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. กตกสุธิยบาร


## 






Source: "Cambodia: Enhancing Governance for Sustainable Development, Working Paper No. 14, Cambodia Devekopment Resource Institute, May 2000

Cambodia Reform Plan

## 

 נuสibntis:













（1）ต่โาอเกเดเว่อา

| ．ตnดก⿺𠃊ิ | ： | 2001－2005 |
| :---: | :---: | :---: |
|  |  | 2006－2010 |
|  |  | 2011－2015 |

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Source：Enhancing Government for Sustainable Development Cambodia Development Resource Institute．May 2000 Future ODA

The available fund estimated for the Plan is：
－2001～2005：US $\$ 85$ million／ 5 years
－2006～2010：US $\$ 120$ million／ 5 years
－2011～2015：US\＄ 155 million／ 5 years
The required amount of fund for the Plan is：
－2001～2005：US\＄ 106 million／ 5 years
－2006～2010：US $\$ 129$ million／ 5 years
－2011～2015：US $\$ 141$ million／ 5 years



## 




 อูตตรา ：


－ต่ยกเณัญ゙







กยู้







 หรีงมูต์ธี



Road Development with High Land Development Potentiality

Overall Implementation Schedule (1/2)


Overall Implementation Schedule (2/2)












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Pedestrians Crossing the Road


School children Distributing Campaign Stickers
คาเููดยูย่าดกตาตณก：



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ถูกสตเต่


 รามราสก








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| Survey | No.of Vehicke Stopping over Stop-Line |  | No.of Vehicle Stopping on Opposing Road |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Car | M'cycie | Car | M'cycle |
| Before | 23.2\% | 61.7\% | 3.6\% | 21.7\% |
| After | 3.4\% | 30.1\% | 1.7\% | 17.3\% |



Poster and Newspaper Announcement





| Survey | No.of signal <br> Cycles | No.of Cycles with <br> Congestion |  |
| :---: | :---: | :---: | :---: |
| Before Campaign | 60 | 8 | $13 \%$ |
| During Campaign | 60 | 0 | $0 \%$ |
| After Campaign | 60 | 3 | $5 \%$ |
| Time Period $-9: 00-10: 00$ |  |  |  |






 ธภยงเูัส



 (4) กาเ่ตันรุกราหฐาเท









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Bus Body Sticker












Outline of Bus Operation Experiment

## a. Bus route

Radial route and ring route
b. Bus fleet

23 air-conditioned minibus (29 seats)
With logo sticker, front board and designated number
c. Fare systema

800 riels flat fare
(Cheaper fare of 500 riels for the first 5 days and the last 8 days)
d. Operation hours and frequency

5:30-19:30 (14 Hours)
Every 6-10 minutes
e. Bus stop and bus shelter

Installation of 56 bus stops and renovation of 8 shelters
Bus stop will be provided every $300-500 \mathrm{~m}$
f. Improvement of the circumastances of the bus routes

Prohibition of motoscycles along bus route
Installation of bus stop marking on the routes
Prohibition of parking in front of bus stop
g. Advertisement and others

Traffic campaign
Public infomation by TV, radio, banner and newspaper
Distribyution of posters and pamphlets
h. Bus passenger demand forecast
, 500 riels flat fare: 12,900 passengers/day


800 riels flat fare: 4,900 passengers/day
(3) จกษูกาด




























 PPCS ntareagini y


Opening Ceremony of Hun Sen Park













Banners and PPCS Bus


Students waiting for PPCS Bus












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 [อाยกต $25 \%$





Boarding and Alighting Passengers by Bus Stop
(29 June 2001)







Degree of awareness of the experiment Type of media ( 30 May)

 เรเตึงบกั 4




Type of Media (30 May 2001)






 บมุบ่ยทตีตยโุ: $15.2 \%$ า




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Location of Experimental Pavement Improvement
(2) บติษัగ













Before Improvement (St. 105)


After Improvement (St. 105)

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|  | Prior to <br> Improvement <br> (Jan. 2001) | After <br> Improvement <br> (Mar. 2001) | During Public <br> Experiment <br> (Jun. 2001) |  |
| :--- | :---: | :---: | :---: | :---: |
| Monivong | 17.1 | 22.6 | 21.4 | 21.9 |
| St.63 | 19.0 | 18.8 | 16.4 | 16.7 |
| St.105 | 16.6 | 15.3 | 15.0 | 15.2 |












