



KINGDOM OF CAMBODIA

Overview on Transport Infrastructure Sectors in the Kingdom of Cambodia (4th Edition)



2012

**Infrastructure and Regional Integration
Technical Working Group
(IRITWG)**

Preface

The Infrastructure and Regional Integration Technical Working Group (IRITWG) is proud to publish the 4th edition of the “Overview on Transport Infrastructure Sectors in the Kingdom of Cambodia.”

The previous 3 editions were published as of 2008, 2009 and 2011 respectively with the following purpose: (1) To share the basic information and the overall pictures concerning the transport infrastructure sectors with related organizations, development partners, etc. (2) To prepare key data for the future planning in transport infrastructure sectors.

The publication of the previous 3 editions has achieved a huge step forward and has been appreciated by both public and private sectors as they were the only official document that briefly illustrated the whole transport infrastructure sectors in Cambodia.

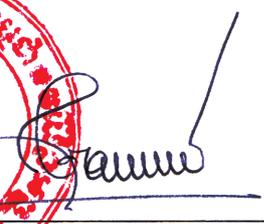
As the infrastructure development in Cambodia is so rapid that the IRITWG has been aware of the necessity of updating the “Overview on Transport Infrastructure Sectors” and thanks to the effort of all stakeholders, the 4th edition in 2012 is now available in your hand.

We hope that this new edition will be useful for planning and implementation of transport infrastructure development in Cambodia and we will put forth our best endeavors to continue to provide and improve the next updated version.

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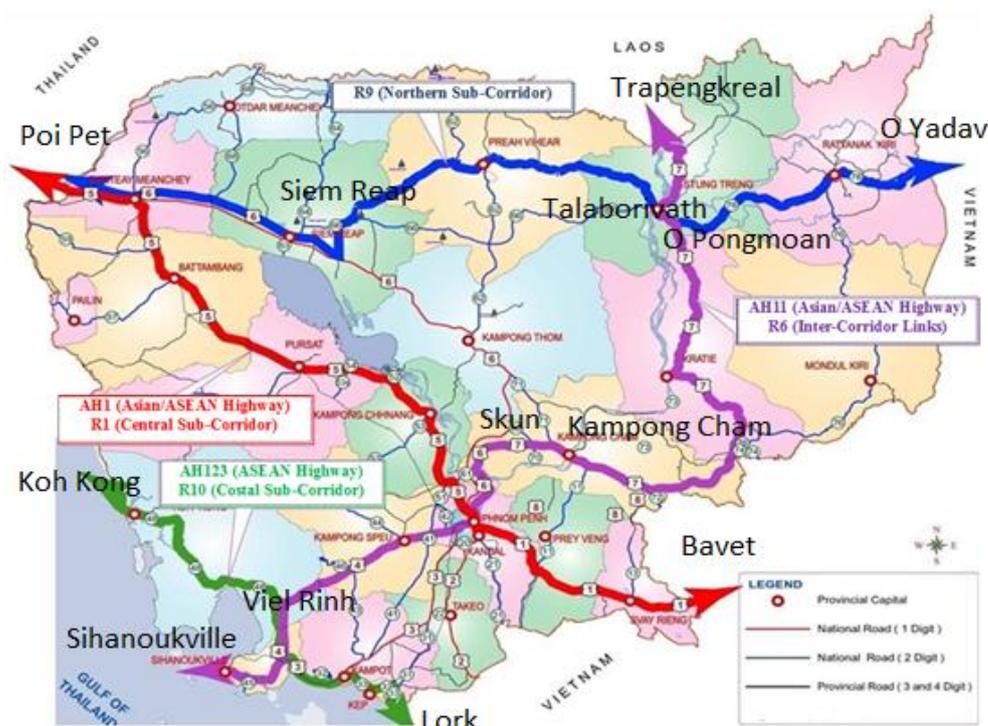
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Photos at cover:

- Top row – left photo: Rice bulk shipment at Port Autonomous of Sihanoukville (PAS).
Source: Kampuchia Shipping Agency & Brokers (KAMSAB)
- Top row – middle photo: Train operated by Toll Royal Railway at Phnom Penh Station.
Source: Toll Royal Railway (TRR)
- Top row – right photo: Bird eye view of Phnom Penh International Airport.
Source: State Secretariat Civil Aviation (SSCA)
- Bottom row – left photo: Cambodia – Vietnam border crossing at Bavet.
Source: <http://www.unodc.org/eastasiaandpacific/en/2010/06/border-security/pic.html>
- Bottom row – middle photo: Sky bridge at Pet Lorksang (Russian federation road).
Source: <http://www.phnompenh.gov.kh/phnom-penh-city-phnom-penh-city-1.html>
- Bottom row – right photo: Cargo container being lifted at PAS.
Source: KAMSAB

1.1.2 International Road Network in Cambodia

There are 4 international road networks running across Cambodia at the direction of East – West 1) Rattanakiri – Banteay Meanchey 2) Svay Rieng – Banteay Meanchey 3) Stung Treng – Sihanoukville and 4) Kampot – Koh Kong.



Source: MPWT

Figure 1-2: International Road Network in South-East Asia

Table 1-2: International Roads Network in Cambodia (As of 2011)

| Name of international road | | | Transit Cities/provinces | Length in Cambodia (km) | International Road Classification | | | | |
|----------------------------|---------------|---------------|--|-------------------------|-----------------------------------|---------|----------|-----------|-----------------|
| GMS roads | Asian Highway | ASEAN Highway | | | Primary | Class I | Class II | Class III | Below Class III |
| Central Sub-Corridor (R1) | AH1 | AH1 | Poipet-Sisophon (NR5) | 47.5 | | | 47.45 | | |
| | | | Sisophon - Phnom Penh (NR5) | 360.0 | | | | 360 | |
| | | | Phnom Penh - Bavet (NR1) | 164.0 | | | | 57 | 107 |
| Sub-total Length (km) | | | | 571.5 | | | 104.45 | 467 | |
| Inter-Corridor Link (R6) | AH11 | AH11 | Phnom Penh - Sihanoukville (NR4) | 226.4 | | | 226.4 | | |
| | | | Phnom Penh - Skun (NR6) | 75.0 | | | 75 | | |
| | | | Skun-Kampong Cham (NR7) | 49.0 | | | 49 | | |
| | | | Kampong Cham - Trapengkreal (NR7) | 411.8 | | | | 411.83 | |
| Sub-total Length (km) | | | | 762.2 | | | 350.4 | 411.83 | |
| Coastal Sub-Corridor (R1) | | AH123 | Cham Yeam - Koh Kong (NR48) | 13.0 | | | 13 | | |
| | | | Koh Kong - Sre Ambel (NR48) | 138.0 | | | | 138 | |
| | | | Sre Ambel - Viel Rinh (NR4) | 42.0 | | | 42 | | |
| | | | Viel Rinh - Kampot (NR3) | 36.0 | | | | 36 | |
| | | | Kampot - Lork (NR33) | 51.8 | | | | 51.8 | |
| Sub-total Length (km) | | | | 280.8 | | | 55 | 225.8 | |
| Northern Sub-Corridor (R9) | | | Siem Reap - Talaborivath (NR66+NR210+NR62+NR9) | 305.2 | | | | 38.8 | 266.38 |
| | | | Talaborivath - O Pongmoan (NR7) | 19.0 | | | | 19 | |
| | | | O Pongmoan - O Yadav border (NR78) | 187.7 | | | 68.2 | | 119.5 |
| Sub-total Length (km) | | | | 511.9 | | | 68.2 | 57.8 | 385.9 |
| Grand total length (km) | | | | 2,129.4 | | | 581.1 | 1,162.4 | 385.9 |

Source: MPWT

Note: International road classifications are as follows (ASEAN STANDARD):
 [Primary] Roads used exclusively by automobiles/AC or concrete pavement
 [Class I] Highways with 4 or more lanes/AC or concrete pavement
 [Class II] Roads with 2 or more lanes/AC or concrete pavement
 [Class III] Narrow 2-lane roads/DBST pavement

1.2 Major Road Improvement Projects

1.2.1 NR and Key Bridge Improvement Projects

A decade after the ending of civil war, Cambodia was in the stage of infrastructure rehabilitation and development. The major supports come from various foreign donors.

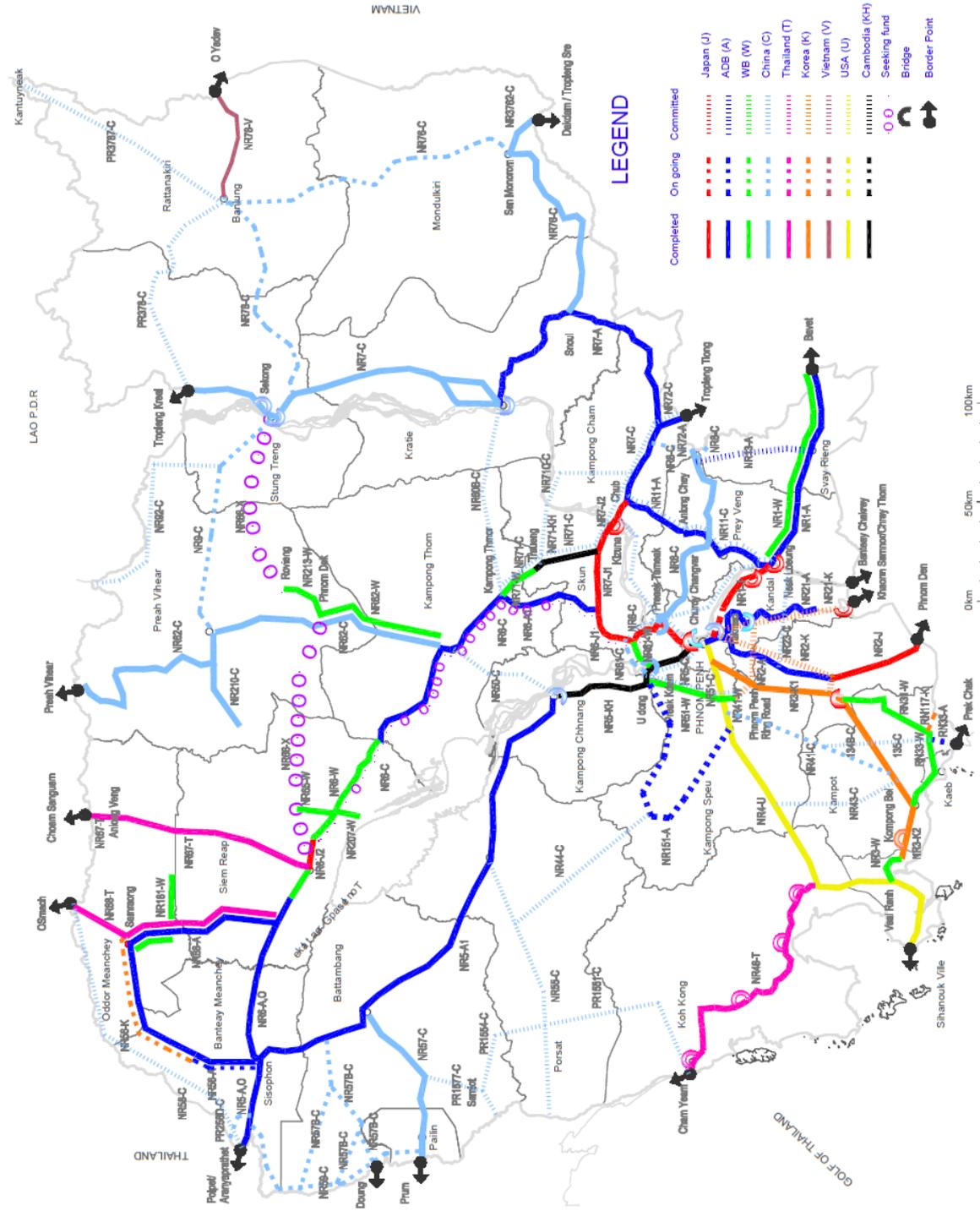
Reference to *Table 1-3*: This table illustrates the financial funding, its type and project cost in US dollars.

