003 to June 2004)
 0 - 20% = 1 >20% - 40% = 2 >40% - 60% = 3 >60% - 80% = 4 >80% - 100% = 5
- ✓ 9. How many Ares of the land do you have? Ares (100 a = 1 ha)
 How many parts of the whole land have you used?..... Ares (100 a = 1 ha)
- ✓ 10. How size of the land within ROW? Width..... m x Length.....m =m²
- ✓ 11. What the land within ROW have you use for?
 Making rice = 1 Garden = 2 Plant for taking seed =3 Fruit farm = 4
 Feeding fish or planting lotus tree = 5 Parking/warehouse = 6 Restaurant = 7 Shop = 8
 Others = 9 (Describe:.....)
- ✓ 12. Are there any main trees in the land within ROW?
 Mango tree = 1 number:..... trees Tamarind tree = 2 number:..... trees
 Coconut tree = 3 number:..... trees Valuable tree = 4 number:..... trees
 Bamboo tree = 5 number:..... thickets Palm tree = 6 number:..... trees
 Others = 7 number:..... trees (Describe:.....)
- ✓ 13. Annual income earns from those trees (from July 2003 to June 2004)
 Mango tree = 1 Income..... Riels (Equal: US\$.....)
 Tamarind tree =2 Income..... Riels (Equal: US\$.....)
 Coconut tree = 3 Income..... Riels (Equal: US\$.....)
 Valuable tree = 4 Income..... Riels (Equal: US\$.....)
 Bamboo tree =5 Income..... Riels (Equal: US\$.....)
 Palm tree = 6 Income..... Riels (Equal: US\$.....)
 Others =7 Income..... Riels (Equal: US\$.....)

✓ 14. Do you have any land near here that can be used instead of the land within ROW?

Yes ρ No ρ (If "No", skip to question 18)

If "Yes", where is the land?

- It is closed behind the land within ROW = 1
- It is Probably 150m from the land within ROW = 2
- It is more than 150m from the land within ROW = 3

Do you use that land recently? Yes ρ No ρ

✓ 15. If you were asked to move from the land of ROW and reconstruct your settlement behind. Do you agree with or need compensation for moving?

Need ρ No need ρ (If "No need" skip to question 18)

✓ 16. How do you need compensation?

- Re-cultivate plants or tree = 1
- Lost income = 3
- Make pond or reconstruct new settlement = 2
- Others = 4 (Describe:.....)

✓ 17. Make assessment of these impact?..... Riels (Equal: US\$.....)

✓ 18. Could you buy new land instead of the land within ROW?

Yes ρ I have my own land already ρ No ρ (If "No" skip to question 20)

✓ 19. If "Yes", how much does it cost?.....Riels (Equal, US\$:.....)

✓ 20. If "No", How the land within ROW affects to your family?

Describe:.....

C3: Settlements or Other Constructions are located in the land within ROW

21. Do you have any construction in the land within ROW? Yes ρ No ρ (If "No" skip to question C4)

22. If "Yes", What kind of the construction?

- Shop = 1
- Workshop = 2
- Kitchen = 3
- Settlement = 4
- Others = 5 (Describe:.....)

(Type number:..... Size : Width..... m x Length.....m =m²)

23. Identify the details of type and construction equipments (Including a whole or some part of construction equipments locating in the land within ROW)

- Wall: Palm leaves = 1 Wood = 2 Land = 3 Bamboo = 4 Brick/concrete = 5 size:.....m²
- Palm leaves = 1 Wood = 2 Land = 3 Bamboo = 4 Brick/concrete = 5 size:.....m²
- Others = 6 (Describe:.....) size:.....m²

Unofficial translation-JICA

- Floor: Bamboo=1 Wood=2 Brick/Concrete=3 Size:.....m²
- Bamboo=1 Wood=2 Brick/Concrete=3 Size:.....m²
- Roof: Palm leaves=1 Fabric corrugated tile=2 corrugated iron=3 tile=4 Size:.....m²
- Pillar: - Wood=1 Number:..... pillars
 - Quality number 1: Size:.....m xm xpillars =m³
 - Quality number 2: Size:.....m xm xpillars =m³
 - Quality number 3: Size:.....m xm xpillars =m³
- Concrete pavement=2 Number:..... pillars
 - Size:m xm xpillars =m³
- Bamboo=3 Number:..... pillars
- Palm wood=4 Size:.....m³
- Others=5 Size:.....m³ (Describe:.....)

24. In case of moving, how will it impact on the construction? (Interviewer is responsible to calculate)

- Wall:.....m² or (.....% of whole total)
- Floor:m² or (.....% of whole total)
- Proof:m² or (.....% of whole total)
- Pillar:m² or (.....% of whole total)

C4. Others assets in the land within ROW

- Deep well
- Hand Pump
- Pond
- Fence
- Others
- None

Signature and Name

Interviewer

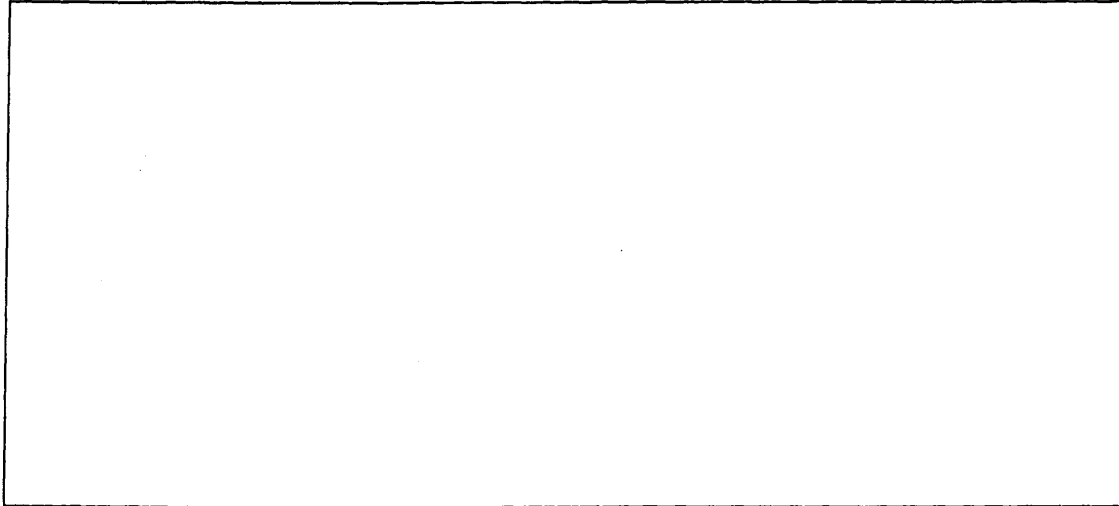
Signature and Name

Interviewee

Signature and Name

Member of Provincial Sub-Committee accompanying with interviewer

Photographic Record



Controls-work

Location.....
 Date..... Family's chief Sex..... Age.....years
 Description..... Address: Village..... Commune.....
 Remarks..... District/Arrondissement..... Province.....
 Widow Disable

Order Number.....Interview No.....

No.	Property	Size/length/quantity m ² /m/tree	Price \$/m ² , \$/m, \$/tree	Total Amount					
				\$					
1	Land/rice field/farm								
2	Building								
3	Others								
Total									

Signature of representative of Committee for Evaluation

Mr.....
 Mr.....

Printed thumb of Family's chief
 Name.....

Signature and stamp of chief of commune

The Kingdom of Cambodia
Nation Religion King

IRC
Provincial Sub-Committee

Identify No.:.....

CONTRACT

About Support Amount for House, Lands and other Property of the People,
Which are Affected by the Project for the Improvement of National Road No. 1
Phnom Penh – Neak Loeng

- Referring letter No.209 សណ ចត ៧៧ ចត ៧៧ dated on 11th February 2003 of the ministry of public works and transport
- Referring letter No.762 សណ ៧៧ ៧៧ dated on 26th February 2003 of the ministry of economic and finance
- Referring letter No.573 សណ ៧៧ ៧៧ dated on 07th April 2003 of the ministry of public works and transport
- Referring letter No.243 សណ ៧៧ ៧៧ dated on 25th April 2003 of the ministry of economic and finance
- Referring record of surveying houses and land by IRC

The party "A" IRC for evaluate houses, lands and others properties, which are affected by the Project for the Improvement of National Road No. 1 from Phnom Penh to Neak Loeng are represented by:

-
-

The party "B" Mr. – Mrs.

Address:.....
.....

Referring the Project for the Improvement of National Road No. 1 from Phnom Penh to Neak Loeng and some houses, lands and others properties were affected by the construction, the above called The party "A" and The party "B" agreed as follow:

CASE 1 : Support amount

The party "A" will support the party "B" with the amount of
The amount in letters
.....US\$ / Riels.

Referring record and the break down's formula for the type of houses, lands and fruit-tree and its support amount, so they are listed as followed:

Support Amount for the lost of any property:

- 1-1 Type of house:.....
Sizesquare meter Amount.....US\$ / Riels
- 1-2 Type of land:.....
Sizesquare meter AmountUS\$ / Riels
- 1-3 Fruit-tree:.....
 - Mango QuantityTrees AmountUS\$ / Riels
 - Coconut QuantityTrees AmountUS\$ / Riels
 - Palm tree QuantityTrees AmountUS\$ / Riels
 - Bamboo QuantityTrees AmountUS\$ / Riels
 - Ampil QuantityTrees AmountUS\$ / Riels
 - Tree QuantityTrees AmountUS\$ / Riels
- 1-4 Funeral monument: Quantity AmountUS\$ / Riels
- 1-5 Grave Quantity AmountUS\$ / Riels
- 1-6 Deep well Quantity AmountUS\$ / Riels
- 1-7 Fence
Sizesquare meter Amount.....US\$ / Riels

Others Support Amount :

- 1-8 Support amount for families, which affected by the project
AmountUS\$ / Riels
- 1-9 Support amount for too poor families such as
 - Family's chief as widow AmountUS\$ / Riels
 - Family's chief as disabled person AmountUS\$ / Riels
 - Family get income less than 10US\$per month
AmountUS\$ / Riels
- 1-10 Support amount for shifting house (for family, its whole property are affected)
AmountUS\$ / Riels

CASE 2 : Date for payment of Support amount

The full amount, which summarize in case 1, the party "A" will pay to the party "B" as the following date:

- 2-1 Date on.....month.....year..... with the amount 50%.....US\$ / Riels
- 2-2 Date on.....month.....year..... with the amount 30%.....US\$ / Riels
- 2-3 Date on.....month.....year..... with the amount 20%.....US\$ / Riels

CASE 3 : Type of payment of Support amount

The support amount, which will be paid according case 2 , the party "A" will paid by cash trough IRC and Provincial Sub-Committee.

CASE 4 : Demolishing house

After receiving the amount according case 2, the party "B" shall pull its house down with the following schedule:

- 4-1 Date on.....month.....year..... pull the house down minimum 50%
- 4-2 Date on.....month.....year..... pull the house down minimum 80%
- 4-3 Date on.....month.....year..... pull the house completely down

The party "B" must completely demolish its house by its own arrangement and reserved the free land on latest datemonth.....year..... In case that, the party "B" doesn't follow the above schedule, the committee will do demolish the house and the party "B" shall pay the cost for the demolishing work without reclamation.

CASE 5 : General condition

The party "A" and the party "B" agree all of the above cases. When any party does contrary to this contract, must stand before law.

This contract made in 4 copies and keep at:

- 1- Ministry of economic and finance 01 copy
- 2- IRC 01 copy
- 3- Kandal Province 01 copy
- 4- Property's owner 01 copy

Done in Province.....date on.....month.....year.....