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Traffic Volume

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(1) เตาถบ่ถภเง















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## Bus Operation Plan


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| Items |  | unit | Routes |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Immediate Action Plan 4 routes | Short-term Plan 9 routes |
| A | Route length |  | km | 36 | 92 |
| B | Passenger demand | passenger/day | 23,750 | 49,360 |
| C | Type of bus |  | Minibus (45 passenger) |  |
| D | Number of bus | unit | 64 | 148 |
| E | Required number of bus | unit | 75 | 175 |
| F | Total number of staff | staff | 300 | 700 |
| G | Number of bus stops | unit | 148 | 325 |
| H | Number of bus shelters | unit | 40 | 90 |
| I | Existing bus terminal in CBD | sq. m | 1,430 | 4,200 |
| J | Existing bus terminal in suburban area | sq. m | 1,300 | 3,400 |
| K | Total area of depot | sq. m | 3,680 | 7,050 |
| L | Total area of office space | sq. m | 2,250 | 5,250 |



Bus Operation Experiment Routes

Proposed Bus Routes and Facilities



Project Cost

|  | Immediate <br> Plan | Short-term <br> Plan * | Total * |
| :--- | :---: | :---: | :---: |
| Basic Design | 0.6 | - | 0.6 |
| Bus Fleet | 4.8 | 6.4 | 11.2 |
| Bus Facilities | 0.9 | 0.9 | 1.8 |
| Engineering | - | 1.2 | 1.2 |
| Total | 6.3 | 8.5 | 14.8 |

[^0]
##  

 . มโmuninis $12 \%$









|  |
| :--- |
| Economic and Financial Costs Economic <br> Cost Financial <br> Cost <br> Initial Investment 1.561 13.015 <br> Monthly Operating Ex- <br> penses 0.014 0.265 <br> Monthly <br> ministration Expenal \& Ad- 0.046 0.091 |



 $21.90 \%$ ч



Benefit Indicators

| Benefit Indicators | Economic <br> Indicators | Financial <br> Indicators |
| :--- | :---: | :---: |
| Net Present Value <br> (US Million) | 4.94 | -9.94 |
| B/C | 1.46 | 0.80 |
| EIRR/FIRR (\%) | 21.9 | 1.6 |

## 













| Cost Ratio of Operational Options |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Items | A) Gov' <br> Direct | B) Gov't Indirect | $\left\|\begin{array}{l} \text { C) } \operatorname{Con} \\ \text { tract Out } \end{array}\right\|$ | $\begin{aligned} & \text { D) } 3^{\text {ro }} \\ & \text { Sector } \end{aligned}$ | E) 80 T | F) Pri vate |
| Initial Investment | 13,015 | 265 | 13,015 | 11,494 | 13,044 | 13,044 |
| Revenue (1) | 295 | 295 | 295 | 295 | 295 | 295 |
| Operational Expenses | 263 | 263 | 227 | 265 | 265 | 265 |
| Gentral \& Adm. Expenses | 72 | 28 | 72 | 101 | 172 | 172 |
| $\begin{aligned} & \text { Total Expenses } \\ & \text { (2) } \end{aligned}$ | 334 | 290 | 299 | 366 | 437 | 437 |
| $\begin{aligned} & \text { Profit-Loss } \\ & \text { (1) - (2) } \end{aligned}$ | -39 | 5 | -3 | -70 | -142 | -142 |
| $\begin{aligned} & \text { Cost Ratio (\%) } \\ & (2) /(1) \end{aligned}$ | 113.1\% | 98.2\% | 101.2\% | 123.9\% | 148,0\% | 148.0\% |