Reference to *Table 1-4*:

Most of the key bridges in Cambodia are built by financial supports from donors: Japan (**all Grant**), China (**Loan**), Korea (**Loan**) and Private (**BOT**). Notably the most vital bridge in NR1 is Japanese-funded (**Grant**) bridge, which is being built at Neak Loeung that enables the flow of goods between Vietnam and Thailand through Cambodia smoothly.

All NRs that make up part of int. roads are under rehabilitation and improvement. Key improvements are:

- NR5: Widening to 4 lanes under Chinese (Up to Prek Kdam) and Japanese fund (Battambang – Sisophon).
- NR6: Widening to 4 lanes under Chinese fund (up to PK: 40+400)
- Mekong bridge at Stun Treng (link NR9 to NR7) is being built by Chinese fund.



Source: MPWT

Figure 1-3: Road Network Development

Table 1-3: Major Road Improvement Projects in Cambodia

| Road No. | Org. | Cost | length | Section | Year | Fund | Status | Pavement status |
|----------|----------|-----------|--------------|--|-------|------|----------|---------------------------------|
| | | (Mill.) | (km) | | Start | End | | |
| 1 | Japan | \$55.00 | 43.0 | PK: 13+000 – Neak Loeung (1 st and 2 nd phase) | 2006 | 2009 | Grant | AC |
| | Japan | \$20.00 | 9.0 | PK: 4+000 – PK: 13+000 (3 rd phase) | 2010 | 2011 | Grant | AC |
| | Japan | - | 4.0 | Monivong Brige – PK: 4+000 (4 th Phase) | 2013 | - | Grant | AC (waiting for approval) |
| | ADB | \$50.00 | 107.0 | Neak Loeung - Bavet | 1999 | 2004 | Loan | DBST |
| | WB | \$3.00 | 107.0 | Neak Loeung - Bavet | 2009 | 2013 | Loan | Road Maintenance (Upgrading) |
| 2 | ADB | - | 63.0 | Kbal Thnal - Takeo | 2001 | - | Loan | DBST |
| | Korea | - | 63.0 | Kbal Thnal - Takeo | - | - | - | - |
| | Korea | - | - | Takeo - Ang Tasaom (NR3) | - | - | - | DBST |
| | Japan | \$12.45 | 51.7 | Takeo - Phnum Den | 2003 | 2006 | Grant | AC |
| 3 | Korea | \$36.90 | 137.5 | Chom Chao - Kampot | 2008 | 2010 | Loan | DBST |
| | Korea | \$17.05 | 32.7 | Kampot - Trapang Ropaou | 2004 | 2008 | Loan | DBST |
| | WB | \$47.60 | 32.5 | Trapang Ropaou - Veal Renh | 1999 | 2006 | Loan | DBST |
| 4 | USA | \$50.50 | 217.0 | Chaom Chao - Sihanoukville | - | 1996 | - | AC |
| | AZ | - | 217.0 | Chaom Chao - Sihanoukville | 2001 | 2035 | OT | OT (periodic maintenance) |
| 5 | Cambodia | - | 91.0 | Phnom Penh - Kampong Chhnang | - | 2003 | Treasury | DBST |
| | ADB | >\$1 | 85.0 | PK:6+00 - Kampong Chhnang | 2010 | 2011 | Loan | Maintenance |
| | ADB | \$68.00 | 261.0 | Kampong Chhnang - Sisophon | 2000 | 2004 | Loan | DBST |
| | ADB | \$77.50 | 48.0 | Sisophon - Poipet | 2006 | 2008 | Loan | AC |
| | China | \$56.5 | 30.0 | Phnom Penh – Prek Kdam | 2011 | 2014 | Loan | AC (4 lanes) – 2% |
| | Japan | - | 139.0 + 68.0 | Prek Kdam – Thlea Maorm and Battambang – Banteay Meanchey | 2010 | - | F/S | AC |
| 6 | Japan | \$28.00 | 44.0 | Phnom Penh - Chealea | 1993 | 1995 | Grant | AC |
| | Japan | - | 30.0 | Chealea - Skun | 1996 | 1999 | Grant | AC (deteriorated condition) |
| | ADB | - | 112.0 | Cheung Prey - | 2000 | 2004 | Loan | DBST |
| | WB | \$16.10 | 73.0 | Kampong Thom - Ro Lous | 1999 | 2006 | Loan | DBST |
| | Japan | \$12.00 | 15.0 | Siem Reap - Bakong temple | 2000 | 2001 | Grant | AC |
| | ADB | - | 100.0 | Sisophon - Siem Reap | 2006 | 2008 | Loan | AC |
| | China | \$248.8 | 248.525 | Thnal Kaeng – Skun (4 lanes) Skun – Angkrong (2 lanes) | 2012 | - | Loan | AC (Contracted) |
| | China | \$70.250 | 40.0 | PK: 4+000 to Thnal Keng | 2011 | 2014 | Loan | AC (4 lanes) – 32.3% |
| 7 | Japan | - | 45.0 | Skun - Kampong Cham | 1996 | 1999 | Grant | AC |
| | Japan | \$19.00 | 10.2 | Kampong Cham - Chob | 2001 | 2003 | Grant | AC |
| | ADB | - | 205.0 | Chob - Kratie | 2000 | 2004 | Loan | DBST |
| | China | \$67.5 | 196.8 | Kratie - Trapeang Kriel (Lao border) | 2003 | 2007 | Loan | DBST |
| 8 | China | \$71.513 | 109.0 | Preak Ta Mak - Anlong Chrey | 2008 | 2011 | Loan | AC |
| 8-1 | China | \$14.80 | 5.6 | Krabao - Moeun Chey | 2010 | 2012 | Loan | AC (96.06%) |
| 8-2 | China | | 18.56 | Anlong Chrey - Krek | 2010 | 2012 | Loan | |
| 9 | China | \$116.50 | 141.68 | Tbaeng Meanchey – Thealaborivat | 2012 | 2015 | Loan | DBST (Incl. bridge) – 29.84% |
| 11 | ADB | - | 90.4 | - | 2001 | 2004 | Loan | DBST |
| | Japan | \$18.88 | 0.38 | 8 Bridges | 2012 | - | Grant | - |
| | China | \$63 | 90.4 | NR1: Neak Loeung – NR7: Thnal Tortoeung | 2015 | - | Loan | AC |
| 13 | ADB | - | - | Svay Rieng - Anlong Chey | - | - | - | - |
| 21 | ADB | - | 77.5 | - | 2002 | 2004 | Loan | DBST |
| | VN | - | 0.4 | Chhrey Thom | - | - | Loan | Bridge (50%-50% share with RGC) |
| | Korea | \$57.00 | 25.0 | - | 2010 | - | - | - |
| 23 | China | \$33.00 | 53.00 | Pea Reang Leu – Chombork (border) | 2013 | - | Loan | DBST |
| 31 | WB | \$12.90 | 51.7 | - | 2003 | 2005 | Loan | DBST |
| 33 | WB | - | 39.8 | Takeo - Kampong Trach - Kampot | 2002 | 2005 | Loan | - |
| | ADB | \$13.00 | 17.0 | Kampong Trach - Lork (Vietnam border) | 2007 | 2010 | Loan | DBST |
| 41 | WB | - | - | National Road 4 - Prek Thnout River | - | - | Loan | DBST |
| | China | \$95.28 | 46.25 | Thal Tortoeung – Chum kiri - Kampot | 2011 | 2014 | Loan | DBST (31%) |
| 43 | China | \$42 | 77 | NR4: Treng Troyeng – NR3: Thvear Thmey | 2015 | - | Loan | DBST (Under negotiation) |
| 44 | China | \$80.30 | 139.607 | Chbamorn – Oral – Amleang – Udong | 2012 | - | Loan | DBST (Under negotiation) |
| 44 + 151 | ADB | - | 124.0 | Kg. Speu town - Oral - U dong | - | - | Loan | DBST |
| 48 | Thai | \$21.69 | 151.3 | Koh Kong - Sre Ambel | 2004 | 2007 | Loan | DBST |
| | Thai | \$7.20 | 1.6 | - | - | - | Grant | 4 Bridges |
| 50C | China | \$35+\$98 | 58+3.5 | Kg. Thom – Kg. Leng (Kg. Chhnang) + | 2014 | - | Loan | DBST (Under |

Overview on Transport Infrastructure Sectors in the Kingdom of Cambodia (2012, IRITWG)