The party "A"

The party "B"

Seen and Approval
Chairman of IRC

Seen and Approval
Chairman of Sub-Committee of Kandal Province

付録2 住民説明会議事録
(カンボジア政府作成)

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

កំណត់ហេតុ

ប្រជុំពិគ្រោះយោបល់ជាសាធារណៈ អំពីគំរោងគែលរំដួលផ្លូវជាតិលេខ១
ភ្នំពេញ-អ្នកលឿង ភូមិត្រីដំ ឃុំគគីរធំ ស្រុកកៀនស្វាយ ថ្ងៃទី០៣ ខែកញ្ញា ឆ្នាំ២០០៤

ឆ្នាំពីរពាន់បួន ខែកញ្ញា ថ្ងៃទីបី នៅវត្តពោធិ៍ គគីរធំ (ចំណុច គ.ម លេខ៤៥) វេលាម៉ោងប្រាំបួនព្រឹក មានការប្រជុំមួយ ក្រោម
អធិបតីភាព ឯកឧត្តម ព្រះសុខ ខេង អនុរដ្ឋលេខាធិការ ក្រសួងសេដ្ឋកិច្ច និងហិរញ្ញវត្ថុ និងជាប្រធានគណៈកម្មការអន្តរក្រសួង ។

I - សមាសភាពចូលរួម :

- ក្រុម JICA
- មន្ត្រីជំនាញក្រសួងសាធារណការ និងដឹកជញ្ជូន
- លោក អភិបាល និងមន្ត្រីអាជ្ញាធរស្រុកកៀនស្វាយ
- លោកអភិបាលស្រុកលើកដែក
- អាជ្ញាធរឃុំកំពង់ភ្នំ ឃុំគគីរធំ និងប្រធានភូមិ
- ក្រុមការងារគណៈកម្មការអន្តរក្រសួង
- ក្រុមការងារអនុគណៈកម្មការខេត្តកណ្តាល
- ប្រជាពលរដ្ឋនៅក្នុងឃុំកំពង់ភ្នំ ស្រុកលើកដែក និងឃុំគគីរធំ ស្រុកកៀនស្វាយ ដែលមានផលប៉ះពាល់ដោយសារគំរោងគែលរំដួល
ផ្លូវជាតិលេខ១ ចំនួន ៣០០គ្រួសារ (១០០គ្រួសារ ឃុំកំពង់ភ្នំ ស្រុកលើកដែក ២០០គ្រួសារ ឃុំគគីរធំ ស្រុកកៀនស្វាយ)

II - ខ្លឹមសារ :

- ផ្សព្វផ្សាយជូនប្រជាពលរដ្ឋ នូវគំរោងស្តារឡើងវិញផ្លូវជាតិលេខ១
- គោលការណ៍ណែនាំអំពីផែនការ តាំងទីលំនៅឡើងវិញ សំរាប់គំរោងស្តារកំណាត់ផ្លូវជាតិលេខ១ ពីភ្នំពេញ ទៅអ្នកលឿង ។
ជាតិច្នៃចាប់ផ្តើម ឯកឧត្តមប្រធាន បានថ្លែងអំណរគុណដល់សមាជិកអង្គប្រជុំ ដែលបានចូលរួម និងផ្សព្វផ្សាយ នូវគំរោងស្តារឡើង
វិញផ្លូវជាតិលេខ១ និងលើកពិសារសំខាន់ នៃផ្លូវជាតិលេខ១ នេះ ។

ជាបន្ត លោកប្រធានក្រុមការងារគណៈកម្មការអន្តរក្រសួង បានផ្សព្វផ្សាយពន្យល់ នូវគោលការណ៍ អំពីផែនការ តាំងទីលំនៅឡើង
ឡើងវិញក្នុងគំរោងស្តារកំណាត់ផ្លូវជាតិលេខ១ ពីភ្នំពេញ-អ្នកលឿង ។

មន្ត្រីជំនាញក្រសួងសាធារណការ និងដឹកជញ្ជូន បានលើកឡើងពីការងារមួយចំនួនទាក់ទងដីចំណីផ្លូវត្រូវរក្សាទុក ៣០ម ពីអ័ក្សផ្លូវ
សងខាង៦០ម និងពន្យល់ជូនប្រជាពលរដ្ឋពីគំរោងនៃផលប៉ះពាល់ ជូនកាលប៉ះពាល់ដោយ ដើម្បីធានាក្នុងការទប់ទឹក និងបន្ថយនៃការប៉ះពាល់ ។
ក្រោយពិសារមានមតិ តាមសំណូមពររបស់ប្រជាពលរដ្ឋចង់បានមតិពិច្ចាសន៍ជូន ។

លោកប្រធានក្រុម JICA ក៏បានមានមតិជុំវិញបញ្ហាជំនួយរបស់ជប៉ុន ដែលបានជួយកម្ពុជា លើបញ្ហានេះក៏បានបញ្ជាក់ថា ជប៉ុនជា
ម្ចាស់ជំនួយក៏ប៉ុន្តែគំរោង គឺកម្ពុជា ជាម្ចាស់គំរោង ដូចនេះ គំរោងអាចអនុវត្តទៅបាន អាស្រ័យដោយការខិតខំរបស់ម្ចាស់គំរោង ហើយជប៉ុន

ជាអ្នកជួយគាំទ្រ ។

ក្រោយពីការមានមតិមក ឯកឧត្តមប្រធាន ក៏បានផ្តល់នាទីជូនប្រជាពលរដ្ឋមានមតិ ដែលពាក់ព័ន្ធការស្តារ នូវផ្លូវជាតិលេខ១ នេះ ។

III - សំណួរ ចម្លើយ :

ប្រជាពលរដ្ឋបានចូលរួមមានមតិ ចំនួន ៥នាក់ :

១- លោក ប៊ុន ម៉ុន នៅភូមិរាំងដែក ឃុំគគីរធំ ស្រុកក្បួនស្វាយ មានមតិថា ដីដែលត្រូវប៉ះពាល់ គ្មានសំណង់ទេ ប៉ុន្តែបានចាក់ដី អស់ច្រើន សំណូមពរសុំគោលនយោបាយថ្លៃដី ។

២- លោក លឹម យ៉ៃ នៅឃុំព្រែកទម្លាប់ ស្រុកលើកដែក បាននិយាយថា ក្នុងការដោះស្រាយគោលនយោបាយមិនដូចគ្នា តូបខ្ញុំ បាន ៤ ដុល្លារ /ម^២ ចំណែកគេបាន ១២ដុល្លារ/ម^២ ។

- ពីរគ្រួសារមានមតិដូចគ្នា :

- + មីងនៅ នៅឃុំព្រែកទម្លាប់ ស្រុកលើកដែក
- + លោក សារឿន នៅភូមិក្បាលជ្រោយ ឃុំកំពង់ភ្នំ ស្រុកលើកដែក

២ គ្រួសារ នេះ បានលើកឡើង ដី និងផ្ទះ ត្រូវប៉ះពាល់ទាំងស្រុង ពេលរុះរើ គ្មានដី និងគ្មានលុយទិញ សំណូមពរជួយ ដោះស្រាយ ។

- លោក នួន សុខុម ភូមិក្បាលជ្រោយ ឃុំកំពង់ភ្នំ ស្រុកលើកដែក បានថ្លែងអំណរគុណចំពោះជំនួយរបស់ជប៉ុន ដែលបានសាងសង់ រាប់ៗ ខាងមុខនេះ ។

បន្ទាប់មក ឯកឧត្តមប្រធាន បានមានមតិផ្តាំធ្វើដល់ប្រជាពលរដ្ឋឱ្យសហការល្អ ជាមួយក្រុមការងារ ដែលចុះពិនិត្យវាយតម្លៃជាក់ ស្តែងតាមគោលការណ៍ ដែលបានកំណត់ ដើម្បីរួមចំណែកឱ្យការស្តារផ្លូវជាតិលេខ១ បានសម្រេច ។

អង្គប្រជុំបានបញ្ចប់ នៅវេលាម៉ោង ដប់ពីរ នាថ្ងៃ ខែ ឆ្នាំដដែល ក្រោមបរិយាកាសរីករាយ និងស្និទ្ធស្នាល ។

រាជធានីភ្នំពេញ, ថ្ងៃទី ១ ខែ ឆ្នាំ ២០០៤

បាណឃីល្លា និងឯកភាព

អនុរដ្ឋលេខាធិការក្រសួងសេដ្ឋកិច្ច និងហិរញ្ញវត្ថុ
និងជា ប្រធានគណៈកម្មការអន្តរក្រសួងដោះស្រាយ
ដល់ប៉ះពាល់ និងការគាំទ្រដល់ការផ្តល់សេវា របស់
ប្រជាពលរដ្ឋកំណត់ផ្លូវជាតិលេខ១ ភ្នំពេញ, អ្នកលើស្រី

បាណឃីល្លា

លេខាធិការ

បាណឃីល្លា

The Kingdom of Cambodia
Nation Religion King

Meeting Note

**Public Discussion on the Project for the Improvement of National Road No. 1
Phnom Penh – Neak Loeung at Koki Thom Village, Commune Koki Thom in
Kien Svay District on the 3rd September 2004**

Date on 3rd September 2004 at pagoda Poh Koki Thom (Kilometer Post 45km) on 9 o'clock, there was a meeting leading by HE Ngen Leng under secretary of state of the ministry of economic and finance and also as chairman of IRC.

I. Attendance :

- JICA team
- Technical officials of the ministry of public work and transport
- Governor and officials of the district Kien Svay
- Governor of the district Loeuk Dek
- Authority of the commune Kompong Phnom and Koki Thom and chief of villages
- Work-group of IRC
- Representatives of 300 families from Commune Kompong Phnom, district Leuk Dek and commune Koki Thom, District Kien svay, who affected by the project of the improvement of national road No. 1 (100 families in the commune Kompong Phnom and 200 families in the commune Koki Thom).

II. Contents

- Inform to the people about the project for the improvement of national road No. 1
- Principle plan for resettlement on the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung

Starting of the meeting HE Chairman thanks all attendance and informed about the project of the improvement of national road No. 1 and described important role of national road No. 1.

Afterward HE Chairman informed and explained the principle plan for resettlement on the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung.

The technical official from the ministry of public works and transport said the right of way is to keep 30m one side from center line of road (both side 60m) and explained some section were affected only one side due to insure protection of flood and to reduce the number of affection.

After listening speech of authority the people requested idea of donor.

Chief of JICA team gave ideas about the grant aid by the Japanese government to the Kingdom of Cambodia. He confirmed that Japan is the Donor, but for the project, the owner of the project is Cambodia. So to apply any project is depends on the owner and Japan goes support.

Last HE Chairman gave time to the people for their speech on the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung.

III. Questions and Answers

Five people gave their ideas:

1. Mr. Pon Mon from Reang Dek village, commune Koki Thom in Kien Svay district said some affected ownership was already filled but there was not building, he request some compensation for the cost of the filling.

2. Mr. Lim Yay from Prek Tonloap commune in Leuk Dek distict said there is difference compensation policy, he gets only 4 USS per m² for his shop and other gets 12 USS per m².

Mrs. Noeuv from Prek Tonloap commune in Leuk Dek distict and Mr. Saroeun from Kbal Chroy village, commune Kompong Phnom in Leuk Dek distict have same problem. Both family requested for help because all of their land and house were affected by the project.

Mr. Nuon Sokhom from Kbal Chroy village, commune Kompong Phnom in Leuk Dek distict thanked for the coming project as grant aid by the Japanese government.

Afterward HE Chairman gave speech to the people to cooperate with work-group, who check and evaluate the cost of property according the principle as decided for getting the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung.

The meeting was closed on 12 o'clock on the same date under pleasant and friendship situation.

Phnom Penh on.....