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## (7) ธุ



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 DPWT
. maganeaviniva MPP





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## FEASIBILITY STUDY





| Year | Immediate Action Plan |  |  |  | Short-term Plan |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { Revc- } \\ \text { nue } \\ \hline \end{gathered}$ | $\begin{gathered} \text { Ex- } \\ \text { pense } \end{gathered}$ | Balance | Acc. Bal | Revenue | $\begin{gathered} \text { Ex- } \\ \text { pense } \end{gathered}$ | Bal- ance | Acc. Bal |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 1,060 | 1,364 | -304 | -304 | 1,060 | 1,386 | -326 | -326 |
| 2005 | 1,535 | 1,364 | 171 | -133 | 3,189 | 3,185 |  | -322 |
| 2006 | 1,587 | 1,449 | 138 | 5 | 3,299 | 3,682 | -383 | -705 |
| 2007 | 1,642 | 1,541 | 101 | 106 | 3,412 | 3,900 | -488 | -1,193 |
| 2008 | 1,698 | 1,643 | 55 | 161 | 3,529 | 4,136 | -607 | -1,800 |
| 2009 | 1,757 | 1,790 | -33 | 128 | 3,650 | 4,392. | . 742 | -2,542 |
| 2010 | 2,596 | 1,954 | 642 | 770 | 5,393 | 4,670 | 723 | -1,819 |
| 2011 | 2,674 | 2,071 | 603 | 1,373 | 5,555 | 4,913 | 642 | -1,177 |
| 2012 | 2,754 | 2,198 | 556 | 1,929 | 5,722 | 5,173 | 549 | -628 |
| 2013 | 2,837 | 2,460 | 377 | 2,306 | 5,894 | 5,894 | 0 | . 628 |
| 2014 | 2,922 | 2,840 | 82 | 2,388 | 6,599 | 6,532 | 67. | -561 |
| Total | 23,062 | 20,674 | 2,388 |  | 47,302 | 47,863 | -628 |  |
| $\begin{gathered} \hline \text { E/R rate } \\ (\%) \\ \hline \end{gathered}$ |  |  |  | 90 |  |  |  | 101 |

## (9) เงตีำเา



















Stage Implementation Schedule and Fund Requirement


Source: The Study Team
Rernarks:
is for Immediate Action (Plan).
is for Full-scale Operation

(1) เสาเธบ่ยดด















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| Type | Major Items of linproverient |
| :---: | :---: |
| 1: Major-Major | - Installetion of lefthumi lene <br> - Ingtall/iarprove of sifal (eet-tann phase) |
| 2: Major-Collector | - Inctallation of left-turna lane (inclode, partial widening of carringeway) <br> - Install/improve of signal (left-turn phate) |
| 3: Unsignalized Intersection | - One-way regulation on suider road <br> - Install/improve sigral <br> - Install bettorin lame |




| No. | Type of Improvement |
| :---: | :---: |
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 2 |
| 5 | 2 |
| 6 | 1 |
| 7 | 3 |
| 8 | 1 |
| 9 | 3 |
| 10 | 1 |
| 11 | 2 |
| 12 | 2 |
| 13 | 3 |
| 14 | 1 |
| 15 | 1 |
| 16 | 3 |
| 17 | 3 |
| 18 | 2 |
| 19 | 1 |
| 20 | 1 |
| 21 | 3 |
| 22 | 3 |
| 23 | 2 |
| 24 | 3 |
| 25 | 2 |
| 26 | 3 |
| 27 | 2 |
| 28 | 2 |
| 29 | 3 |
| 30 | 2 |
| 31 | 2 |
| 32 | 3 |
| 33 | 3 |

Proposed Intersections to be signalized
















Intersection of Sihanouk Blvd with St. 199
(Existing Feature)


Intersection of Sihanouk Blyd with St. 199
(Standard Design)






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## (5) กัยห่ากด









| Intersection | EIRR \% | B/C | NPV |
| :---: | :---: | :---: | :---: |
| 33 proposed intersections | 44.9 | 3.4 | 6,500 |

(Unit of NPV: Thousand US\$)

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(9) ๗ฐิถี่าร








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(1) เตาฉบ่ดกร






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Proposed Roads to be improved

| No. | Evaluation Factors |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | (1) | (2) | (3) | (1) | (3) |
| 1 | 0 | 0 | 0 | 0 |  |
| 2 | 0 | 0 | 0 | $\bigcirc$ |  |
| 3 | 0 | O | 0 | 0 |  |
| 4 | 0 |  | 0 | $\bigcirc$ |  |
| 5 | $\bigcirc$ |  | $\bigcirc$ | $\bigcirc$ |  |
| 6 | 0 | 0 | 0 | $\bigcirc$ |  |
| 7 | 0 | 0 | $\bigcirc$ |  |  |
| 8 | 0 | $\bigcirc$ | 0 |  |  |
| 9 | 0 | 0 | 0 |  |  |
| 10 | O | O | $\bigcirc$ |  |  |
| 11. | 0 | 0 | 0 |  |  |
| 12 | O | 0 | O |  |  |
| 13 | O | O | $\bigcirc$ |  | 0 |
| 14 | O |  | 0 |  | 0 |
| 15. | 0 | - | O |  | 0 |
| 16 | 0 | 0 | 0 |  | 0 |
| 17 | 0 |  | 0 |  | 0 |
| 18 | 0 |  | 0 | 0 | $\bigcirc$ |
| 19 | $\bigcirc$ |  | $\bigcirc$ |  | 0 |
| 20 | 0 |  | 0 |  | $\bigcirc$ |
| 21 | $\bigcirc$ |  | 0 |  | $\bigcirc$ |
| 22 | O | 0 | O |  |  |