| Road No. | Org. | Cost | length | Section | Year | Fund | Status | Pavement status |
|---------------------------|----------|----------|----------|---|-------|------|--------|-----------------------------|
| | | (Mill.) | (km) | | Start | End | | |
| | | | | Bridge | | | | negotiation) |
| 51 | WB | \$5.80 | 38.9 | Udong - Thnal Torteng | 2003 | 2006 | Loan | DBST |
| | China | \$27 | 38.9 | Udong - Thnal Torteng | 2004 | - | Loan | AC |
| 55 | China | \$140 | 189.70 | Pursat – Thmar Da, Thai – Cambodia border | 2013 | - | Loan | DBST (next 5-year plan) |
| 56 | Seeking | - | 115.0 | Sisophon - Samrong | - | - | - | (Excluding structure) |
| | Korea | \$29.90 | 84.0 | 29km from Sisophon to Samrong | - | 2009 | - | Road improvement |
| 56-68 | ADB | \$12.50 | 185.0 | Sisophon - Smarong - Kralanh | 2005 | 2007 | Loan | Structure only |
| 57 | China | \$41.88 | 103.14 | Batambang – Pailin - Thai Border | 2008 | 2012 | Loan | DBST |
| 57B | China | \$176.35 | 89.98 | 1) Tmor Kol - Bovel - Sampov Luun 2) Bovel-Samseb-Phnom Prek 3) Samseb - Kamrieng | 2011 | 2013 | Loan | DBST (56.53%) |
| 58 | China | \$77.00 | 132.0 | Banteaychey – Banteay Meanrit – Thmar Daun - Phaong | 2014 | - | Loan | DBST (Under negotiation) |
| 59 | China | \$72.89 | 144.27 | NR 59 (Koun Damrey - Malay - Sampov Luun – Phnom Prek – Kamrieng - Pailin) | 2011 | 2013 | Loan | DBST (69.47%) |
| 5x | Private | \$5.50 | 13.0 | National Road 5 - Thai border (through Chay Chay investment) | 2004 | - | - | DBST (not yet started) |
| 60B | China | \$130 | 140+1.67 | Kg. Thmor – Kratie + Bridge | 2015 | - | Loan | DBST (+ bridge cost) |
| 61 | WB | - | 16.0 | Prek Kdam - Thnal Keng (NR6) | 2002 | 2005 | Loan | Maintenance |
| | China | \$9.76 | 16.0 | Prek Kdam - Thnal Keng (NR6) | 2010 | 2012 | Loan | DBST (52.96%) |
| 62 | WB | - | - | Kg. Thom - Provincial border | 2005 | - | Loan | Laterite |
| | Seeking | - | - | Provincial border - Meanchey | - | - | - | - |
| | China | \$57.80 | 157.0 | Koh Ke – Tbeng Meanchey - Preah Vihear temple | 2008 | 2011 | Loan | DBST |
| | China | \$52.00 | 128.0 | Kampong thom - Tbaeng Meanchey | 2008 | 2011 | Loan | DBST |
| 64C | China | \$100 | 132 | Tbaeng Meanchey - Thearaborivat | 2011 | 2014 | Loan | DBST |
| 65 | WB | - | - | Dam Dek - | 2005 | - | Loan | DBST |
| 66 | WB | \$1.40 | 18.5 | Phnom Dek - Rovieng | 2004 | 2006 | Loan | DBST |
| | WB | \$3.20 | 18 | Rovieng - River Stung Sen | | | Loan | DBST (not yet started) |
| 67 | Thai | \$3.06 | 18.0 | Choam Sa Ngam - Anlong Veng | 2006 | 2007 | Grant | DBST |
| | Thai | \$32.50 | 131.0 | Anlong Veng - Siem Reap | 2006 | 2009 | Loan | DBST |
| 68 | Thai | \$35.00 | 113.0 | O Smach - Kralanh | 2007 | 2009 | Loan | DBST |
| 70B | China | \$90 | 150 | Tonlebet – Srey Santhor – Prek Tamak – Lvear Em – Peam Ro | 2015 | - | - | DBST |
| 71 | Cambodia | - | - | Chomkarleu – Kg. Cham | - | - | - | - |
| | WB | \$1.50 | 15.5 | Traueng (NR7) - Kampong Thmar (NR6) | 2004 | 2006 | Loan | DBST |
| 71C | China | \$66 | 110 | Tbong Khum – Kroch chmar - Chamkarleu | 2015 | - | - | DBST (+ Kroch Chmar Bridge) |
| 72 | ADB | | 14.0 | Memot – Tropeang Plong | 2007 | 2009 | Loan | |
| 71+7+72 | China | \$112 | 145 | Tropeang Plong – Krek – Troeung – Kg. Thmar | 2015 | - | - | AC |
| 76 | China | \$51.90 | 127.0 | Snoul - Sen Monorom | 2008 | 2011 | Loan | DBST |
| | China | \$100 | 171.78 | Monorom – Koh Nhek – Lumphat – Taang | 2012 | 2015 | Loan | DBST (5%) |
| 78 | VN | \$25.80 | 70.0 | Bang Lung - O Yadav | 2007 | 2008 | Loan | AC |
| | China | \$73.30 | 123.1 | O Pong Moan - Ban Lung | 2009 | 2013 | Loan | DBST (92.78%) |
| 78x | Private | \$6.00 | 36.0 | Ban Lung - Bou Sra (waterfall) | 2008 | - | - | DBST (not yet started) |
| 92 | China | \$75 | 137 | Sam An (NR9) – Kg. Sralaor 2 – Kg. Sralaor 1 – Mom 3 | 2015 | - | - | DBST |
| 134B +135 | China | \$24 | 43 | Chumkiri – Chhuk – Dorng Tung – Kg. Trach | 2015 | - | - | DBST |
| 181 | WB | \$2.00 | 28 | Samraong - Chong Kal | 2004 | 2006 | Loan | DBST |
| 207 | WB | \$1.00 | 1 | Sautr Nikom - Beong Tonle Sap | 2004 | 2006 | Loan | DBST |
| 210 | Private | \$21.50 | - | Siem Reap - Koh Ke | 2003 | - | BOT | DBST |
| 258D | China | \$50.00 | 20.0 | Kob (NR5, PK: 383) – O Beychoann | 2011 | 2013 | Grant | DBST (48.3%) |
| 378 | China | \$85 | 141 | NR7: Dong Krolor – NR78: Banlung | 2015 | - | - | DBST |
| 1551 | China | \$72 | 135 | NR4: Smach Meanchey – NR55: Promoy | 2016 | - | - | DBST |
| 1554 | China | \$41 | 70 | Veal Veng (NR55) – Samlot (PR1577) | 2015 | - | Loan | DBST |
| 1577 | China | \$25.00 | 55.16 | Sek Sork – Samlot – Border Pass 400 | 2015 | - | Loan | DBST |
| 3762 | China | \$14.89 | 26.45 | Sen Monorom - Dakdam | 2010 | 2012 | Loan | DBST |
| 3787 | China | \$98 | 180 | Banlung – Kantuynak | 2015 | - | - | DBST |
| Prek Phnov | Private | \$42.00 | 8.17 | Phnom Penh (Prek Phnov) - NR6 | | 2010 | BOT | DBST (+ bridge cost) |
| 2 nd Ring Road | - | \$52 | 38 | NR5, PK: 9+000 – NR2, Prek Ho | 2014 | - | - | AC |

Source: MPWT

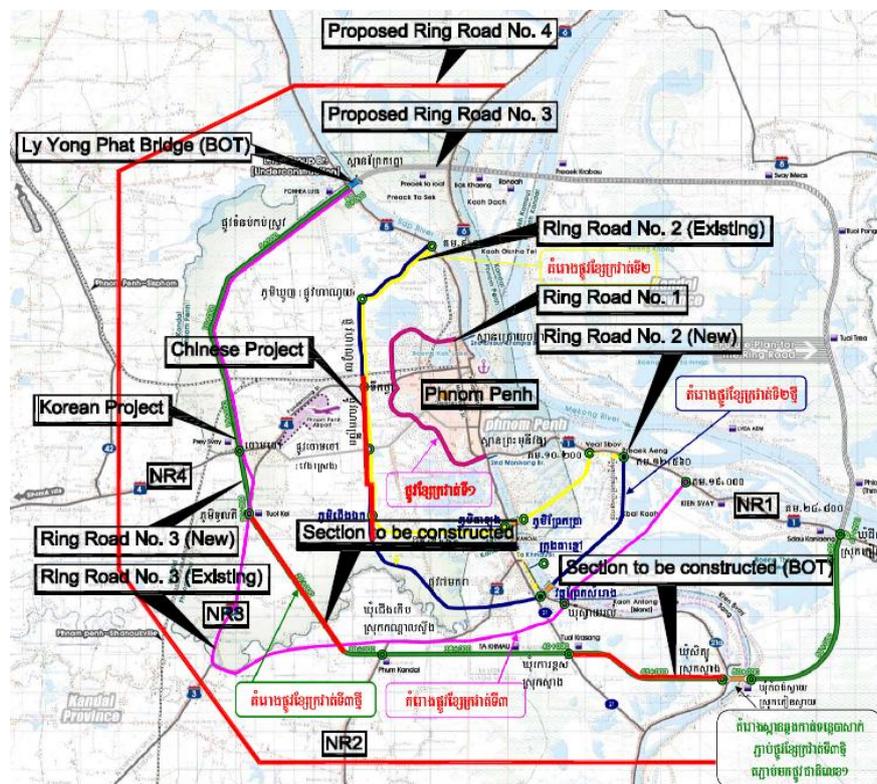
Table 1-4: Key Bridge Development in Cambodia

| Name of Bridge | Donor | Cost (Mill\$) | length (km) | Location | Year | | Fund | Progress status |
|-------------------------|---------|---------------|-------------|----------------------------------|-------|------|-------|-------------------------------------|
| | | | | | Start | End | | |
| Kizuna | Japan | \$60.00 | 1.3 | Kompong Cham, NR7 | 1996 | 2001 | Grant | Completed |
| Churoy Changvar | Japan | \$27.00 | - | Phnom Penh, NR6 | 1992 | 1993 | Grant | Completed |
| Neak Loeng Bridge | Japan | \$95.00 | 2.2 | Kandal, Svay Rieng, NR1 | 2011 | 2015 | Grant | in progress |
| 3 Concrete Bridges | Japan | \$7.67 | - | On NR 2 and NR3 | 2005 | 2007 | Grant | Completed |
| Concrete Bridge | Japan | \$7.00 | - | On NR1 (phase 1) | 2005 | 2006 | Grant | Completed |
| Prek Ta Meak | China | \$43.50 | 1.066 | Prey Veng, NR8 & NR6 | 2007 | 2010 | Loan | Completed |
| Prek Kdam | China | \$28.78 | 0.981 | Phnom Penh, NR5 & NR61 | 2007 | 2010 | Loan | Completed |
| Kampong Bai | Korea | | 0.3 | Kampot, as a part of NR3 | 2005 | 2007 | Loan | Completed |
| Se Kong | China | \$15.00 | 1.057 | Stoeng Treng, as part of NR7 | 2007 | 2007 | Loan | Completed |
| Koh Kong | Private | \$7.00 | | Koh Kong, NR48 | 2001 | | BOT | Completed |
| Stung Meanchey | Private | \$5.00 | | Phnom Penh - Chaom Chao | 1999 | | BOT | Completed |
| New 2nd Churoy Changvar | China | \$27.50 | 0.719 | Phnom Penh - NR6 | 2011 | 2014 | Loan | 34.57% |
| Prek Phnov | Private | \$42.00 | 1.543 | Phnom Penh - NR6 | - | 2010 | BOT | Completed |
| Mekong Bridge | China | \$116.50 | 1.731 | Stung Treng (Junction NR7 & NR9) | 2012 | 2015 | Loan | 29.84% (+ NR9 141.68km) |
| Takmao | China | \$32.89 | 0.855 | | 2011 | 2015 | Loan | 31.57% (+ approach 11.1 km AC road) |
| Tonle Sap | China | \$98 | 3.5 | Kg. Chhnang – Kg. Thom | 2014 | - | Loan | |

Source: MPWT

1.2.2 Urban Transport Development (Ring Road)

In addition to facilitate the traffic on Asian highways, bypasses and ring roads are put in place around key cities namely: Siem Reap (key tourist town), Battambang (rice growing provincial town), Kampong Chhnang (fishing province) and Phnom Penh (capital). In Phnom Penh, there are 4 planned ring roads. MPWT with financial and technical support from Japan International Cooperation Agency (JICA), conducted two studies on ring road No. 2 and ring road No.3 to reduce traffic congestion in Phnom Penh and enhance economic development. To enable traffic smooth in the capital area, some sections of these ring roads have been constructed. Ring road No. 2 is reported to be financed by China and ring road No. 3 is reported to be built by Korean fund as well as by other donors under Build-Operate-Transfer (BOT) scheme. Ring road No. 3 is the only true ring that circles around Phnom Penh. The construction of this road is facing huge technical and financial issues. This is due to the fact that it has to construct 3 more new big bridges to cross Mekong River and the construction across swampy area at Lvear Em district. Ring road No. 4 is being considered.