Seen and Approved

Under secretary of state of the ministry of economic and finance
And as chairman of IRC

Ngen Leng

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

គំនិតចែកចាយ

ប្រជុំពិគ្រោះយោបល់ជាសាធារណៈ អំពីគំរោងគែលអង្គរជាតិលេខ១

ភ្នំពេញ អ្នកល្បឿន ភូមិស្ទឹង ឃុំសំរោងធំ ស្រុកកៀនស្វាយ ខេត្តកណ្តាល ថ្ងៃទី០៣ ខែកញ្ញា ឆ្នាំ២០០៤

ភ្នំពេញ ថ្ងៃទី០៣ ខែកញ្ញា ឆ្នាំ២០០៤ នៅសាលាឃុំសំរោងធំ (ចំណុច គ.ម លេខ៣៥+៨៥០) វេលាម៉ោងដប់បួន មានការប្រជុំមួយ ក្រោមអធិបតីភាព **ឯកឧត្តម ធានា ឌួង** អនុរដ្ឋលេខាធិការ ក្រសួងសេដ្ឋកិច្ច និងហិរញ្ញវត្ថុ និងជាប្រធានគណៈកម្មការអន្តរក្រសួង ។

I - សមាសភាពចូលរួម :

- ក្រុម JICA
- មន្ត្រីជំនាញក្រសួងសាធារណការ និងដឹកជញ្ជូន
- លោក អភិបាល-អភិបាលរង និងមន្ត្រីអាជ្ញាធរស្រុកកៀនស្វាយ
- អាជ្ញាធរឃុំសំរោងធំ ប្រធានភូមិ
- ក្រុមការងារគណៈកម្មការអន្តរក្រសួង
- ក្រុមការងារអនុគណៈកម្មការខេត្តកណ្តាល
- លោកតំណាងក្រុមហ៊ុន SL
- ប្រជាពលរដ្ឋនៅក្នុងឃុំសំរោងធំ ដែលមានផលប៉ះពាល់ដោយសារគំរោងគែលអង្គរជាតិលេខ១ ចំនួនប្រមាណ២០០គ្រួសារ ។

II - ខ្លឹមសារ :

- ផ្សព្វផ្សាយជូនប្រជាពលរដ្ឋ នូវគំរោងស្តារឡើងវិញផ្លូវជាតិលេខ១
- គោលការណ៍ណែនាំអំពីផែនការ តាំងទីលំនៅឡើងវិញ សំរាប់គំរោងស្តារកំណាត់ផ្លូវជាតិលេខ១ ពិភ្នំពេញ ទៅអ្នកល្បឿន ។ ជាកិច្ចចាប់ផ្តើម ឯកឧត្តមប្រធាន បានផ្តល់អំណរគុណដល់សមាជិកអង្គប្រជុំ ដែលបានចូលរួម និងផ្សព្វផ្សាយ នូវគំរោងស្តារឡើងវិញផ្លូវជាតិលេខ១ និងលើកតម្កល់សំខាន់ នៃផ្លូវជាតិលេខ១ នេះ ។

ជាបន្ត លោកប្រធានក្រុមការងារគណៈកម្មការអន្តរក្រសួង បានផ្សព្វផ្សាយពន្យល់ នូវគោលការណ៍ អំពីផែនការ តាំងទីលំនៅឡើងវិញក្នុងគំរោងស្តារកំណាត់ផ្លូវជាតិលេខ១ ពិភ្នំពេញ-អ្នកល្បឿន ។

មន្ត្រីជំនាញក្រសួងសាធារណការ និងដឹកជញ្ជូន បានលើកឡើងពិការងារមួយចំនួនទាក់ទងដីចំណីផ្លូវ ត្រូវរក្សាទុក ៣០មពីអ័ក្សផ្លូវ (៦០ម) និងពន្យល់ជូនប្រជាពលរដ្ឋគំរោង ទៅអនាគត ដែលត្រូវឱ្យមានការពង្រីកផ្លូវបន្ថែម ទន្ទឹមនោះដែរ ក៏បានបញ្ជាក់ពីគំរោង នៃផលប៉ះពាល់ ជូនកាលប៉ះម្កាង ដើម្បីធានា នូវការទប់ទឹក និងបន្ថយការប៉ះពាល់ ។

ក្រោយមក ឯកឧត្តមប្រធាន ក៏បានផ្តល់វេទិកា ជូនប្រជាពលរដ្ឋមានមតិជុំវិញការស្តារផ្លូវជាតិលេខ១ នេះ ។

III - សំណួរ ចម្លើយ :

ប្រជាពលរដ្ឋបានចូលរួមមានមតិ ចំនួន ១៣នាក់

១- លោក ឡាក់ នៅភូមិសំរោងក្តែរ ដីខ្ញុំប៉ះពាល់ចូលដល់ដីកម្មសិទ្ធិ នៅចំណុចធ្វើលូ ឬស្ពាន ក្រុមការងារ កត់ត្រាត្រឹមផលប៉ះពាល់ ប៉ុន្តែពេលធ្វើស្ពានហើយ ទឹកនឹងហូរកាត់លើដីខ្ញុំទាំងស្រុង តើការដោះស្រាយយ៉ាងណា ? ។

២- អ្នកស្រី ជុន ភូមិព្រែកត្រែង សុំជួយផ្លែដីចាក់បំពេញ ពេលរដ្ឋត្រូវការឱ្យខ្ញុំរុះរើយកកន្លែងនោះធ្វើផ្លូវ ។

៣- លោកស្រី អ៊ុន សិន ភូមិព្រែកត្រែង ក្រុមវាស់វែង ប៉ះម៉ុង និងជណ្តើរ សំណូមពរជួយដោះស្រាយ ។

៤- អ្នកស្រី ណារី ភូមិសំរោងក្តែរ ប៉ះពាល់ដីចំណីផ្លូវ នៅពេលវាស់វែងអស់ដីរលីង សំណូមពរជួយដោះស្រាយ ។

៥- លោក ជាន់ ហួន ភូមិព្រែកត្រែង ប៉ះពាល់ដីដែលកំពុងនៅ ព្រោះដីទិញគេ ឥឡូវវាស់អស់ទៅហើយ គ្មានដីនៅ ។

៦- អ្នកស្រី មាន ភូមិព្រែកត្រែង (មានមតិដូចលោក ជាន់ ហួន) ។

៧- អ្នកស្រី រ៉ូ ឡឺ ភូមិស្ទឹង (មានមតិដូចលោក ជាន់ ហួន) ។

៨- អ្នកស្រី ជឿន ភូមិស្ទឹង (មានមតិដូចលោក ជាន់ ហួន) ។

៩- អ្នកស្រី វ៉ា ម៉ាប់ ភូមិស្ទឹង (មានមតិដូចលោក ជាន់ ហួន) ។

១០- អ្នកស្រី ពៅ សុត ភូមិសំរោងក្តែរ (មានមតិដូចលោក ជាន់ ហួន) ។

១១- អ្នកស្រី ង៉ែត ស៊ី ជឿន ភូមិសំរោងក្តែរ (មានមតិដូចលោក ជាន់ ហួន) ។

១២- អ្នកស្រី ខុន សារឿន ភូមិព្រែកត្រែង (មានមតិដូចលោក ជាន់ ហួន) ។

១៣- លោក អ៊ូ ឈាង ក្រុមវាស់វែងផលប៉ះពាល់ដីចំណីផ្លូវ វាស់ប៉ះផ្ទះខ្ញុំតែ ៣០% សំណូមពររបស់ខ្ញុំឱ្យក្រុមការងារកត់បញ្ចូល

១០០% ខ្ញុំរុះរើផ្ទះចេញផុតពីដីចំណីផ្លូវ (៣០ម) ។

បន្ទាប់មក ឯកឧត្តមប្រធាន បានមានមតិផ្តាំធ្វើដល់ប្រជាពលរដ្ឋឱ្យសហការល្អ ជាមួយក្រុមការងារ ដែលចុះពិនិត្យវាយតម្លៃជាក់

ស្តែងតាមគោលការណ៍ដែលបានកំណត់ ដើម្បីរួមចំណែកឱ្យការស្តារផ្លូវជាតិលេខ ១ បានសម្រេច ។ ។

អង្គប្រជុំបានបញ្ចប់ នៅវេលាម៉ោងដប់ប្រាំមួយ នាថ្ងៃខែឆ្នាំដែល ក្រោមបរិយាកាសរីករាយ និងស្ម័គ្រស្មាល ។

រាជធានីភ្នំពេញ, ថ្ងៃទី ខែ ឆ្នាំ ២០០៤
បានឃើញ និងឯកភាព
អនុរដ្ឋលេខាធិការក្រសួងសេដ្ឋកិច្ច និងហិរញ្ញវត្ថុ
និង ប្រធានគណៈកម្មការអន្តរក្រសួងដោះស្រាយ
ផលប៉ះពាល់ និងការគាំទ្រដល់ការធ្វើទំនិញ របស់
ប្រជាពលរដ្ឋកំណត់ផ្តួចផ្តើមថ្ងៃទី ១១ ខែ កញ្ញា ឆ្នាំ ២០០៤

លោក ឡាក់

លេខាគត់ត្រា

លេខ សុជាតិសា

**The Kingdom of Cambodia
Nation Religion King**

Meeting Note

**Public Discussion on the Project for the Improvement of National Road No. 1
Phnom Penh – Neak Loeung at Stoeung Village, Commune Samrong Thom in
Kien Svay District on the 3rd September 2004**

Date on 3rd September 2004 at commune quarter Samrong Thom (Kilometer 35+850km) on 14 o'clock, there was a meeting leading by HE Ngen Leng under secretary of state of the ministry of economic and finance and also as chairman of IRC.

I. Attendance :

- JICA team
- Technical officials of the ministry of public works and transport
- Governor and authority of the district Kien Svay
- Authority of the commune Samrong Thom and chief of villages
- Work-group of IRC
- Work-Group of Sub-Committee of Kandal Province
- Representative of the Company SL
- Representatives of 200 families from Commune Samrong Thom, District Kien svay, who affected by the project of the improvement of national road No. 1.

II. Contents

- Inform to the people about the project for the improvement of national road No. 1
- Principle plan for resettlement on the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung

Starting of the meeting HE Chairman thanks all attendance and informed about the project of the improvement of national road No. 1 and described important role of national road No. 1.

Afterward HE Chairman informed and explained the principle plan for resettlement on the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung.

The technical official from the ministry of public works and transport said the right of way is to keep 30m one side from center line of road (both side 60m) and explained some section need to widening and some were affected only one side due to insure protection of flood and to reduce the number of affection.

Last HE Chairman gave time to the people for their ideas on the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung.

III. Questions and Answers

Thirteen people gave their ideas:

1. Mr. Lak from Samrong Kaer said his land will be the location of construction of culvert or bridge, but the work-group evaluated only in the right way. He didn't consider, after the construction water will flow trough his whole land. How to solve this problem.
2. Mrs. Phon from Prek Treng village requested for compensation for the cost of her filling.
3. Mrs. Oun Sorn from Prek Treng requested for compensation for grave and her house's stair.
4. Mrs. Navy from Samrong Kaer village requested for help, because all of her property is in the right way.
5. Mr. Phan Huon from Prek Treng village requested for help. His recent house, which he bought from another, all in the right way, he will be homeless.
6. Mrs. Mean from Prek Treng village said she has the same problem as Mr. Phan Huon.
7. Mrs. Rom Ley from Stoeung village said she has the same problem as Mr. Phan Huon.
8. Mrs. Choeun from Stoeung village said she has the same problem as Mr. Phan Huon.
9. Mrs. Va Map from Stoeung village said she has the same problem as Mr. Phan Huon.
10. Mrs. Peo Soth from Samrong Kaer village said she has the same problem as Mr. Phan Huon.
11. Mrs. Gnet Sithoeun from Samrong Kaer village said she has the same problem as Mr. Phan Huon.
12. Mrs. Khon Savoeun from Prek Treng village said she has the same problem as Mr. Phan Huon.

13. Mr. Ou Chheang said the work-group surveyed and find only 30% of his house was affected, but he requested counting as 100% for compensation and he will move his house 30m away from the right way.

Afterward HE Chairman gave speech to the people to cooperate with work-group, who check and evaluate the cost of property according the principle as decided for getting the project for the improvement of national road No. 1 Phnom Penh – Neak Loeung.

The meeting was closed on 16 o'clock on the same date under pleasant and friendship situation.

Phnom Penh on.....

Seen and Approved

Under secretary of state of the ministry of economic and finance
And as chairman of IRC

Ngen Leng

付録3 住民説明会資料
(コンサルタント作成)

THE KINGDOM OF CAMBODIA
MINISTRY OF PUBLIC WORKS AND TRANSPORT

The Project for Improvement of National Road No.1
(Phnom Penh—Neak Loung Section)

PUBLIC CONSULTATION MEETING

(KM22~ KM56)

DESIGN CONCEPT

I. Introduction

In June 2002, the Government of Kingdom of Cambodia made a request for Grant Aid for the Project for Improvement of National Road No.1 (Phnom Penh – Neak Loeung Section)(the Project) to the Government of Japan. The Government of Japan entrusted the study to examine the viability of the Project to the Japan International Cooperation Agency (JICA), the official agency implementing Japan Government's technical assistant and expediting proper execution of the Japan's Grant Aid. JICA dispatched the Preparatory Study Team on the Confirmation of the Resettlement Issue in Environmental and Social Consideration of the Project in 2003. Hence, JICA decided to conduct a Basic Design Study and sent the Study Team on March 2004.

National Road No.1 runs from Phnom Penh to the Vietnam border towards Ho Chi Minh City and forms a part of the Asian Highway Route A-1.

The Project is expected to contribute to the development of the area along the road and the Cambodia as a whole, and bring about enormous benefit to the region including the followings.

- Saving in transport cost of commodity
- Saving in traffic cost and travel time
- Ensuring traffic safety of vehicle and pedestrian
- Providing easy access from agricultural fields to markets, carrying fresh products
- Providing road service facilities for inhabitants such as bus stops, emergency refuge spaces, sidewalks at school and health center, road side markets spaces etc.
- Increase in land value and cost

II. Road Widening at One Side (Colmatage Side)

The comparative study on the following two (2) cases of road widening method was made for the unpopulated area such as the section from Sta.22km to Sta.53km.