## Evaluation Factors

(1) Engineering requirement
(2) Traffic requirement
(3) Functional requirement
(1) Developmental requirement
(5) Environmental requirement

## 










Principal Arterials


Minor Arterials


## Collectors



Local Street


|  |  | Recon－ struction | Overlay | Total |
| :---: | :---: | :---: | :---: | :---: |
| 唇宫室 | Principal Arterials | 0.4 | 4.8 | 5.2 |
|  | Minor Arterials | 1.0 | 4.6 | 5.6 |
|  | Collectors | 12.3 | － | 12.3 |
|  | Local Streets | 8.7 | － | 8.7 |
|  | Total | 22.4 | 9.4 | 31.8 |
|  | Construction Cost |  |  |  |
|  | Principal Arterials | 0.33 | 2.24 | 2.57 |
|  | Minor Arterials | 0.68 | 1.58 | 2.26 |
|  | Collectors | 4.92 | － | 4.92 |
|  | Local Streets | 2.94 | － | 2.94 |
|  | Total | 8.87 | 3.82 | 12.69 |
|  | Detailed Design |  |  | 0.63 |
|  | Construction Supervision |  |  | 0.89 |
|  | Post－const．Engineering Total | 0.30 |  | 14.51 |

（5）กาธใหาตหタุi่ หू









|  | Principal <br> Arterials | Minor <br> Arterials | Collec－ <br> tors | Local <br> Streets | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| NPV | 1.71 | 0.21 | -0.04 | -0.17 | 1.71 |
| B／C Ratio | 1.38 | 1.07 | 0.99 | 0.94 | 1.05 |
| EIRR（\％） | 18.0 | 12.9 | 11.9 | 11.3 | 12.9 |

（Unit for NPV：US\＄Million）

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Location Map of F/S Candidate Projects







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1) ศาหมุตูตริบูษ่





2) บิเวดดกปน่



- กivs่โุท




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4) ม่ราตูใน้นี่ร







5) ศาเยูบษ่ถ่ใสา

 దกีณภ:ษึก ฯ



- โuncig












7) หางรมุรूถุตาษธาญริภาต



 ช่กุ่ บ
8) การเบ่าติธาตร





















| นผลถูู | ผ่ | ถู่าก |  | ¢umis |
| :---: | :---: | :---: | :---: | :---: |
| ทกสถู่ | ［6］ | ติ่ยบัง | หกิษึร์（MPP） | หคู่ |
| ทกฉรุู่ | เท่าก่ | ไิ่ |  | \％spums |
| โฺกร | git | กิยกิเดงกร |  | ¢ษถ\％ |
| เการ | ！ | ถาร9 |  | ผยู\％ |
| ธกาก | \％ | บากเแ่สบ |  | ธยานึ |
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| ก๐ร | ธุด |  |  | ธูษนิก |
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| JICA |  | ［ix） 10 |
| JCA | пплпछ | ¢0ヶת |












เฉาा KONO Toshiro




เซึก HIRAI Toshio
रm HONDA Eri
เงัก ก UMENAGA Satoshi
זัาก KONYA Kenichi
เธงก MATSUDA Norio
เธาก KOIZUMI Yukihiro
โุยติที JICA

| แทาก | BEKKI Tsuneo |
| :---: | :---: |
| เกากษบมิก | RYU Yoshoko |
| เกาส | KURAUCHI Katsumi |
| เถงก | SAWANO Kunihiko |
| เกรา | SAKURAI Tatsuyuki |
| เที่ | KOTO Masato |
| เถงก | ISOMOTO Kenji |
| เ๐าก | CHIDA Nobutsug |
| \％on | TAKARA Shigeru |








เยโกุ่






มุก




[^0]:    * The amounts in the column of "Short-term Plan" are the amounts of additional costs for expansion from Immediate Action Plan to Short-term Rlan. Thus, the amounts shown in the column of "Total" are the costs for Implementing Short-term Plan.