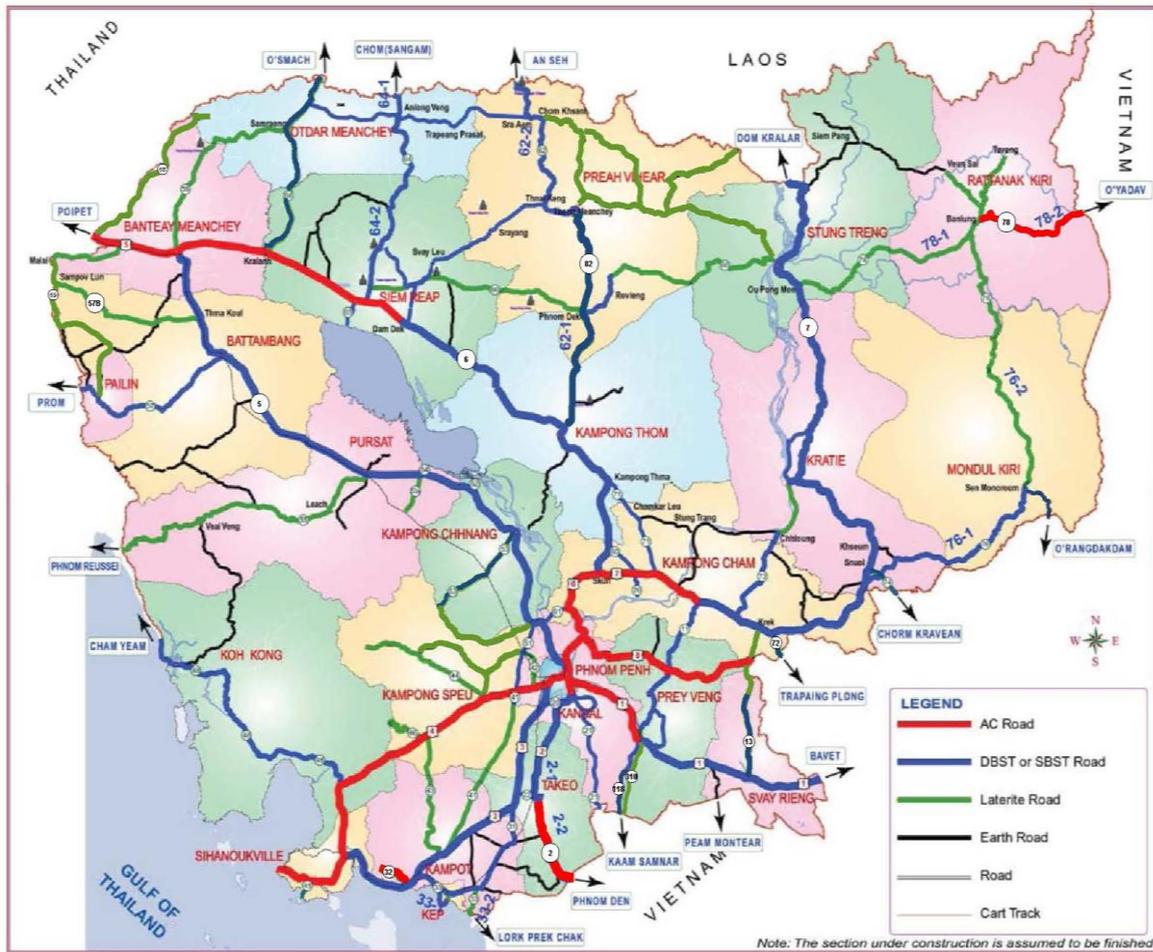
Source: MPWT

Figure 1-4: Ring Road Development in Phnom Penh

1.3 Present State of Road Condition

1.3.1 Road Pavement Condition

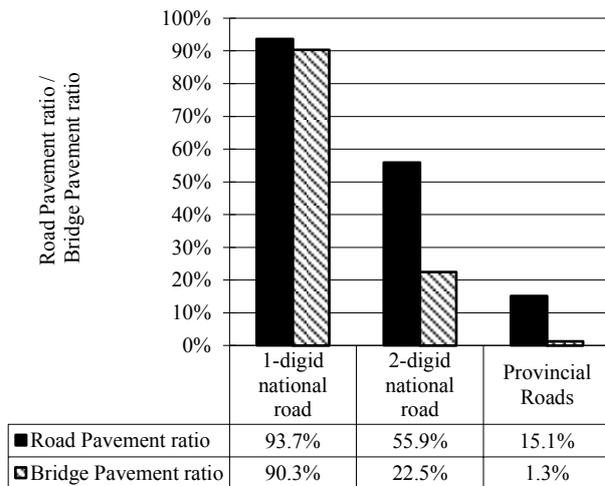
Since NRs are main arteries to support economic development, improvement of pavement structure from DBST to AC is required for heavy transportation. Likewise for PR, with pavement ratio of 15.1%, it is very likely that PR is quickly deteriorated during monsoon season.



Source: MPWT

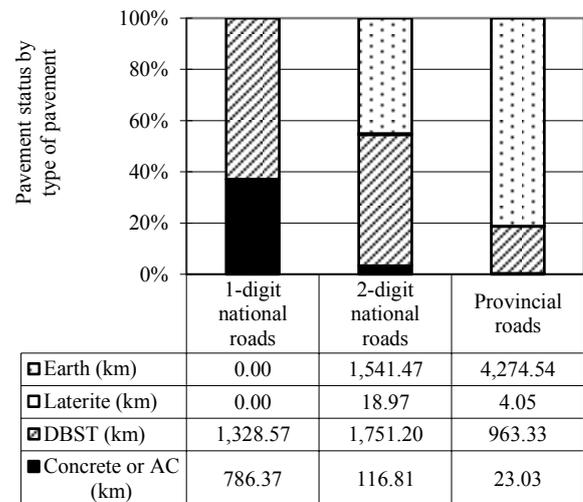
Note: The section under construction is assumed to be finished

Figure 1-5: Pavement Status



Source: MPWT & MRD

Figure 1-6: Road Pavement Ratio (as of 2011) and Ratio of Permanent Bridges (as of 2004)



Source: MPWT

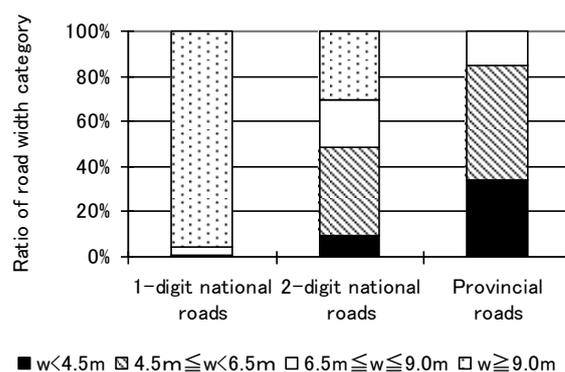
Figure 1-7: Pavement Status by Road Classification (as of 2011)

1.3.2 Road Width

99% of 1-digit NRs have at least two lanes, while only 52% of 2-digit NRs and 15% of PR have two or more lanes. By the recent increase of the traffic demand, the International Highways, major 1-digit NRs are being discussed to be widening to 4 lanes.

1.3.3 Road Density in Cambodia

Road density is the ratio the total road network length of the country to the country's land area. According to the *Table 1-5*, road density in Cambodia (to its landsize) is less than those of its neighbor countries. This figure indicates that to improve national economy, Cambodia should develop more road networks and improve existing ones.



Source: MPWT
Figure 1-8: Road Lengths According to Road Widths (as of 2009)

Table 1-5: Road Density

| Description | Japan | Philippines | UK | Cambodia* | Vietnam | Thailand |
|--|-------|-------------|------|-----------|---------|----------|
| Road Network Density (km/km ²) | 3.16 | 0.67 | 1.58 | 0.26 | 0.78 | 0.38 |
| NR Network Density (km/km ²) | 0.14 | 0.10 | 0.19 | 0.03 | 0.05 | 0.11 |

Source: JICA. 2009. *The study on National Road Traffic Safety Master Plan in the Socialist Republic of Vietnam Until 2020*. Ha Noi
Note: All figure as of 2009 except Cambodia's as of 2012

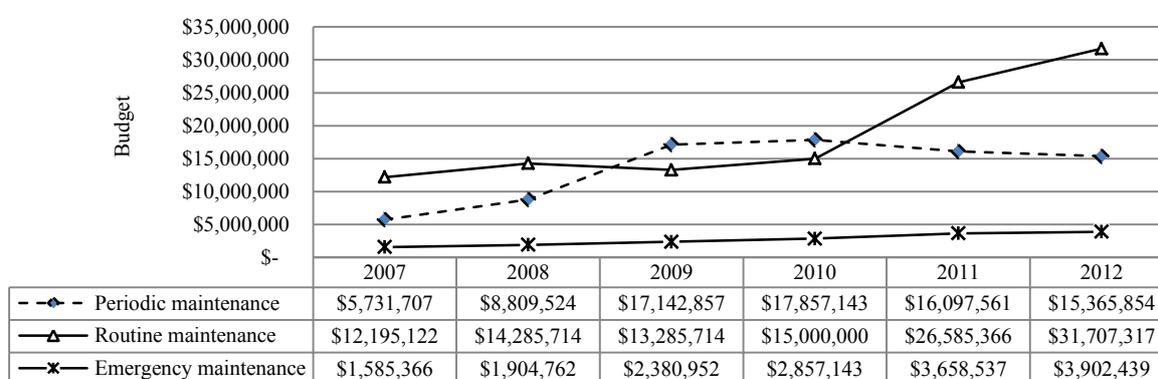
1.3.4 Road Maintenance

a) Road Maintenance Budget

Road maintenance in Cambodia is divided into three main categories:

- Periodic maintenance: Fix the damage when it occurs
- Routine maintenance: Anticipate the damage and plan ahead to fix it
- Emergency maintenance: Large scale maintenance of big damage

Figure 1-9 shows the recent trend of major road maintenance budget and the routine maintenance budget increased in 2011 and 2012 because of rapid deterioration of road due to major flood in 2011.



Source: MPWT

Figure 1-9: Trends of Major Road Maintenance Budget

In addition to the above maintenance categories, "Flood mitigation" is a special category and it is implemented when infrastructure is severely damaged by flood. Exceptionally in 2011, there were more than \$91 million allocated for maintenance and reconstruction of roads that were devastated by flood.

Table 1-6: Flood-Related Road Maintenance Budget

| Description | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------------------|-------------|--------------|--------------|--------------|--------------|--------------|
| New construction | \$8,926,829 | \$11,904,762 | \$45,238,095 | \$45,238,095 | \$91,463,415 | \$50,000,000 |
| Flood mitigation | \$2,439,024 | \$2,380,952 | \$0 | \$0 | | \$23,170,732 |

Source: MPWT

Currently, road maintenance is implemented by Provincial Public Works Department and private enterprises, construction units from police and armed force.

Table 1-7: Responsible body in MPWT for Road Maintenance in 2012

| Department | Maintenance type | Source of Budget | Contractor background |
|--|--|----------------------|---|
| Road Infrastructure dept. | Routine (Civilian) | National Budget | - Civilian: 29 projects - Army: 26 Projects - Police: 1 Project |
| | Periodic maintenance (Civilian) | National Budget, ADB | |
| | Emergency maintenance (Civilian) | JICA and ADB | |
| Research Center | Periodic maintenance (Police) | National Budget | |
| Sub-national Public Infrastructure & Engineering dept. | Mixed tasks (Army) | National Budget | |
| RAMP (Road Asset Management Project) | Routine and Periodic Maintenances (civilian) | ADB | |
| Heavy Equipment Dept. | Emergency (Civilian) | | |

Source: MPWT

b) Road Inspection

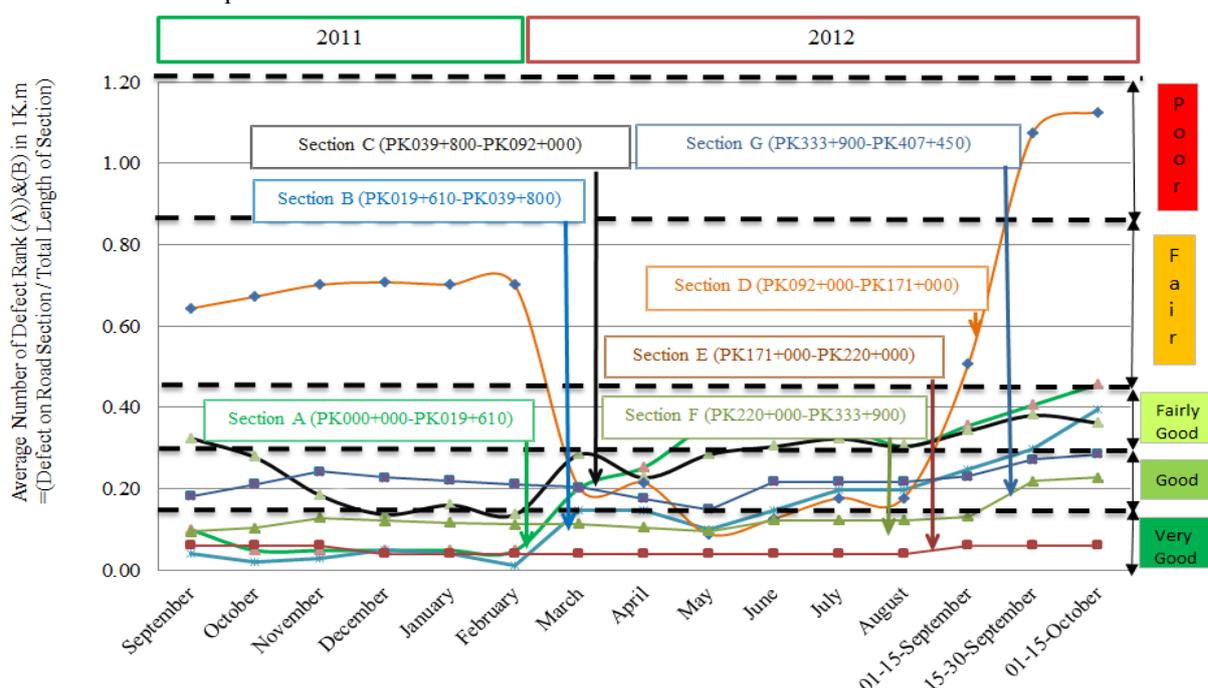
Road maintenance activities in Cambodia are carried out by MPWT (NR and PR) and MRD (RR). Road maintenance is divided into three phases:

- Phase 1: Road inspection and data collection
- Phase 2: Data consolidation and analysis
- Phase 3: Implementation

Road Infrastructure Department (RID) dispatches 4 teams once a month, in collaboration with DPWT, to conduct road survey by visual inspection. The survey increases to twice a month in flood period, September and October. Due to the limitation of budget, only NR with 1 and 2 digits are selected for survey and only pothole is counted. According to the degree of damage, they rank road/bridge damage as follows:

- Rank A: Severe defects that are harmful to traffic and are required urgent countermeasures
- Rank B: Defects that are harmful to traffic and are required countermeasures but not urgent
- Rank C: Small defects that do not require countermeasures at present but they require further observations.