- Case 1; Widening at one side (Colmatage Side)
- Case 2; Widening at both sides (Mekong River and Colmatage Sides)

Case 1 was adopted based on the following reasons by the Government of Cambodia. Please refer to Figure-1.

- (1) Widening at the one side is compatible with the future development plan of National Road No.1 of the Government of Cambodia.
- (2) During construction, 2-vehicle lanes can be maintained in case of one side widening, but only 1-vehicle lane is available in case of both sides widening at construction segments.
- (3) Widening at the one side can save the construction cost by eliminating double works, especially re-construction of costly embankment / river bank slope which are required in case of both sides widening.
- (4) At the Colmatage side, bush / wetland / flood area are generally observed comparing with the Mekong River Side where the land utilization such as agriculture is active.
- (5) Less number of houses at the Colmatage side seem to be affected by construction of the road comparing with the Mekong River side.
- (6) The set-back method of relocation may be acceptable in the unpopulated area, comparing with relocation to other places.

III. Standard Cross Section

Based on the design standard of the Cambodia, the standard cross section was proposed. Please refer to Figure-2.

- Vehicle Lane ; 3.50m × 2
- Motor Bike Lane; 2.50m × 2
- Shoulder ; 1.00m × 2 (KM, 22+000 ~ KM53+400)
2.50m × 2 (KM53+400 ~ KM54+740)

IV. Provisional Road Width

To provide the working space for the road construction, the provisional road width was decided by the Government of Cambodia. Please refer to Figure-2.

Ordinary section

- Mekong River side; 5.0m from Center Line of existing road
- Colmatage side ; 23.0m ~ 25.0m from Center Line of existing road

Special Sections

- Bridge ; Changeable
- Culvert ; Changeable
- Water Gate ; Changeable
- Swamp/Pond ; Changeable

V. Road Service Facilities

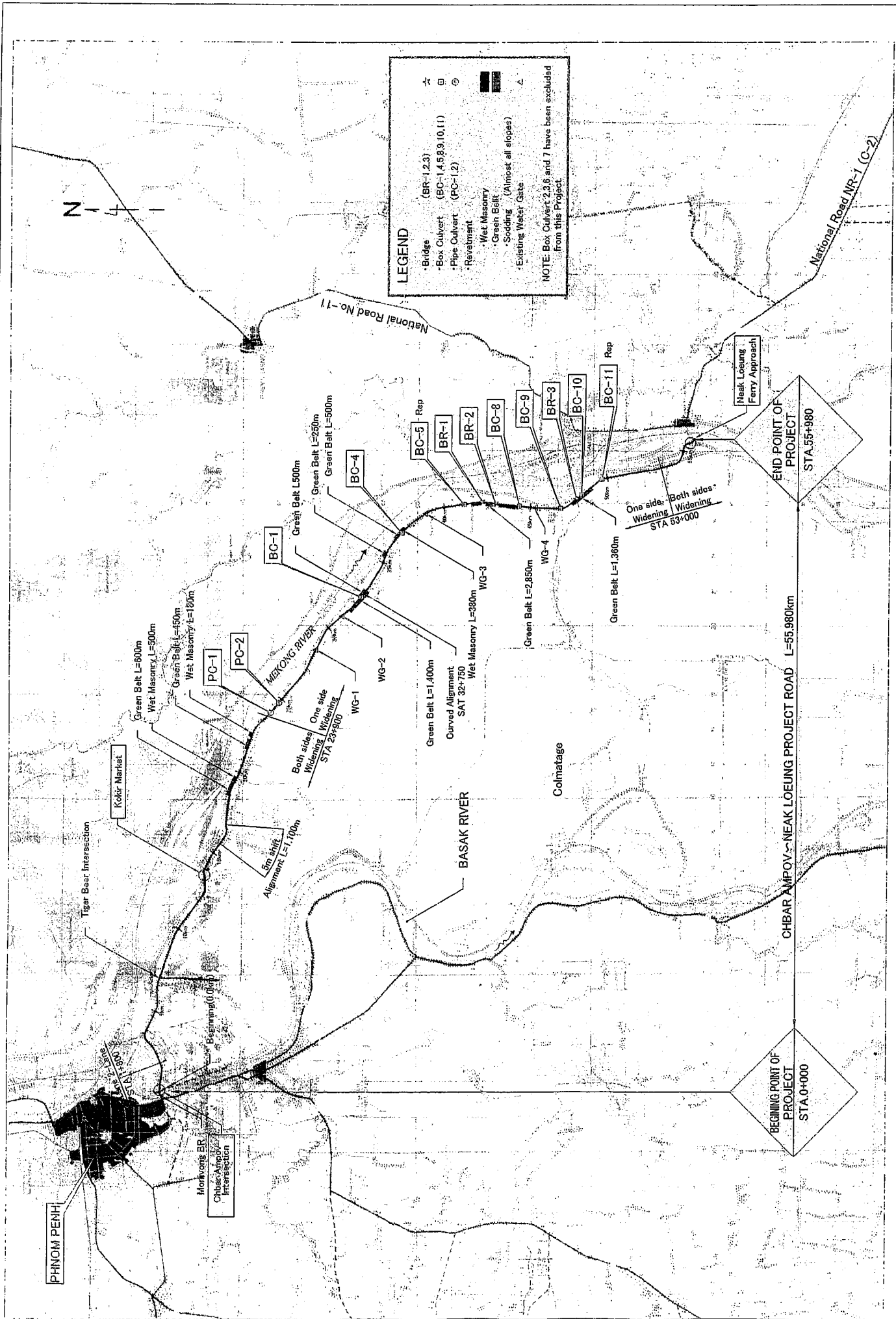
The improvement of National Road No.1 was designed not only for smooth traffic flow of vehicle, but the convenient and safe utilization of the road by people/ inhabitant, providing the following road service facilities.

(1) Bus Stop / Refuge Space Section

Some local roads connected with National Road No.1 are leading to village centers or important public facilities such as temples. For those local roads, bus stop / refuge space of 3.0m in width are provided with a function of emergency evacuation during flood. Please refer to Figure-3.

(2) School / Health Center / Market Section

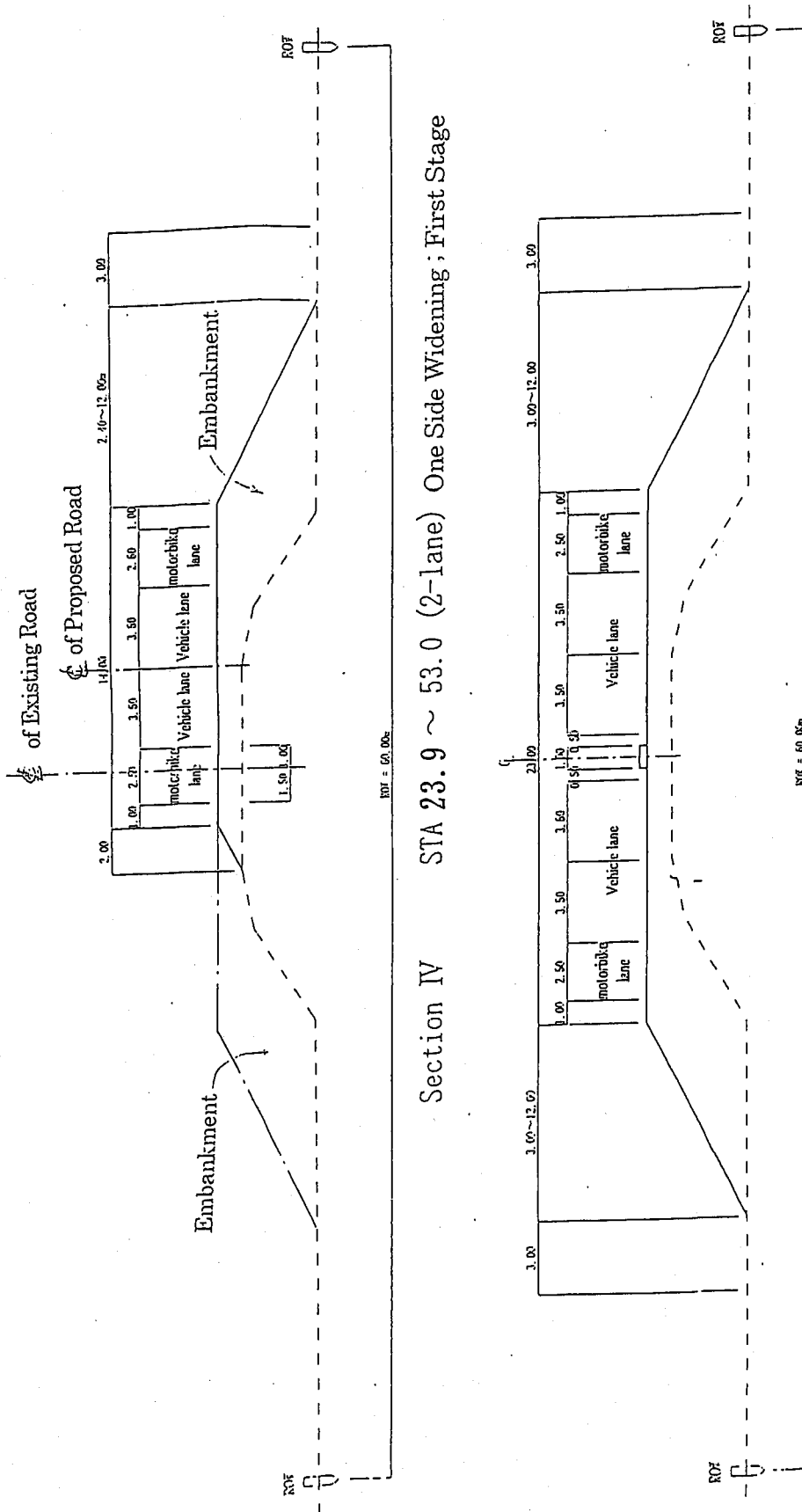
There exist school zones, health center and market along National Road No.1. For these sections, the shoulder of 1.0m is increased to 3.5m (4.0m at market section) and paved with asphalt concrete. Pavement marking for pedestrian crossing is also-provided for safety purpose. Please refer to Figure-4



MINISTRY OF PUBLIC WORKS AND TRANSPORT (MPWT)	THE PROJECT FOR THE IMPROVEMENT OF NATIONAL ROAD NO.1 (PHNOM PENH-NEAK LOEUNG SECTION) IN THE KINGDOM OF CAMBODIA	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL CTI Engineering International Co., Ltd	TITLE :	PROJECT LAYOUT	SCALE	Drawing No.
					1/10,000	Sheet No. G-1