By dividing the number of defect with total length of the section, section D (Kampong Chhnang - Pursat) in Figure 1-10 presents the highest level of defect. Despite road maintenance in dry season 2012, road condition in this section is getting worst again in the following flood period. This is a direct consequence of its location in flood prone area, where water flow from high ground at mountainous area in the west to low land area of Tonle Sap in the east.



Source: MPWT, RID

Figure 1-10: Sample of Defection Ranking at NR5

According to data obtained from field survey, most of road conditions tend to deteriorate in wet season particularly around flood period. This means that well-constructed roadbed with qualified pavement and sound drainage system are indispensable to establish water-resistance road system. This calls for:

- Upgrade the quality of pavement and road drainage system
- Make roadbed higher than water level
- Utilize good material for embankment
- Provide fair slope protection for embankment

c) Flood Damage in 2011

Flood in 2011 was the worst flood from 2000. Between December 2011 and January 2012, MPWT in collaboration with JICA dispatched a survey team to gauge the extent of flood damage. The team found that excluding Rural Road, flood affected 944km of NR, PR and Urban Road. It severely damaged 574km road network and 29 bridges. PR was the most damaged road network compared to others.

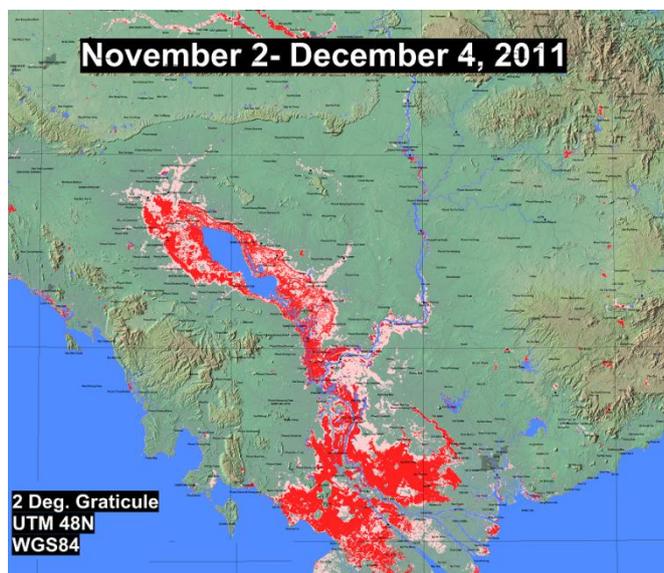


Table 1-8: 2011 Flood-Damage Road Network

| Road Network | Unit | Flood length | Damaged length |
|---------------------------|-------|--------------|----------------|
| NR | Km | 334 | 47 |
| PR | Km | 553 | 471 |
| Urban Roads | Km | 57 | 56 |
| Bridge | Place | - | (29) |
| Other drainage structures | | | |
| Total: | Km | 944 | 574 |

Source: MPWT

Source: <http://cityofwater.wordpress.com/category/cambodia/page/14/>

Figure 1-11: 2011 Flood in Cambodia

Royal Government of Cambodia as well as development partners (DP) have made efforts to mitigate road network affected by the flood:

Table 1-9: Quick Response after the Flood in 2011

| Country/DP | Type of rehabilitation | Amount | Remark |
|------------|------------------------------------|---------------------|--|
| Cambodia | Emergency works and rehabilitation | Phase 1: \$19 Mill. | 96 projects |
| | | Phase 2: \$23 Mill. | 37 projects |
| | Rehabilitation and improvement | \$15 Mill. | 14 projects in Kandal, Takeo, Kampong Chhnang, Banteay Meanchey and Prey Veng provinces. |
| Japan | - | \$7.5 Mill. | Construction equipment procurement |
| | Improvement | \$18.88 Mill. | 8 bridges along NR11 and drainage facilities in Kampong Chhnang town. |
| ADB | Improvement | \$28.56 Mill. | 10 projects in Prey Veng, Kampong Cham, Banteay Meanchey and Battambang provinces. |

Source: MPWT



Source: MPWT

Figure 1-12: Bridge Damaged in Preah Vihear Province



Source: MPWT

Figure 1-13: Road Damaged in Kampong Cham Province



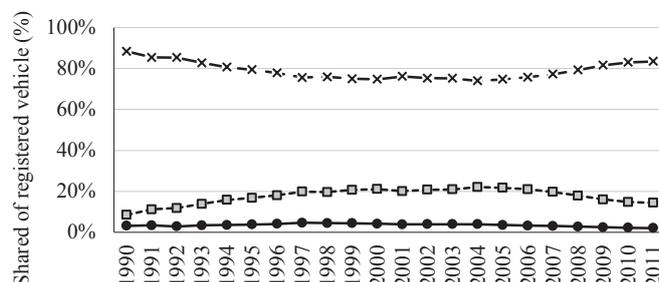
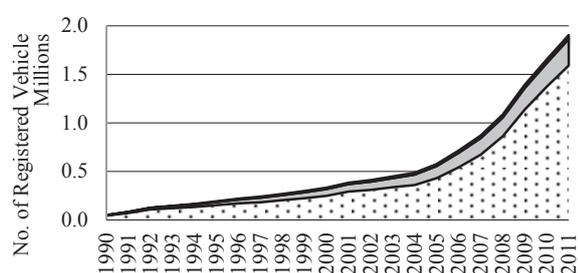
Source: MPWT

Figure 1-14: Road Damaged in Kandal Province

1.4 Vehicle Registration and Traffic Accident

1.4.1 Present State of Registration

The number of registered vehicle has been increasing at an average rate of about 19% each year, and has reached almost 1,900,000 in 2011. Since 2005, the number of registered motor cycles has increased drastically (about 20% each year). The number of motor cycle dominates the biggest share of registered vehicle (accounted about 84% of all registered).



● Motor Cycles ■ Light Vehicle ■ Heavy Vehicle

— x — Motor Cycle % - - - □ - - - Light Vehicle % — ● — Heavy Vehicle %

Source: Statistical Yearbook 2006 and MPWT

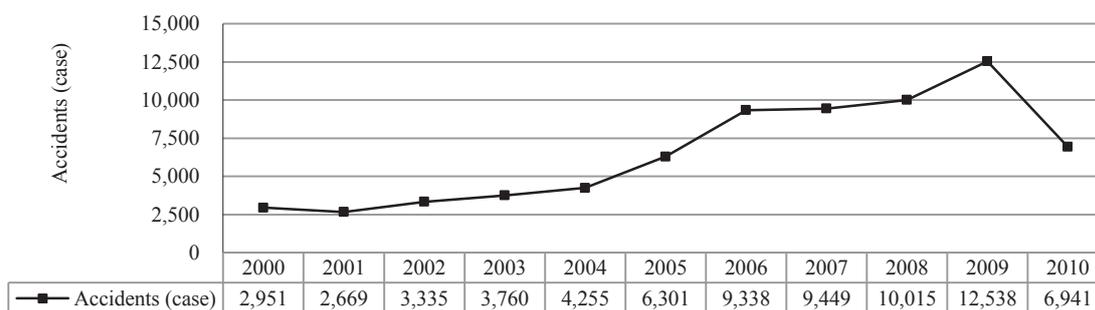
Figure 1-15: Number of Registered Automobiles (disused vehicles are included)

Figure 1-16: Year-On-Year Increase in Number of Registered Automobiles

1.4.2 Traffic Accident

a) Trends in Traffic Accident

According to MPWT, while the number of all type of automobiles is increasing, the number of road accidents is also increasing except in year 2010. In average per day in 2010, there were 19 accidents, in which 5 persons were killed and 45.1 were injured.

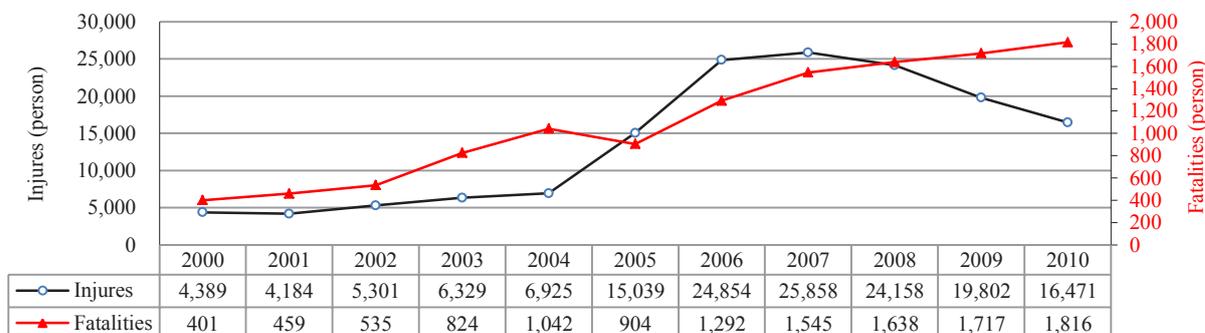


Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2010¹

Figure 1-17: Trends in Traffic Accidents (Case) in Cambodia

b) Trends of Injuries and Fatalities in Cambodia

The number of fatality has increased continuously over the last ten years but the number of injury has decreased since 2007. This phenomenon might be a result of the increase of speed due to the quality improvement of roads.



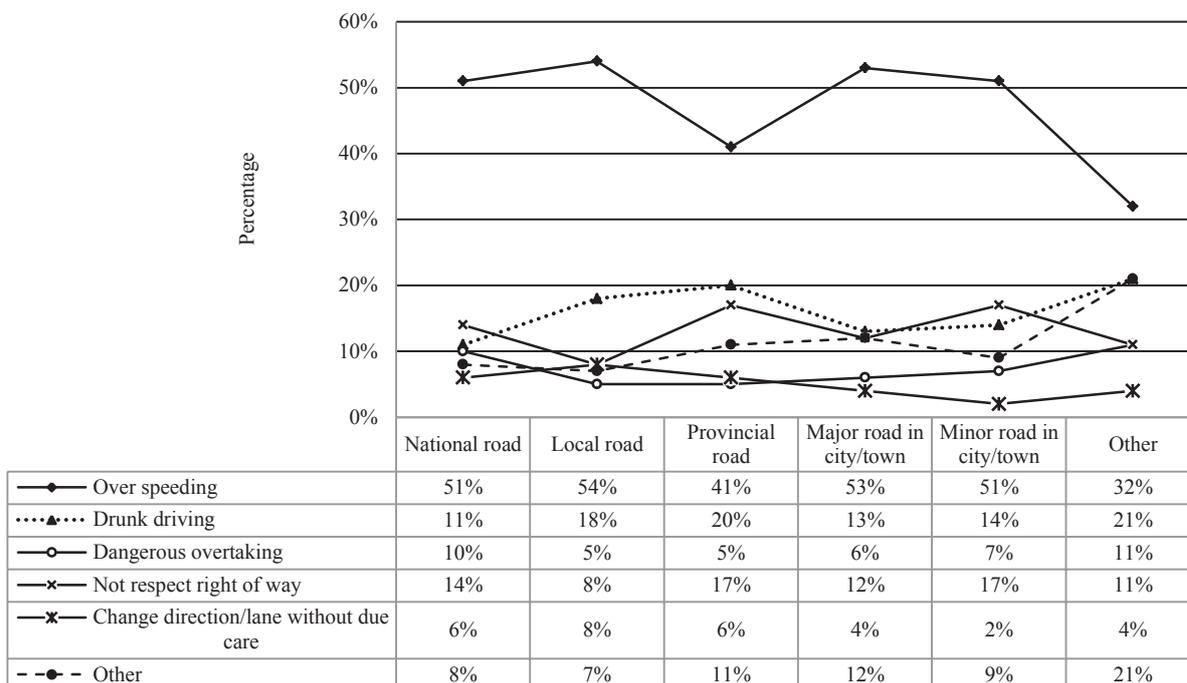
Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2010

¹ This figure is obtained from yearly report, which is subjected to increase upon the publication of 2010 yearly report.

Figure 1-18: Trends in Traffic Injuries and Fatalities in Cambodia

c) Cause of Accident

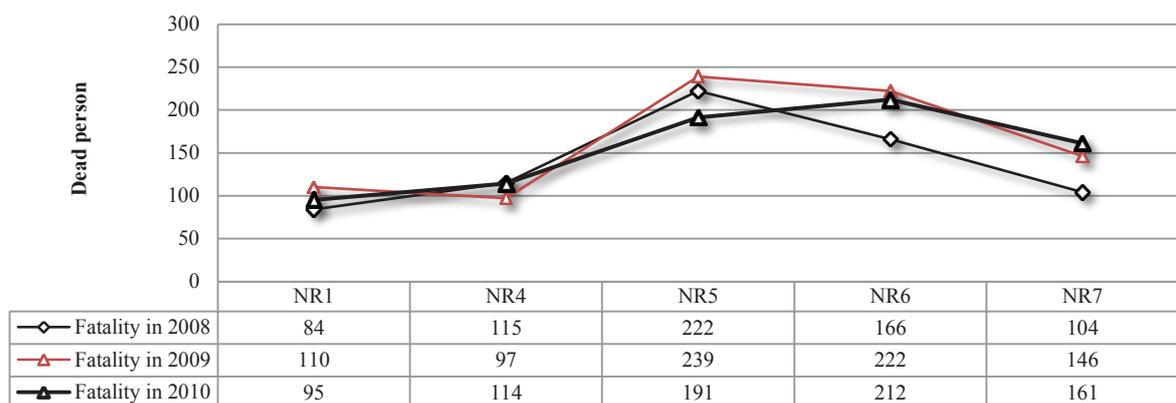
In 2010, over speeding was the main cause of crashes on all kind of roads. It accounted for more than 50% of overall crashes, followed by drunk driving.



Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2010
Figure 1-19: Type of Road by Cause of Crash in 2010

d) Traffic Accident in Asian/ASEAN Highway

The total road accident fatality in 2010 on Asian/ASEAN highways (NR1, NR4, NR5, NR6 and NR7) decreased by about 5% comparing to the one in 2009. The tendency of fatal accident runs parallel with demographic distribution.



Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2010
Figure 1-20: Fatalities on Asian Highway in 2008, 2009 and 2010

1.5 Overload Transport

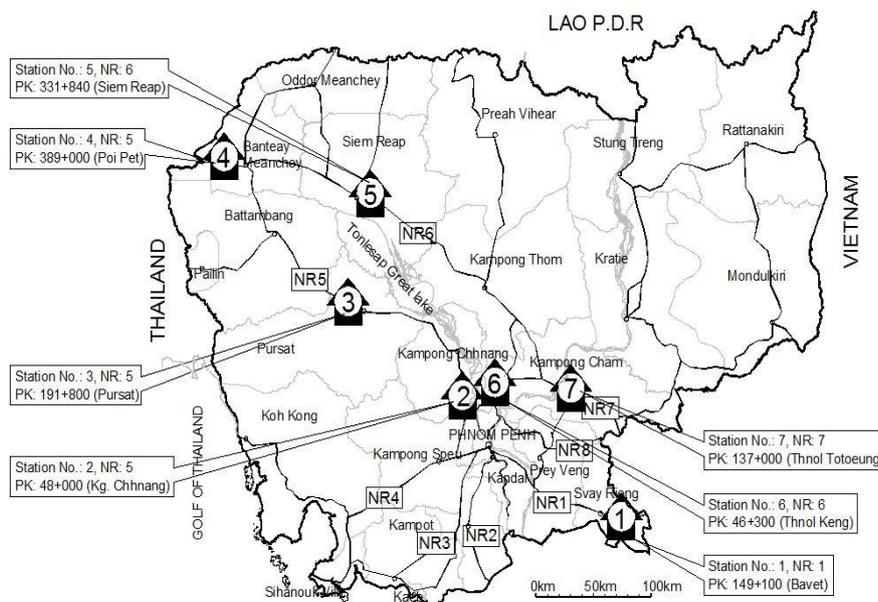
1.5.1 Overload Committee

Overload committee, which is chaired by the Minister of MPWT, is tasked to curb this problem. Staff working for this committee comes from related ministries.

1.5.2 Weight Stations

In anticipation of overload transport, which is a major factor to cause road damage, 7 weight stations were constructed at major NRs (see Figure 1-21). In addition to that there are 36 portable weight scales, out of which 34 were funded by ADB, have been procured to be distributed to the following provinces:

Kampong Chhnang (2), Kampong Cham (4), Battambang (2), Takeo (1), Svay Rieng (1), Kandal (2), Kampot (2), Stung Treng (1), Kratie (1) and keep in reserve (20).



Source: MPWT

Figure 1-21: Location Maps of Weight Stations

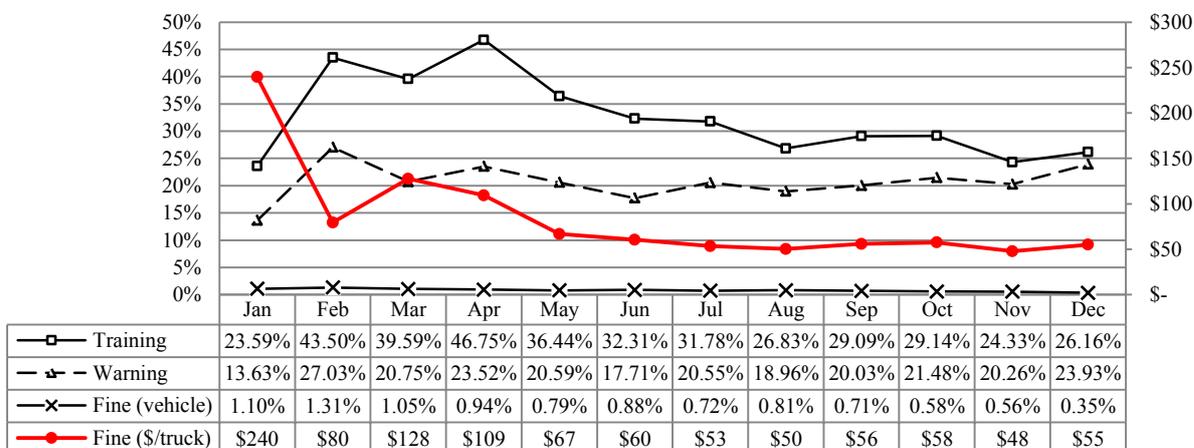
1.5.3 Overload Work Performance

The purpose of weight stations is to identify the total load and load per axle of the truck. If the overload is confirmed:

- For first offender, training about overload and traffic, will be provided
- If the truck had overload violation before, warning will be given to truck driver
- If the case is a repeated offender, monetary penalty will be charged

Offended truck will be subjected to obtain overload training awareness, warning and fine. Due to such strict implementation, the amount of overload truck is decreasing, most remarkably the very heavy overload truck (>20% overload) is decreased to zero by the end of 2011. Likewise, the amount of fine (\$/truck) is also decreasing by year end. The following is the figure that shows the consequences that truck driver received from weight station.

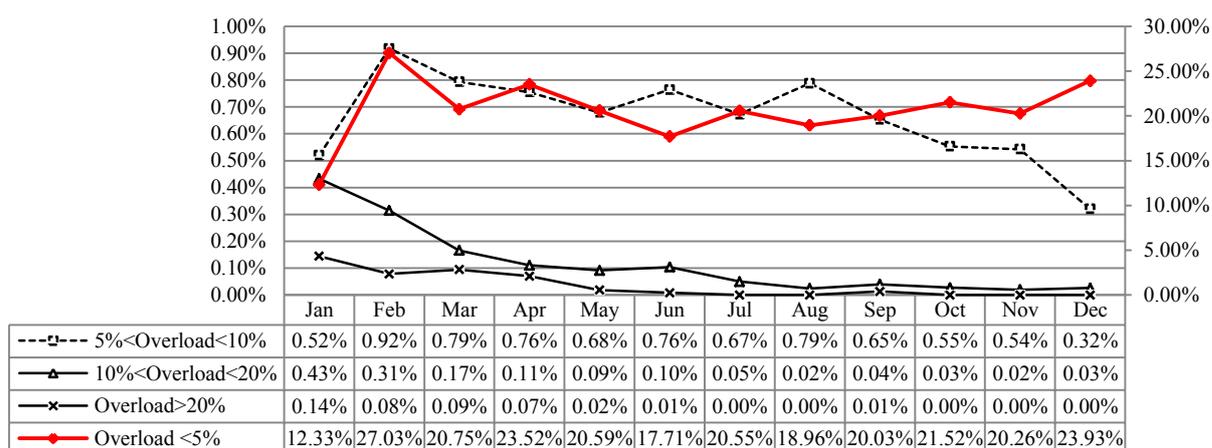
In reference to Figure 1-22, out of vehicle cross weight stations, there are only less than 2% are repeated offender, whereas approximately 50% of them are second and third offender.



Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2010

Figure 1-22: Action Taken Toward Overload Offended Truck

The Figure 1-23 shows the ratio of offended truck against inspected truck. From this figure, it could be seen that overload truck of less than 5% account the majority.



Source: Cambodia Road Traffic Accident and Victim Information System Yearly Report 2010

Figure 1-23: Trends of Overload Offended Truck Against Inspected Truck

1.5.4 Automobile Weight Rule and Size

To comply with overload control in Cambodia, the following rules must be implemented seriously:

- Maximum weight on the sustaining axle of automobile, trailers or semi-trailers is limited as follow:
 - 6 tons for single axle with two wheels under the steering wheel.
 - 11 tons for twin axles with four wheels under the steering wheel
 - 10 tons for single axle with four wheels
 - 19 tons for twin axles with eight wheels
 - 24 tons for triple axles adjacent to each other with twelve wheels.
- Maximum total weigh of automobile is defined as follow:
 - 16 tons for automobiles with twin axles which one axle is located in the front of the automobile with two wheels, and the other one located in the back with four wheels.
 - 25 tons for automobile with triple axles as one axle is located in the front of the automobile where there are two wheels and the twin ones located in the back of the automobile where there are eight wheels.
 - 30 tons for automobile with four axles as twin ones are in the front of the automobile where there are four wheels and the other two axles are in the back of the automobile where there are eight wheels.
- Maximum total weight of automobile with trailers shall be defined as follow:
 - 40 tons for automobile with trailers having five axles onward.
- Maximum weight of automobile with semi-trailers shall be defined as below:
 - 35 tons for automobile with semi-trailers having four axles as a single axle is located in the front of automobile where there are two wheels and the other single axle in the back of the vehicle where there are four wheels and the twin axles of the semi-trailers with eight wheels.
 - 40 tons for automobile with semi-trailers having five axles onward. The total weighs of the automobile and the trailers or semi-trailers which is not included in points above shall be asked for permission letter from Ministry of Public Works and Transport.