Final Stage

First Stage



Section IV STA 23.9 ~ 53.0 (2-lane) One Side Widening ; First Stage

Final Section STA 3.5 ~ 55.3 (4-lane) Both Sides Widening ; Final Stage

FIGURE-1 One Side Widening In Accordance With Final Plan

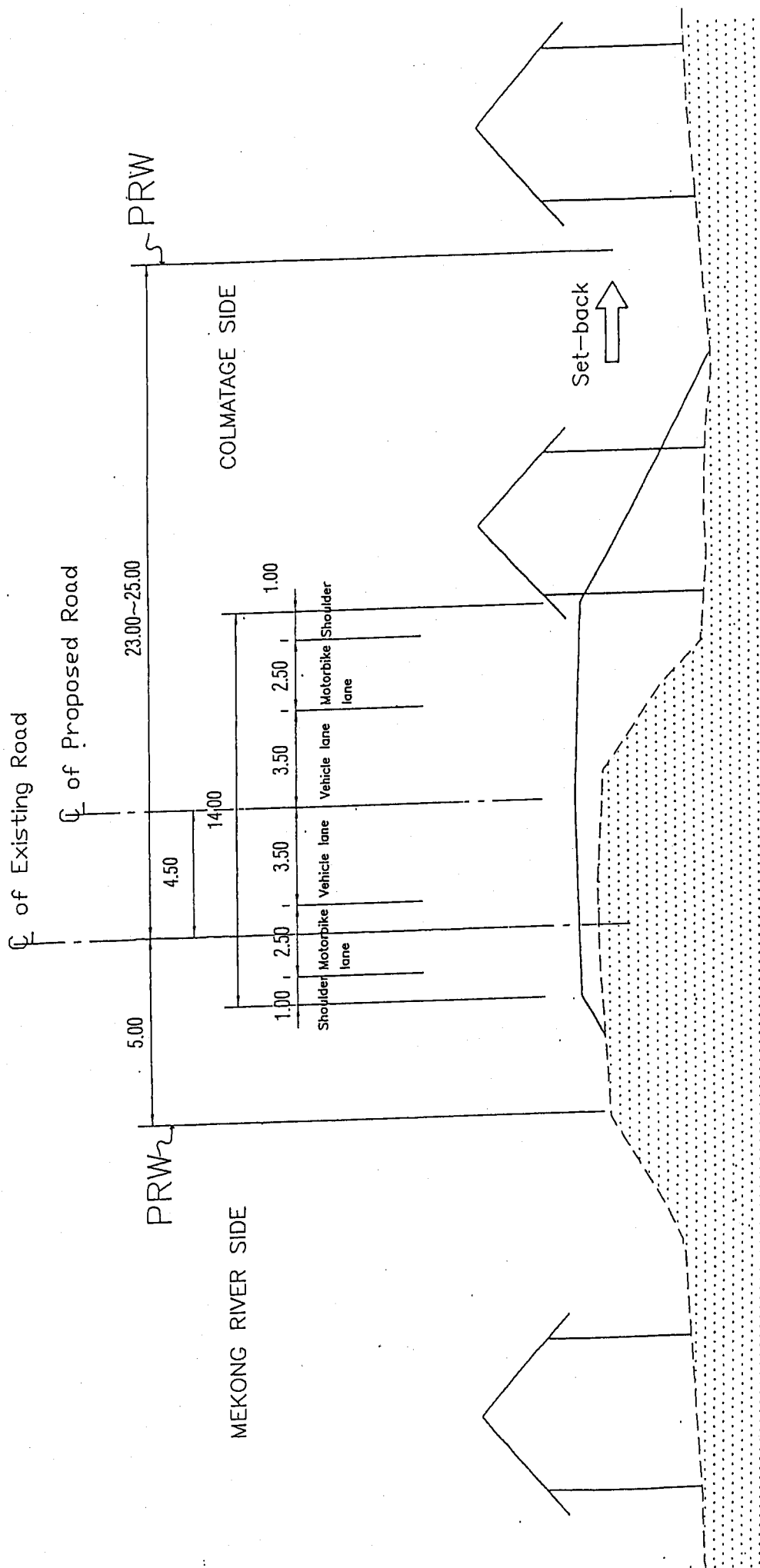
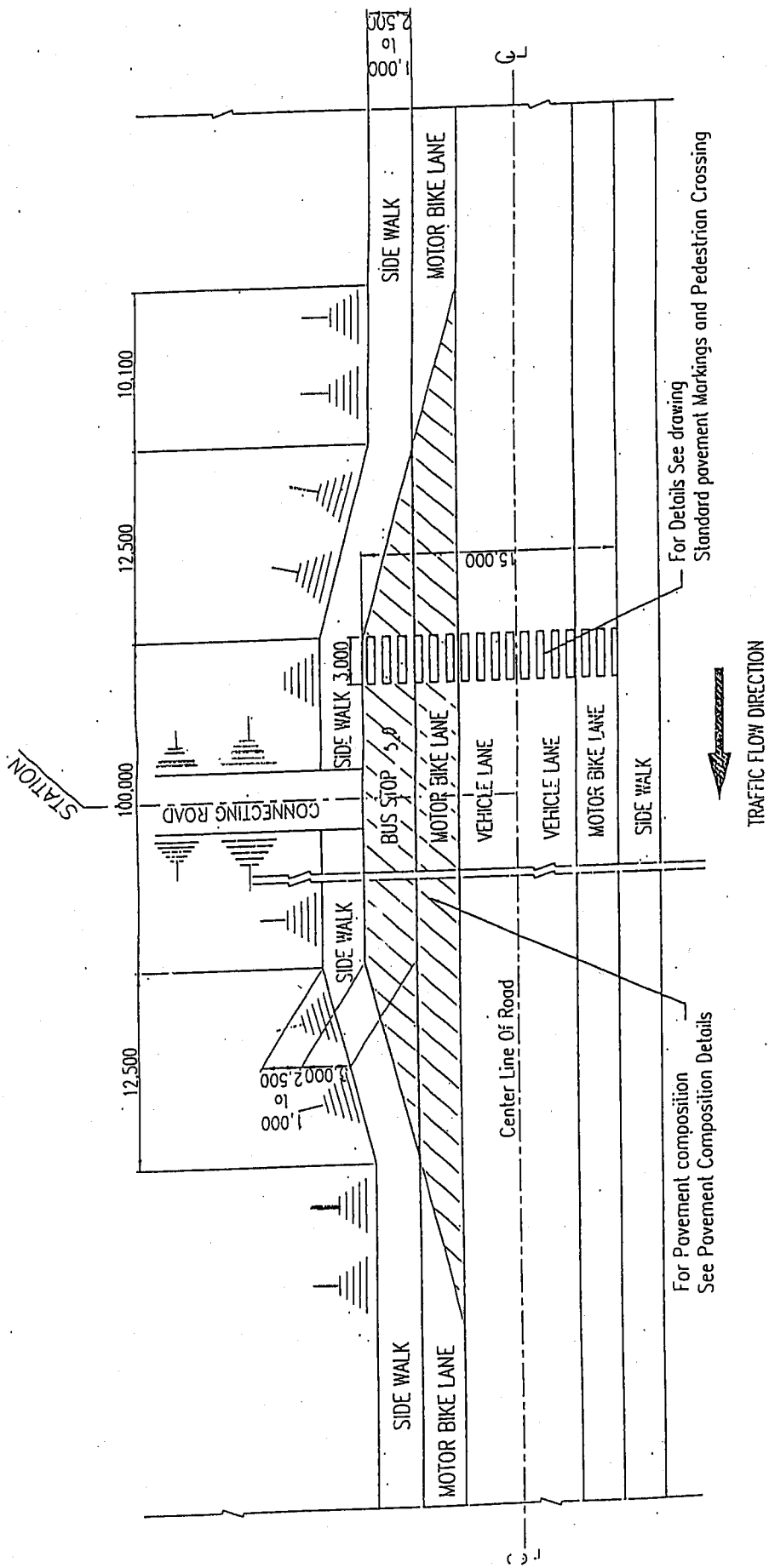


FIGURE-2 : Standard Cross Section

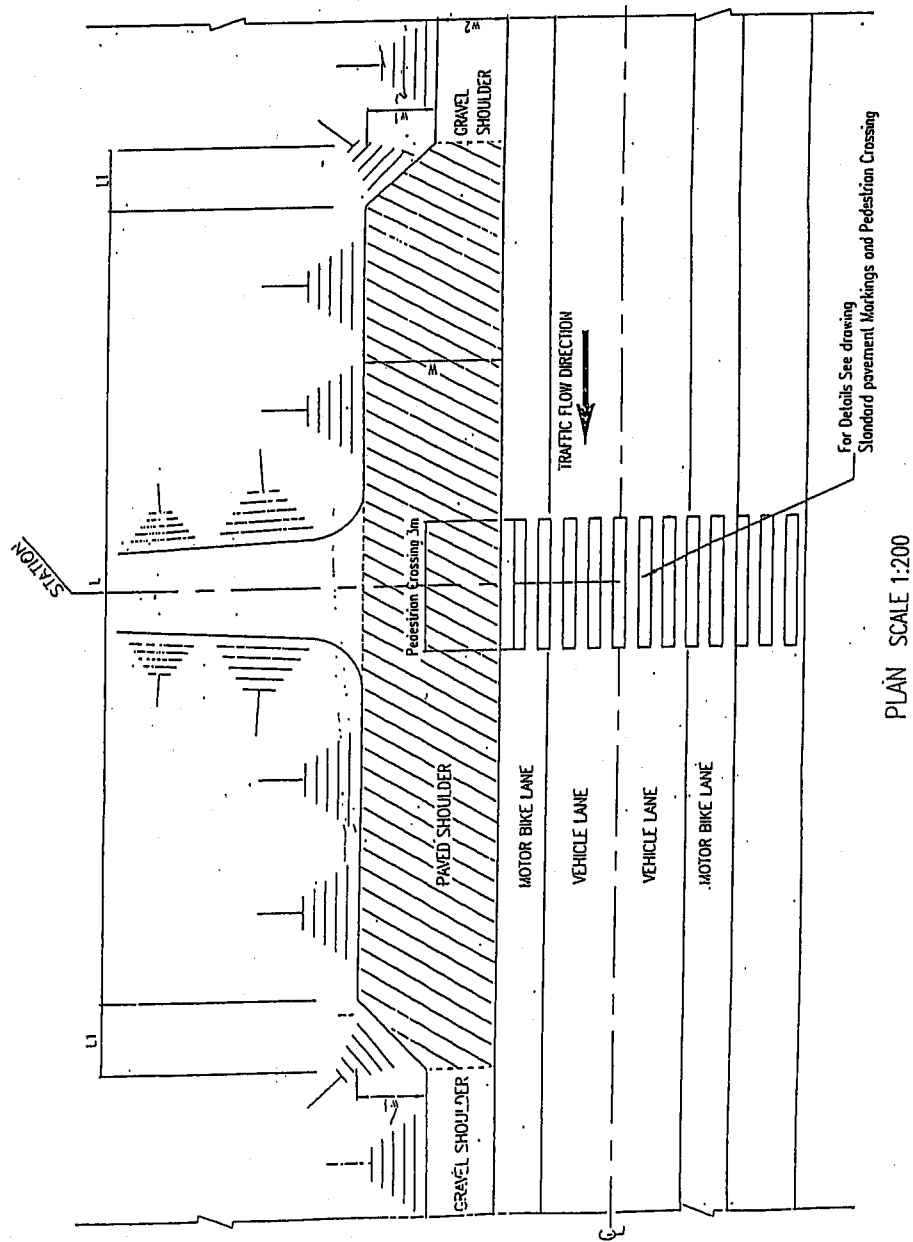
Type 6 RURAL AREA SECTION

((STA. 23+900 ~ 53+400))