When crossing the bridges, all drivers of automobiles, automobile with trailers, or semitrailers shall obey the permitted-maximum-weight signs put in front of the bridges. The size of automobiles, automobiles with trailers or semi-trailers with no loading shall be defined as below:

- Maximum width of the vehicles shall not exceed 2.5 meters except vehicles equipped with tools should not be more than 3 meter width
- Maximum height should not be higher than 4.2 meters
- Maximum length of each automobile shall not exceed 12.2 meters
- Maximum length of the automobiles towing semi-trailers shall not exceed 16 meters
- Maximum length of the automobiles towing trailers shall not exceed 18 meters

2 Railways

2.1 History

French Colonial Government in Cambodia built the first railway of 1 meter gauge linking Phnom Penh to Poi Pet (Northern Line or NL) (through Kampong Chhnang, Pursat, Battambang and Sisophon at the Thai border) 1929-1942. This line run across Cambodia’s greatest rice producing province – Battambang. The Phnom Penh Railway Station inaugurated in 1932 whereas the connection with Thailand Railway was made in 1942, whose service later interrupted in late 1940s due to political and security reasons. In 1960s in order to reduce the reliance on ports in then Saigon (former South Vietnam) and Thailand (Khlong Toei), Cambodia, with support by France, West Germany and People’s Republic of China, began to construct second 1 meter gauge railway line linking capital Phnom Penh to Sihanoukville port, which later became known as the Southern Line (SL).

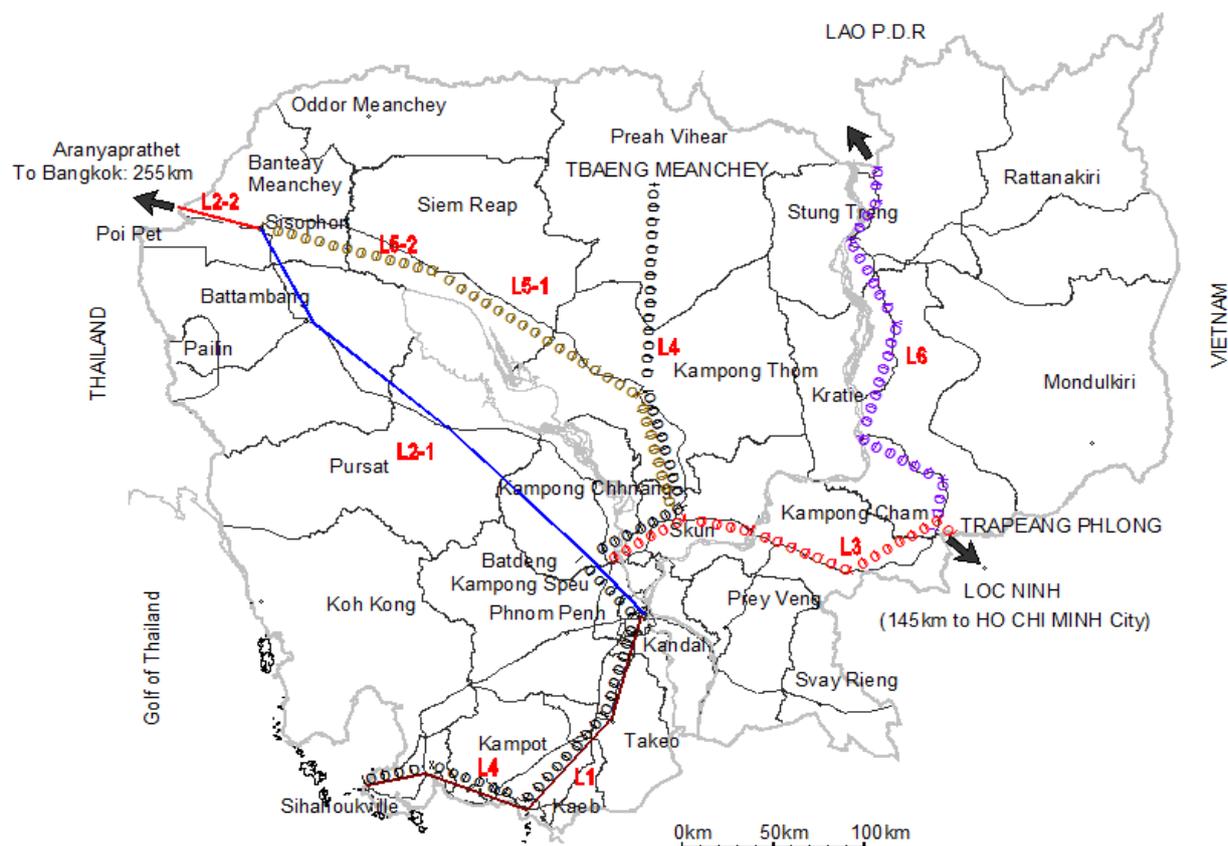
2.2 Present State of Railways in Cambodia

2.2.1 Railway Infrastructure

There are two existing railway lines in Cambodia:

- NL: It links Phnom Penh to Poi Pet town at Thai border by running across Battambang, which is one of Cambodia’s main rice growing provinces.
- SL: It links Phnom Penh to Sihanoukville Port.

These sections are currently being rehabilitated.



| Railway Line | Origin - Destination | Name | Length |
|--------------|---|---------------|--------|
| L1 | Phnom Penh - Sihanouk Ville | Southern Line | 266 km |
| L2 -1 | Phnom Penh - Sisophon | Northern Line | 338 km |
| L2 -2 | Sisophon - Poi Pet | Missing Link | 48 km |
| L3 | Batdeng - Trapeang Phlong | Proposed Line | 255 km |
| L4 | Tbaeng Meanchey - Batdeng Batdeng - Sihanouk Ville | Proposed Line | - |
| L5 -1 | Siem Reap - Skun | Proposed Line | 239 km |
| L5 -2 | Sisophon - Siem Reap | Proposed Line | 105 km |
| L6 | Snoul - Lao Border | Proposed Line | 273 km |

LEGEND

- Existing Line (under rehabilitation)
- Missing Link
- | | | | | Proposed/Studied Line

Figure 2-1: Cambodia Railways Network Including Future Plan

Source: MPWT

Table 2-1: Situation of Railway Facilities

| Item | NL | SL |
|-------------------|--|---|
| From – To | Phnom Penh – Poi Pet (Thai border) | Phnom Penh – Sihanoukville |
| Section | Phnom Penh - Pursat - Battambang - Sisophon - Poipet | Phnom Penh - Takeo - Kampot - Sihanoukville |
| Length (km) | 386 (including 48km missing link) | 266km |
| Station (number) | 42 (Current Operation 0) | 28 (Current operation 5) |
| Construction Year | 1929 - 1942 | 1960 - 1969 |

Source: RRC

2.2.2 Legal Framework

Railway in Cambodia was managed by MPWT independent railway general department. With limited fund and support, railway services run into difficulties. Train operation became infrequent. To improve this sector, the government takes the following action:

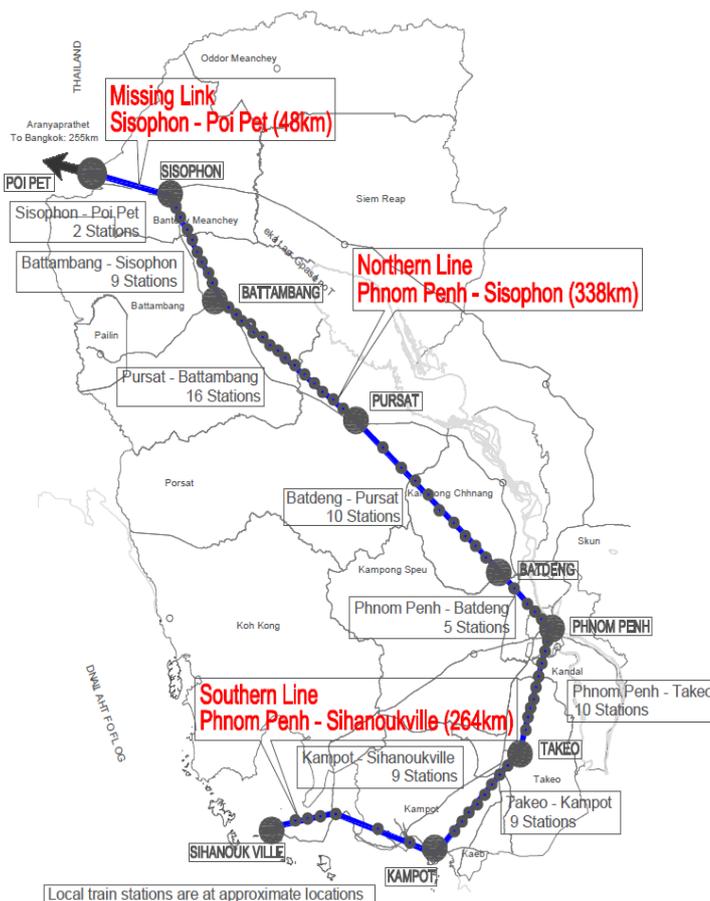
- Dissolved this general department and created railway department instead (issued sub-decree No. 163 dated 01st October 2009 to establish Railway Department. This department will be under the supervision and management of MPWT.)
- Rehabilitated the railway infrastructure through financial support by ADB (Loan No. CAM-2288 [SF]) and AusAid. The implementation is carried out by TSO-A.S-NWR JV (Later Thai company withdraw and TSO carry out the rehabilitation alone) supervised by Nippon Koei-JARTS.
- The Privatization of Railway: The 30-year concession to manage and upgrade Royal Cambodian Railways (RCR) had been provided to the joint venture Toll Holdings, Australia (55 percent share) and the Royal Group (45 percent share). Revenues will be shared between the government and Toll when the railway becomes profitable. Toll is responsible for operation and maintenance the railway.

2.3 Railway Project

2.3.1 Rehabilitation of Railway

The rehabilitation of railway is carried out by TSO, who sub-contracts to local sub-contractors. Rehabilitation work is behind the schedule at all sections:

- SL from Phnom Penh – Sihanoukville (L1: 266km): As of September 2012, section from Phnom Penh to Kampot is rehabilitated and from Kampot to Sihanoukville is in progress of rehabilitation.
- NL from Phnom Penh – Sisophon (L2-1: 338km): Only small portion of the entire line is completed:
 - PK: 0 to PK: 9+450: Completion of survey
 - PK: 9+450 to PK: 31 + 000 (Batdeng station): Rehabilitation completed
 - From Batdeng to Sisophon: Not yet started
- Missing link from Sisophon – Poi Pet (L2-2: 48 km): This section is completed except between PK: 378+450 to PK: 384+900. TSO is still working on survey, clearing and grabbing.