PLAN SCALE 1:400

FIGURE—3 Bus Stop / Refuge Space Section



FIGURE—4 School / Health Center / Market Section

資料9 環境ベースライン調査

現地調査写真

大氣污染、水質汚濁、騒音、振動調査



大氣汚染調査 T-1



大氣汚染調査 T-2



大氣汚染調査 T-4



大氣汚染調査 T-5



採水 W-1



水質分析 W-1



採水 W-4



分析 W-4



騒音、振動調査 T-1



騒音、振動調査 T-4



騒音、振動調査 T-5



交通量調査 T-5

動植物相調査



観察調査



観察調査



観察調査



聞き取り調査



聞き取り調査



聞き取り調査

交通量調査データ

Classification	East Bound (to Neak Loeng)					West Bound (to Phnom Penh)					Both Directions				
	Motorbike, Motorbike-Trailer, Tricycles	Passenger Car, Light Van, Pick-up, Jeep, Light Truck	Mini Bus, Short Body Truck(<= 2)	Long Bus, Large Truck (21 <)	Total for East Bound	Motorbike, Motorbike-Trailer, Tricycles	Passenger Car, Light Van, Pick-up, Jeep, Light Truck	Mini Bus, Short Body Truck(<= 2)	Long Bus, Large Truck (21 <)	Total for East Bound	Motorbike, Motorbike-Trailer, Tricycles	Passenger Car, Light Van, Pick-up, Jeep, Light Truck	Mini Bus, Wagon, Short Body Truck(<= 2)	Long Bus, Large Truck (21 <)	Total for Both Directions
6:00 ~ 6:15	22	11	0	6	39	10	5	5	1	21	32	16	5	7	60
6:15 ~ 6:30	31	10	9	3	53	14	12	8	2	36	45	22	17	5	89
6:30 ~ 6:45	26	5	1	0	32	25	1	6	5	36	51	6	6	68	
6:45 ~ 7:00	40	7	7	1	55	24	7	9	0	40	64	16	14	95	
Sub Total	119	33	17	10	179	73	25	27	8	133	192	58	44	312	
7:00 ~ 7:15	53	9	7	2	71	29	4	3	2	38	82	13	10	108	
7:15 ~ 7:30	45	12	7	1	65	27	7	7	2	44	73	19	14	109	
7:30 ~ 7:45	30	11	7	1	49	28	7	3	3	44	57	22	10	93	
7:45 ~ 8:00	29	15	2	6	48	26	7	5	3	41	55	22	7	89	
Sub Total	157	47	23	6	233	110	29	18	10	167	267	76	41	400	
8:00 ~ 8:15	42	17	17	2	78	38	7	10	5	60	80	24	27	138	
8:15 ~ 8:30	42	19	8	3	72	33	6	3	1	53	65	25	11	105	
8:30 ~ 8:45	45	21	7	3	76	37	18	8	2	65	82	39	15	141	
8:45 ~ 9:00	38	13	12	1	64	40	9	16	3	68	78	22	28	132	
Sub Total	167	70	44	9	290	138	40	37	11	226	305	110	81	516	
9:00 ~ 9:15	39	24	7	4	74	47	16	19	2	84	86	40	26	158	
9:15 ~ 9:30	43	16	13	6	78	43	6	13	0	62	86	22	26	140	
9:30 ~ 9:45	34	21	6	2	63	45	17	2	2	83	79	38	25	146	
9:45 ~ 10:00	36	20	6	2	64	39	11	14	4	68	75	31	20	132	
Sub Total	152	81	32	14	279	174	50	65	8	297	328	131	97	576	
10:00 ~ 10:15	27	16	7	1	51	29	13	23	2	67	56	29	30	118	
10:15 ~ 10:30	23	9	6	4	42	44	22	12	0	78	67	28	18	120	
10:30 ~ 10:45	25	15	11	1	52	23	8	2	0	33	48	23	13	85	
10:45 ~ 11:00	19	15	5	2	41	24	13	10	3	50	43	28	15	91	
Sub Total	94	55	29	8	186	120	58	47	5	228	214	111	76	414	
11:00 ~ 11:15	20	7	1	5	33	30	8	7	2	47	50	15	8	80	
11:15 ~ 11:30	25	6	6	2	39	26	13	6	6	51	51	19	12	90	
11:30 ~ 11:45	17	11	6	1	35	17	6	16	0	39	34	17	22	74	
11:45 ~ 12:00	13	7	3	1	24	17	9	5	4	35	30	16	8	59	
Sub Total	75	31	16	9	131	90	36	34	12	172	165	67	50	303	
12:00 ~ 12:15	18	7	5	2	32	22	4	7	1	38	40	15	12	70	
12:15 ~ 12:30	14	9	12	1	36	12	17	6	0	35	26	26	18	71	
12:30 ~ 12:45	24	9	1	2	36	28	7	3	2	40	52	16	4	76	
12:45 ~ 13:00	24	9	4	0	37	20	15	5	2	42	44	24	9	79	
Sub Total	80	34	22	5	141	82	47	21	5	155	162	81	43	286	
13:00 ~ 13:15	15	8	5	2	30	20	15	2	3	40	35	23	7	70	
13:15 ~ 13:30	22	4	5	2	37	13	4	10	3	30	35	12	15	67	
13:30 ~ 13:45	38	4	7	3	52	28	12	2	1	43	66	16	9	95	
13:45 ~ 14:00	19	16	7	3	45	28	3	8	3	35	40	19	6	80	
Sub Total	94	36	24	10	164	82	34	22	10	148	176	70	46	312	
14:00 ~ 14:15	23	15	4	1	43	18	21	4	0	43	41	36	8	86	
14:15 ~ 14:30	32	10	11	1	54	21	10	4	2	37	53	20	15	91	
14:30 ~ 14:45	25	7	7	3	42	12	9	3	1	25	37	16	10	67	
14:45 ~ 15:00	22	10	5	2	39	11	3	6	3	39	33	29	11	78	
Sub Total	102	42	27	7	178	62	59	17	6	144	164	101	44	322	
15:00 ~ 15:15	22	15	12	1	50	25	5	2	1	33	47	20	14	83	
15:15 ~ 15:30	27	12	4	2	45	21	14	8	3	46	48	26	12	91	
15:30 ~ 15:45	28	19	8	1	56	29	14	4	3	50	57	33	12	106	
15:45 ~ 16:00	28	5	7	2	42	28	3	4	3	38	56	8	11	80	
Sub Total	105	51	31	6	193	103	36	18	10	167	208	87	49	360	
16:00 ~ 16:15	23	15	8	3	49	29	18	7	4	56	52	33	15	107	
16:15 ~ 16:30	31	9	7	3	50	25	9	3	3	40	56	18	10	90	
16:30 ~ 16:45	18	9	6	2	35	20	12	7	5	32	38	21	13	79	
16:45 ~ 17:00	18	2	6	3	29	20	12	7	1	44	40	14	13	69	
Sub Total	90	35	27	11	163	94	51	24	13	182	184	86	51	345	
17:00 ~ 17:15	32	7	7	3	49	27	4	3	5	39	59	11	10	88	
17:15 ~ 17:30	31	6	4	3	44	19	24	6	0	49	50	30	10	93	
17:30 ~ 17:45	22	8	8	4	42	16	13	2	2	36	38	21	13	78	
17:45 ~ 18:00	27	7	4	2	40	21	4	3	1	28	48	11	7	69	
Sub Total	112	28	23	12	175	83	45	17	8	153	195	73	40	328	
Grand Total	1347	543	315	107	2312	1211	508	347	106	2172	2558	1051	662	4484	

T-5 (Sta. 46km+040)

Date: 09/March/2005

Classification	East Bound (to Neak Loeng)				West Bound (to Phnom Penh)				Both Directions				Total for Both Directions		
	Motorbike, Motorbike-Trailer, Tricycles	Passenger Car, Light Van, Pick-up, Jeep, Light Truck	Mini Bus, Short Body Truck(<= 2t)	Long Bus, Large Truck (2t <-)	Total for East Bound	Motorbike, Motorbike-Trailer, Tricycles	Passenger Car, Light Van, Pick-up, Jeep, Light Truck	Mini Bus, Short Body Truck(<= 2t)	Long Bus, Large Truck (2t <-)	Total for East Bound	Motorbike, Motorbike-Trailer, Tricycles	Passenger Car, Light Van, Pick-up, Jeep, Light Truck		Mini Bus, Short Body Truck(<= 2t)	Long Bus, Large Truck (2t <-)
6:00 ~ 6:15	16	11	1	3	31	11	7	11	2	31	27	18	12	5	62
6:15 ~ 6:30	19	3	3	1	26	17	1	4	1	23	36	4	7	2	49
6:30 ~ 6:45	24	6	0	1	31	26	11	4	2	43	50	17	4	3	74
6:45 ~ 7:00	45	2	2	2	59	22	4	1	3	28	67	14	3	3	87
Sub Total	104	30	6	7	147	76	23	20	6	125	180	53	26	13	272
7:00 ~ 7:15	36	15	6	0	57	33	13	8	3	57	68	28	14	3	114
7:15 ~ 7:30	37	8	4	0	49	22	9	4	4	39	59	17	8	4	88
7:30 ~ 7:45	35	12	4	1	52	26	8	4	0	34	61	16	4	1	86
7:45 ~ 8:00	21	13	11	2	47	23	13	7	3	46	44	26	18	5	93
Sub Total	129	48	25	3	205	104	39	23	10	176	233	87	48	13	391
8:00 ~ 8:15	42	17	9	2	70	31	5	5	2	43	73	22	14	4	113
8:15 ~ 8:30	41	17	12	0	70	29	9	9	5	52	70	26	14	4	122
8:30 ~ 8:45	32	17	13	4	66	27	14	14	3	58	59	27	27	7	124
8:45 ~ 9:00	32	18	13	2	66	78	11	20	3	108	110	28	33	3	174
Sub Total	147	70	47	8	272	165	37	48	11	261	312	107	95	19	533
9:00 ~ 9:15	33	25	5	1	64	35	16	21	0	72	68	41	26	1	136
9:15 ~ 9:30	50	13	8	0	71	66	11	21	1	99	116	24	29	1	170
9:30 ~ 9:45	32	24	8	0	64	27	11	15	1	54	59	35	23	1	118
9:45 ~ 10:00	21	20	7	1	49	54	6	21	1	82	75	26	28	2	131
Sub Total	136	82	28	2	248	182	44	78	3	307	318	126	106	5	555
10:00 ~ 10:15	25	20	15	3	63	52	2	21	2	96	77	41	36	5	159
10:15 ~ 10:30	30	18	6	2	56	34	2	11	1	48	64	20	17	3	104
10:30 ~ 10:45	18	13	8	5	44	47	12	12	1	72	65	25	20	6	116
10:45 ~ 11:00	25	9	8	1	43	20	1	4	0	25	45	10	12	1	68
Sub Total	98	60	37	11	206	153	36	48	4	241	251	96	85	15	447
11:00 ~ 11:15	27	6	3	0	36	26	14	11	6	57	53	20	14	6	93
11:15 ~ 11:30	18	5	4	4	31	41	1	14	1	67	59	16	18	5	98
11:30 ~ 11:45	18	17	7	7	49	29	13	11	0	53	47	30	18	7	102
11:45 ~ 12:00	21	10	9	0	40	17	9	4	0	30	38	19	13	0	70
Sub Total	84	38	23	11	156	113	47	40	7	207	197	85	63	18	363
12:00 ~ 12:15	23	9	4	2	43	22	4	12	2	40	45	13	21	4	83
12:15 ~ 12:30	18	4	4	0	26	19	17	5	3	44	37	21	9	3	70
12:30 ~ 12:45	19	10	6	3	38	13	2	1	0	16	32	12	7	3	54
12:45 ~ 13:00	18	3	8	2	31	20	6	8	2	6	36	38	16	4	67
Sub Total	78	26	27	7	138	74	29	26	7	136	152	55	53	14	274
13:00 ~ 13:15	16	5	5	4	30	30	9	4	0	24	27	14	9	4	54
13:15 ~ 13:30	17	14	4	0	35	16	4	4	1	25	33	18	8	1	60
13:30 ~ 13:45	11	5	9	2	27	12	17	11	1	41	23	22	20	3	68
13:45 ~ 14:00	17	10	5	3	35	15	3	5	2	25	32	10	10	5	60
Sub Total	61	34	23	9	127	54	33	24	4	115	115	67	47	13	242
14:00 ~ 14:15	26	5	13	4	48	31	12	6	2	51	57	17	19	6	99
14:15 ~ 14:30	28	20	8	2	58	16	2	4	0	22	44	22	12	2	80
14:30 ~ 14:45	25	6	10	2	43	35	10	5	4	54	60	16	15	6	97
14:45 ~ 15:00	19	16	5	2	42	19	3	1	1	24	38	19	6	3	66
Sub Total	98	47	36	10	191	101	27	16	7	151	199	74	52	17	342
15:00 ~ 15:15	22	7	10	2	41	30	16	8	2	56	52	23	18	4	97
15:15 ~ 15:30	29	14	12	1	56	19	4	2	0	25	48	16	14	1	81
15:30 ~ 15:45	23	6	5	4	42	29	19	6	1	55	56	25	11	5	97
15:45 ~ 16:00	27	14	4	4	45	13	2	1	3	19	36	16	5	7	64
Sub Total	101	41	31	11	184	91	41	17	6	155	192	82	48	17	339
16:00 ~ 16:15	27	4	8	1	40	43	15	13	6	77	70	19	21	7	117
16:15 ~ 16:30	33	9	8	3	53	25	5	3	3	42	58	14	17	6	95
16:30 ~ 16:45	16	14	8	2	40	27	8	6	3	44	43	22	14	5	84
16:45 ~ 17:00	16	13	14	2	45	12	4	0	1	17	28	17	14	3	62
Sub Total	92	40	38	8	178	107	32	28	13	180	199	72	66	21	358
17:00 ~ 17:15	11	6	7	1	25	24	7	6	1	38	35	13	13	2	63
17:15 ~ 17:30	25	5	5	2	42	9	10	1	6	21	34	20	6	3	63
17:30 ~ 17:45	24	5	3	0	32	22	9	1	2	34	46	14	4	2	66
17:45 ~ 18:00	28	6	6	1	41	23	11	1	2	40	40	17	10	3	81
Sub Total	88	27	21	4	140	78	37	12	6	133	166	84	33	10	273
Grand Total	1,216	543	342	91	2,192	1,298	425	360	84	2,187	2,514	968	722	175	4,379

騒音・振動調査
大気汚染調査
水質汚濁調査

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第1章 騒音・振動

1. 調査概要

1.1 調査項目

国道1号線（プノンペン-ネアックルン間）沿道において、供用後に住民に騒音・振動の影響が懸念される代表5箇所において騒音・振動の測定をおこなった。

1.2 調査期間

各項目の調査期間を表1.2.1に示す。

表 1.2.1 各項目の調査期間

調査地点名	調査期間
T-1	2005年3月14日（月）6:00～18:00
T-2	2005年3月13日（日）6:00～18:00
T-3	2005年3月11日（金）6:00～18:00
T-4	2005年3月10日（木）6:00～18:00
T-5	2005年3月9日（水）6:00～18:00

1.3 調査地点

調査地点一覧表は表1.3.1に示すとおり。

表 1.3.1 調査地点一覧表

調査地点記号	起点（モニボンブリッジ）からの距離 [km]	地点目標等
T-1	1.6	学校
T-2	4.1	住居地域
T-3	5.9	学校附近
T-4	35.2	寺院
T-5	46.0	住居地域

1.4 調査方法

1) 騒音

等価騒音レベル及び時間率騒音レベルの測定は、「騒音に係る環境基準について（平成10年9月30日環境庁告示第64号）」に定める方法を基本とし、計量法第71条の条件に合格し、且つJIS C 1502 付属書「等価騒音レベル、単発暴露騒音レベルを求めるに必要な機能」を備えた「積分型騒音計」を用いて12時間連続で観測した。尚、瞬時値は200ms間隔で騒音計に内蔵された記憶部に連続でデータを取り込み蓄積し、蓄積されたデータは、メモリーカードを介してコンピュータへ転送し、統計値を演算処理した。

また、騒音測定時における気象状況として、毎時間ビラム微風速計を用いて風向・風速及び天候の観測をおこなった。騒音レベルの測定条件は、表1.4.1に示すとおりである。

表 1.4.1 騒音レベルの測定条件

項目	設定条件
積分型騒音計の周波数特性	A特性
積分型騒音計の動特性	Fast
瞬時値のサンプリング間隔	200ms
瞬時値のサンプリング数	216000個
マイクロホン高さ	1.2m
防風スクリーン	常時着用

2) 振動

測定機器は「計量法第71条」の条件に合格した振動レベル計を用い、測定方法は「JIS Z 8735」に定められた「振動レベルの測定方法」に準じ、メモリー機能を備えた振動計を用いて12時間連続で観測した。尚、瞬時値は1秒間隔で振動計に内蔵された記憶部に連続でデータを取り込み蓄積し、蓄積されたデータは、メモリーカードを介してコンピュータへ転送し、統計値を演算処理した。振動レベルの測定方法を表1.4.2に示す。

表 1.4.2 振動レベルの測定条件

項目	設定条件
振動レベル計の振動感覚補正回路	鉛直振動特性
振動レベル計の動特性	VL
測定成分	鉛直成分
瞬時値のサンプリング間隔	1秒間隔
瞬時値のサンプリング数	43200個

3) 風向・風速

風向の観測は、ピラム式風速計に付属している風向計を毎正時から 10 分間について、最多風向を目視により観測した。また、風速はピラム式風速計を用いて、毎正時から 10 分間の平均風速を測定した。

1.5 使用機器

騒音・振動調査で使用する計測機器は、表 1.5.1 に示すとおりである。

表 1.5.1 使用計測器

項目	機器名称	製造会社	形式	測定範囲	周波数範囲	
騒音	積分型騒音計	リオン(株)	NL-22	28~130dB	20~8000Hz	
振動	振動レベル計		VM-53A	28~120dB(鉛直振動特性)	1~80Hz	
風向・風速	中浅式風向風速計 (ピラム式風速計)	中浅測器(株)	A-110	風向	360°	360°
				風速	1目盛風程 1m	1~15m/s
天候	目視により観測する。					

1.6 調査結果の整理方法

1) 騒音

騒音計に蓄積された 12 時間分の瞬時値は、コンピュータを用いて 60 分毎に等価騒音レベル(L_{Aeq})及び時間率騒音レベル(L_{AX})を演算処理し、一覧表に整理した。

尚、救急車のサイレンや歩行者の話し声等の道路交通騒音以外の騒音については除外したが、クラクションについては走行時高い頻度で使用されている交通事情から道路交通騒音の範囲内であると考え、除外をおこなわなかった。

2) 振動

振動計に蓄積された 12 時間分の瞬時値は、コンピュータを用いて 60 分毎に等価振動レベル(L_{eq})及び時間率振動レベル(L_X)を演算処理し、一覧表に整理した。

2. 調査結果

2.1 騒音

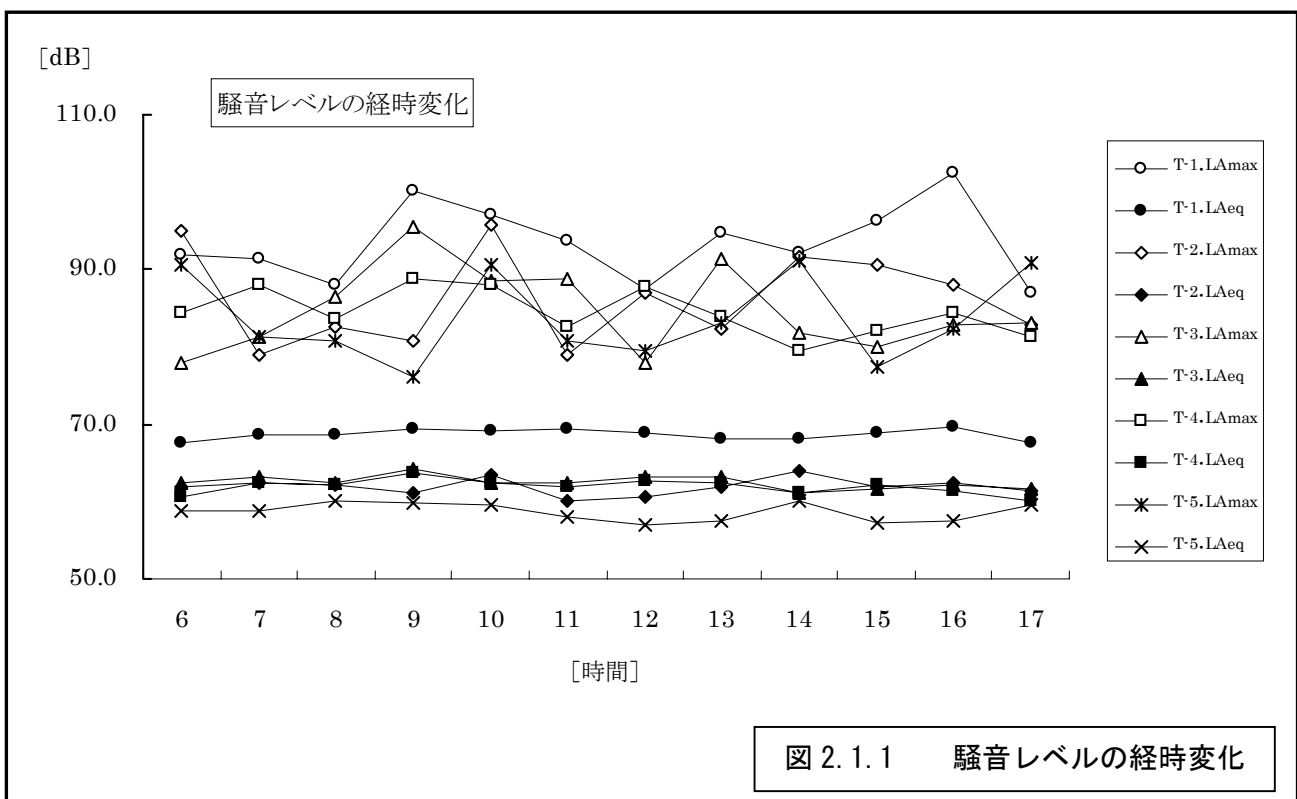
騒音レベルの測定結果を表 2.1.1 に、等価騒音レベルの経時変化を図 2.1.1 に示す。

各地点における 12 時間の等価騒音レベル (L_{Aeq}) は 58.8~68.7dB であり、最大は T-1 地点、最小は T-5 地点であった。また、各地点の 12 時間の最大値 (L_{Amax}) は 88.7~102.5dB であり、音源の大半がクラクションによる騒音で占められていた。

環境基準は T-5 地点で満足していたほかは、同基準を 2dB~24dB 超過していた。

表 2.1.1 騒音レベルの測定結果

調査地点		T-1	T-2	T-3	T-4	T-5
道路中心から敷地境界までの距離[m]		15	30	30	30	30
用途地域		病院・学校等に近接する地域	住居地域	病院・学校等に近接する地域	住居地域	住居地域
等価騒音レベル (L_{Aeq}) [dB]	12 時間	68.7	62.1	62.6	62.0	58.8
	最大	69.6	63.9	64.3	63.8	60.1
	最小	67.7	60.2	61.0	60.1	57.0
環境基準		45	60	45	60	60
環境基準の適否		×	×	×	×	○



2.2 振動

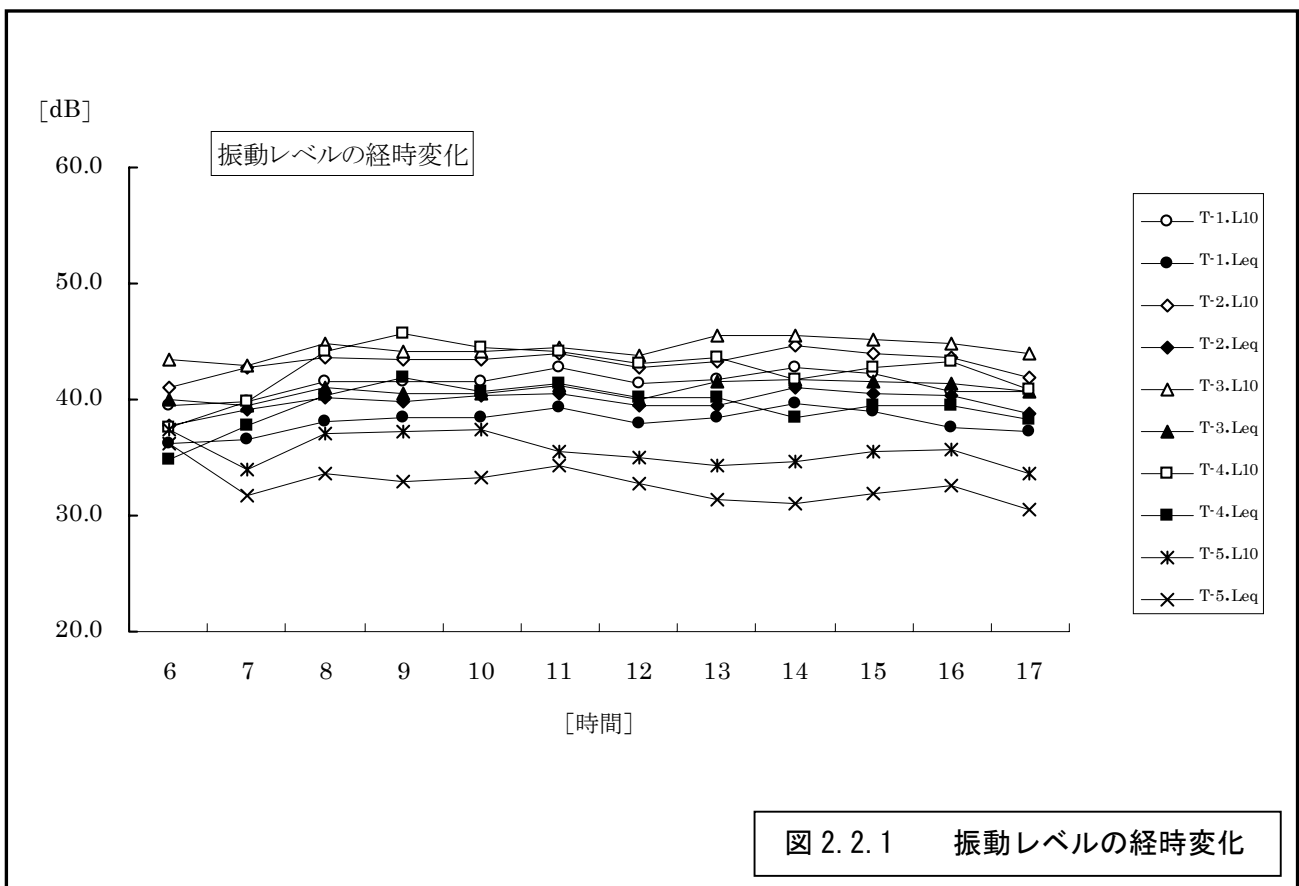
振動レベルの測定結果を表 2.2.1 に、振動レベルの経時変化を図 2.2.1 に示す。

各調査地点における 12 時間の等価振動レベルは 33.0dB~40.9dB であり、最大は T-3 地点、最小は T-5 地点であった。また、経時変化は各地点概ね横ばいに推移しており、時間経過による大きな変動はみられなかった。

参考までに、日本国における評価方法である時間率振動レベル (L_{10}) の 12 時間平均は、35.6~44.4dB であり最大は T-3 地点、最小は T-5 地点であった。

表 2.2.1 振動レベルの測定結果

地点番号		T-1	T-2	T-3	T-4	T-5
現敷地境界から将来敷地境界までの距離[m]		15	30	30	30	30
用途地域		病院・学校等に近接する地域	住居地域	病院・学校等に近接する地域	住居地域	住居地域
等価振動レベル (L_{eq}) [dB]	12 時間	38.2	39.9	40.9	39.7	33.0
	最大	39.6	41.0	41.7	41.9	36.2
	最小	36.2	37.7	39.5	34.8	30.6
時間率振動レベル (L_{10}) [dB]	12 時間	41.3	43.2	44.4	42.6	35.6
	最大	42.7	44.6	45.6	45.7	37.4
	最小	39.5	41.1	42.9	37.6	33.7



第2章 大気汚染

1. 調査概要

1.1 調査項目

騒音・振動及び交通量の調査地点と同一場所において、一酸化炭素 (CO)、二酸化窒素 (NO₂)、二酸化硫黄 (SO₂)、全粒子状物質 (TPM) の4項目について測定をおこなった。

1.2 調査期間

各項目の調査期間を表 1.2.1 に示す。

表 1.2.1 各項目の調査期間

調査地点	調査期間
T-1	2005年3月14日(月) 6:00~18:00
T-2	2005年3月13日(日) 6:00~18:00
T-3	2005年3月11日(金) 6:00~18:00
T-4	2005年3月10日(木) 6:00~18:00
T-5	2005年3月12日(土) 6:00~18:00

1.3 調査地点

調査地点は、「第1章 騒音・振動・交通量」の調査地点と同一である。

1.4 調査方法

1) 一酸化炭素 (CO)

一酸化炭素の測定方法は、検知管を専用シェルターに取り付け、高さ 4m の位置において 24 時間暴露させた後に濃度を読み取った。

2) 二酸化窒素 (NO₂)

二酸化窒素の測定は、インピンジャーに吸収液 (TEA 溶液) を 20ml 注入し、0.4l/min の流量で試料大気をサンプリングし、サンプリング後に吸収液を用いて 25ml にメスアップする。メスアップした試料を 10ml 共栓付試験管に分取しスルファニルアミド (1%) 溶液を 1ml 加え振倒させ 15 分室温にて放置する。後に N-1 ナフチルエチレンジアミン 2 塩酸塩 (0.1%) 溶液を 1ml 加え、振倒させ 30 分室温で放置し発色させる。発色後に分光光度計を用いて 545nm 付近の吸光度を測定しあらかじめ作成した検量線から濃度を算出した。

3) 二酸化硫黄 (SO₂)

二酸化硫黄の測定は、インピンジャーに吸収液 (TEA 溶液) を 20ml 注入し、1~5l/min の流量で試料大気をサンプリングし、サンプリング後に吸収液を用いて 25ml にメスアップする。メスアップした試料を 10ml 共栓付試験管に分取しパラローズアニリン塩酸塩溶液を 2ml 加えて振倒し 35 分室温で放置し発色させる。発色後に分光光度計を用いて 560nm 付近の吸光度を測定し、あらかじめ作成した検量線から濃度を算出した。

4) 全粒子状物質

全粒子状物質の測定は、分粒器を除いたホルダーにあらかじめ秤量しておいたガラス繊維ろ紙を装着し、約 3l/min の流量で 12 時間吸引する。吸引後、ガラス繊維ろ紙をデシケーター内で乾燥後秤量をおこない濃度を算出した。

1.5 使用機器

大気質調査で使用するサンプリング及び計測機器は表 1.5.1 に示すとおりである。

表 1.5.1 使用計測器

項目	機器名称	製造会社	形式	測定範囲	備考
一酸化炭素	検知管	ガステック	1DL	0.4~400ppm	24 時間暴露
二酸化窒素 二酸化硫黄	サンプラー	紀本	HS-6N	—	—
	分光光度計	JENWAY	6105UV	可視光線域	イギリス製
全粒子状物質	ローボリューム エアサンプラー	ECOTECH	Microvol1000	—	ノルウェー製
	上皿天秤	Sartorius	BP210D	—	—

1.6 調査結果の整理方法

各項目の定量下限値および単位を表 1.6.1 に示す。

表 1.6.1 調査結果の整理方法

項目	記号	単位	調査結果の取り扱い	定量下限値
一酸化炭素	CO	ppm	整数	<1
二酸化窒素	NO ₂	ppm	小数点以下第 3 位	<0.004
二酸化硫黄	SO ₂	ppm	小数点以下第 3 位	<0.003
全粒子状物質	TPM	mg/m ³	有効数字 3 桁	<0.005

2. 調査結果

2.1 大気汚染測定結果概要

大気汚染測定結果一覧表を表 2.1.1 に示す。

各項目の濃度は、一酸化炭素 3~14ppm, 二酸化窒素 0.009~0.055ppm, 二酸化硫黄<0.003ppm (定量下限値) ~0.011ppm, 全粒子状物質<0.005 (定量下限値) ~0.436ppm であり、総ての項目で T-1 地点が最も高くなっていた。

表 2.1.1 大気汚染測定結果一覧表

項目	単位	調査地点				
		T-1	T-2	T-3	T-4	T-5
一酸化炭素 (CO)	ppm	14	3	6	3	10
二酸化窒素 (NO2)		0.055	0.040	0.010	0.013	0.009
二酸化硫黄 (SO2)		0.011	0.004	ND<0.003	ND<0.003	ND<0.003
全粒子状物質 (TPM)	mg/m ³	0.436	0.151	0.105	0.0507	ND<0.005

2.2 環境基準との比較

カンボジア王国では、測定をおこなった全項目について環境基準が定められている。環境基準との比較を表 2.2.1 に示す。

尚、カンボジア国内においての環境基準は、短期的評価で 1 時間平均値・8 時間平均値に設定されている。本調査では 12 時間のサンプリングにて得られた結果を、短期的評価の 8 時間平均値の値と比較した。環境基準を超過していたのは T-1 地点の全粒子状物質であり、環境基準を概ね 100 mg/m³ 超過していた。

表 2.2.1 環境基準との比較

	一酸化炭素 (CO) [ppm]		二酸化窒素 (NO2) [ppm]		二酸化硫黄 (SO2) [ppm]		全粒子状物質 (TPM) [mg/m ³]	
	測定結果	基準の 適否状況	測定結果	基準の 適否状況	測定結果	基準の 適否状況	測定結果	基準の 適否状況
T-1	14	○	0.055	○	0.011	○	0.436	×
T-2	3	○	0.040	○	0.004	○	0.151	○
T-3	6	○	0.010	○	ND<0.003	○	0.105	○
T-4	3	○	0.013	○	ND<0.003	○	0.0507	○
T-5	10	○	0.009	○	ND<0.003	○	ND<0.005	○
基準値	1h. ave : <40ppm 8h. ave : <20ppm		1h. ave : <0.300ppm 8h. ave : <0.100ppm		1h. ave : <0.500ppm 8h. ave : <0.300ppm 1y. ave : <0.100ppm		8h. ave : <0.330mg/m ³ 1y. ave : <0.100mg/m ³	

第3章 水質汚濁

1. 調査概要

1.1 調査項目

国道1号線（プノンペン～ネアックルン間）沿道において、供用後に水質汚濁が懸念される5箇所において、溶存酸素（DO）、浮遊物質（SS）、生物化学的酸素要求量（BOD）の測定・分析をおこなった。

1.2 調査期間

サンプリング及び分析日を表1.2.1に示す。

表 1.2.1 各項目の調査期間

項目	期間
サンプリング 溶存酸素（DO） 浮遊物質（SS） 生物化学的酸素要求量（BOD-day1）	2005年3月10日（木）
生物化学的酸素要求量（BOD-day5）	2005年3月15日（火）

1.3 調査地点

調査地点一覧表は表1.3.1に示すとおりである。

表 1.3.1 調査地点一覧表

調査地点番号	起点（モニポンブリッジ）からの距離 [km]	採水場所の状況
W-1	9.7	民家の井戸
W-2	20.0	メコン川
W-3	23.3	養魚場
W-4	32.7	池
W-5	54.5	民家の井戸

1.4 調査方法

1) 水素イオン濃度 (ph)

水素イオン濃度の測定及び分析は、採水時に暴気させないように気を配り、直ちに ph メーターを用いて測定をおこなった。

2) 溶存酸素 (DO)

溶存酸素の測定及び分析は、採水時に暴気させないように気を配り、直ちに DO メーターを用いて測定をおこなった。

3) 浮遊物質量 (SS)

試料 50~100ml についてろ過（フィルターはワットマン GFC を使用）をおこない、110℃で乾燥後秤量し濃度を算出した。

4) 生物化学的酸素要求量 (BOD)

生物化学的酸素要求量の分析は、数本のフラン瓶を用意し、1本は1日目の溶存酸素量を測定し、残りのフラン瓶は希釈率の異なる試料を入れ 20℃の恒温槽に 5 日間放置した後に溶存酸素量を測定し、消費された溶存酸素量が生物化学的酸素要求量 (BOD) となる。尚、溶存酸素量の分析は、アルカリ性よう化カリウム・アジ化ナトリウム変法を用いた。

1.5 調査結果の整理方法

各項目の定量下限値および単位を表 1.5.1 に示す。

表 1.5.1 調査結果の整理方法

項目	記号	単位	調査結果の取り扱い
水素イオン濃度	ph	—	有効数字 2 桁
溶存酸素	DO	mg/l	有効数字 2 桁
浮遊物質量	SS		整数
生物化学的酸素要求量	BOD		有効数字 2 桁

2. 調査結果

2.1 水質汚濁測定結果概要

水質汚濁測定結果一覧表を表 2.2.1 に示す。

各項目の濃度は、水素イオン濃度 (ph) 7.1~8.3, 溶存酸素 (DO) 1.3~8.9mg/l, 浮遊物質量 (SS) 20~98mg/l, 生物化学的酸素要求量 (BOD) 0.25~19.0 mg/l であった。

表 2.1.1 水質汚濁測定結果一覧表

項目	単位	調査地点				
		W-1	W-2	W-3	W-4	W-5
採水時の天候	—	晴	晴	晴	晴	晴
水温	℃	29.5	29.5	32.1	28.6	29.7
水素イオン濃度 (ph)	—	7.1	8.3	8.3	7.7	6.6
溶存酸素量 (DO)	mg/l	2.0	7.4	8.9	4.4	1.3
浮遊物質量 (SS)		24	24	98	290	20
生物化学的酸素要求量 (BOD)		1.2	0.42	19.0	4.6	0.25

2.2 環境基準との比較

「カ」国では、測定をおこなった全項目について環境基準が定められている。環境基準との比較を表 2.2.1~表 2.2.2 に示す。尚、養魚場 (W-3) 及び池 (W-4) は河川の基準と比較させた。

環境基準と比較すると、溶存酸素 (DO) は W-3 及び W-5 地点, 浮遊物質量 (SS) は W-4 地点, 生物化学的酸素要求量 (BOD) は W-3 地点で超過していた。

表 2.2.1 上水道における環境基準との比較

	水素イオン濃度 (ph) [—]		溶存酸素 (DO) [mg/l]		浮遊物質量 (SS) [mg/l]		生物化学的酸素要求量 (BOD) [mg/l]	
	測定結果	基準の適否状況	測定結果	基準の適否状況	測定結果	基準の適否状況	測定結果	基準の適否状況
W-1	7.1	○	2.0	○	24	○	1.15	○
W-5	6.6	○	1.3	×	20	○	0.25	○
基準値	6.0~9.0 の範囲内であること。		2.0 mg/l 以上であること。		50 mg/l 以下であること。		30 mg/l 以下であること。	

表 2.2.2 河川における環境基準との比較

	水素イオン濃度 (ph) [-]		溶存酸素 (DO) [mg/l]		浮遊物質 (SS) [mg/l]		生物化学的酸素 要求量 (BOD) [mg/l]	
	測定結果	基準の 適否状況	測定結果	基準の 適否状況	測定結果	基準の 適否状況	測定結果	基準の 適否状況
W-2	8.3	○	7.4	○	24	○	0.42	○
W-3	8.3	○	8.9	×	98	○	19.1	×
W-4	7.7	○	4.4	○	290	×	4.61	○
基準値	6.5～8.5の範囲内 であること。		2.0～7.5mg/lの 範囲内であること。		25～100mg/lの 範囲内であること。		1.0～10.0mg/lの 範囲内であること。	