Source: MPWT

Figure 2-2: Key Railway Stations in Cambodia

2.3.2 Future Development Plan

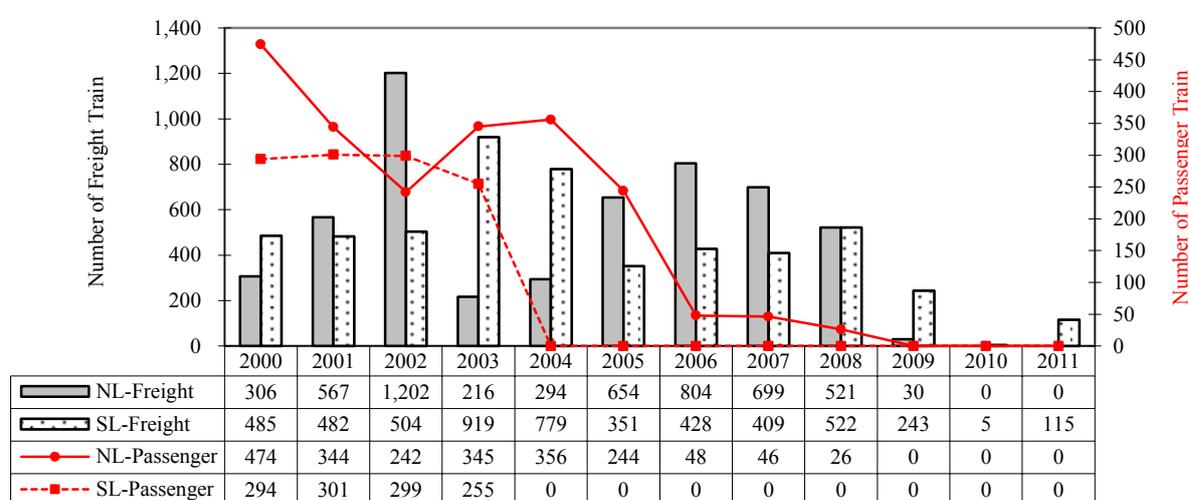
The study of Batdeng-Loc Ninh section was done by China. The envisioned railway lines will be prioritized by the master plan study, supported by Korea.

- Plan to establish railway station at Tonlebet, Kampong Cham province, where road and waterway transport networks are met.
- Tbaeng Meanchey (Preah Vihear) to Sihanoukville (L4: through Kampong Thom, Skun, Batdeung and Phnom Penh). The primary purpose of this railway is to export mine particularly iron ore from mineral rich province of Preah Vihear to the world through Sihanoukville port.
- Siem Reap to Skun through Kampong Thom (L5-1). The total length of this line is 239km.
- Sisophon to Siem Reap (L5-2). The total length of this line is 105km.
- Snuol to Lao P.D.R border through Kratie and Thalaborivat (Stung Treng) provinces (L6). The total length of this line is 273km.

2.4 Present State of Railway Utilization

2.4.1 Number of Train Service

Passenger train service ceased to operate at SL since 2004 and it also ceased to operate at NL since mid 2008. Freight Service remains function at SL but it ceased to operate at NL since 2009.

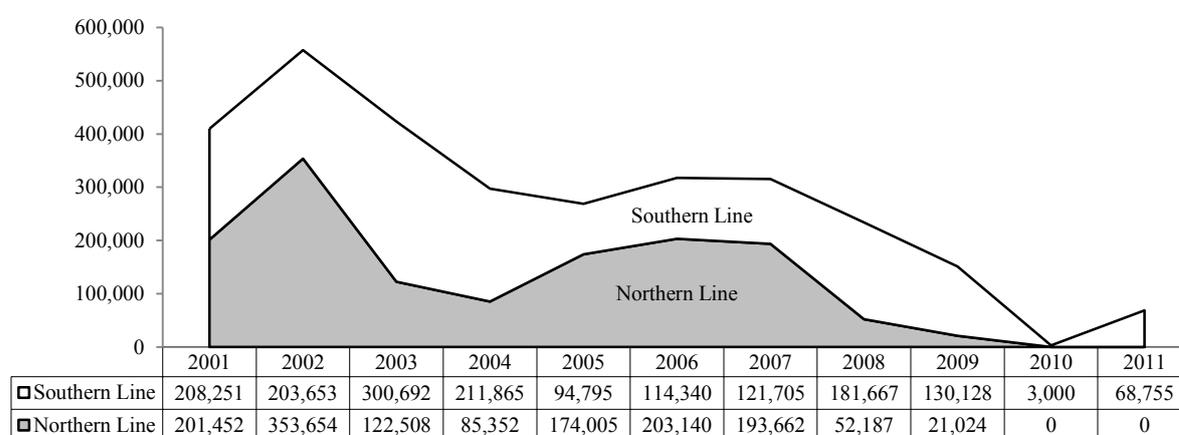


Source: RRC

Figure 2-3: Number of Trains Operated in a Year

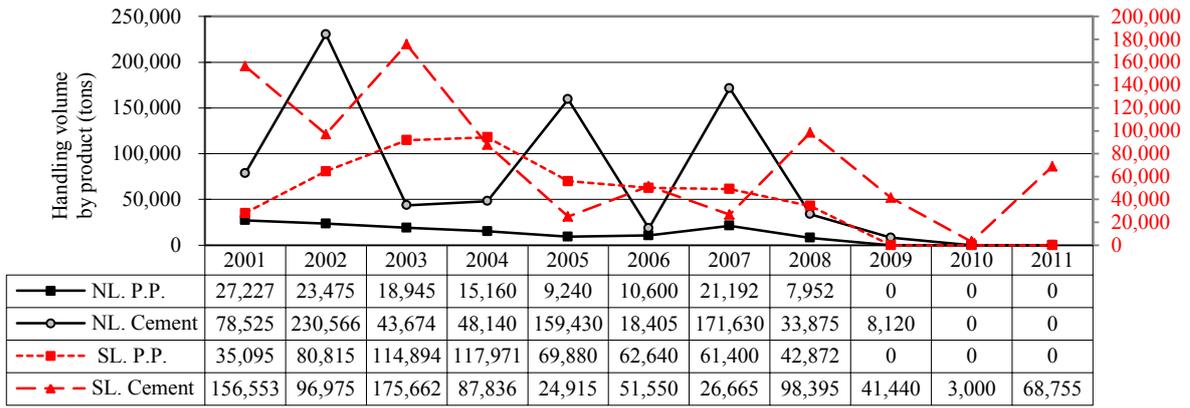
2.4.2 Freight Train Service by Volume and Product

The volume of rail cargo transport began to decrease after reaching 557,000 tons in 2002. Currently only SL remains in service and it carries only cement from Toukmeas to Phnom Penh.



Source: RRC

Figure 2-4: Trends in Rail Cargo Transport Volume (ton)



Source: RRC

Figure 2-5: Trends in Transport Volume by Product

2.5 Trans-Asian Railway Network

Trans-Asian Railway is from Singapore to China/Russia in North-South direction and from South Korea to Europe in East-West direction. This network is hindered by insecurity, missing rail links and differences of rail gauge.

Meter gauge is popular in South-East Asia. To link this region to Trans-Asian railway network, 2 missing links in Cambodia (Cambodia-Thai, Cambodia-Vietnam), 2 missing links in Vietnam (Vietnam-Cambodia and Vietnam Lao) and 3 missing links in Lao (Lao-Thai, Lao-Vietnam and Lao-China) are planned to connect.

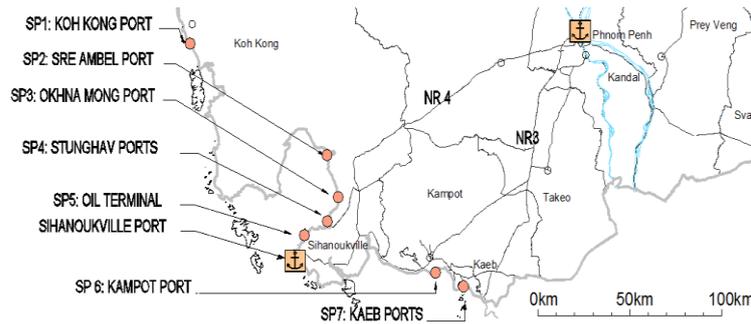


Source: http://www.unescap.org/tdw/common/TIS/TAR/images/tarmap_latest.jpg

Figure 2-6: Trans-Asian Railway Network

3 Maritime and Seaports

3.1 Present State of Seaports



Source: MPWT

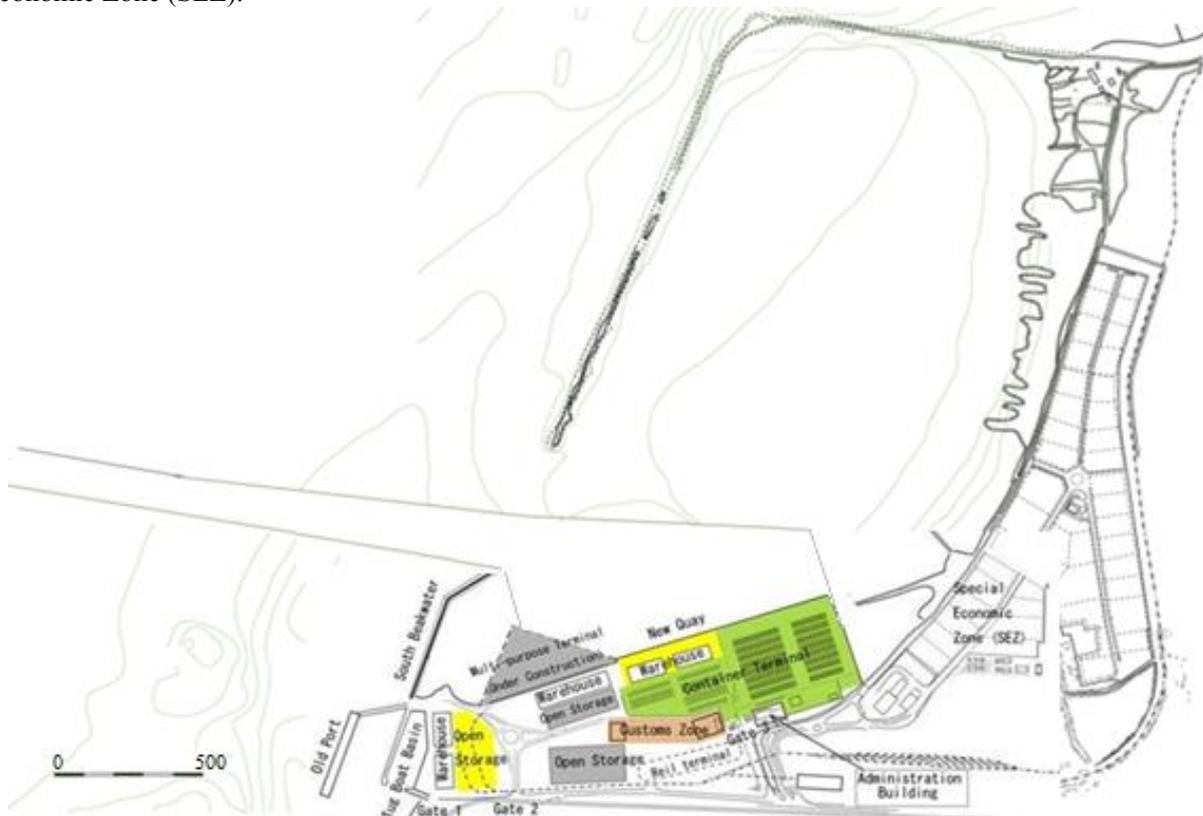
Figure 3-1: Seaports in Cambodia

Among the seaports in Cambodia, Sihanoukville Port is the major port that handles international containers. It is under the MPWT and MEF, but is autonomously-managed ports, which is officially called Port Autonomous of Sihanoukville (PAS). The port construction was completed in 1960 by French assistance. Beside Sihanoukville Port locates in newly established Sihanoukville province, Cambodia other seaports locate mainly in Koh Kong and Kampot provinces.

3.2 Sihanoukville Port

3.2.1 Present State of Sihanoukville Port

The Port of Sihanoukville, situates in mouth of the Bay of Kampong Som – Sihanoukville province, is the principal and only deep seaport of the Kingdom of Cambodia. Sihanoukville’s natural advantages include deep inshore and a degree of natural protection from storms. The present traffic of Sihanoukville Port, in its present condition, is estimated at about 2.4 million tonnes per year, including Petrol-Oil-Lubricant (POL), which has separate facilities. The port can accommodate 10,000 DWT cargo ships and 20,000 DWT class container ships. To enhance the economic development, PAS, with financial support by Japan, has established Special Economic Zone (SEZ).

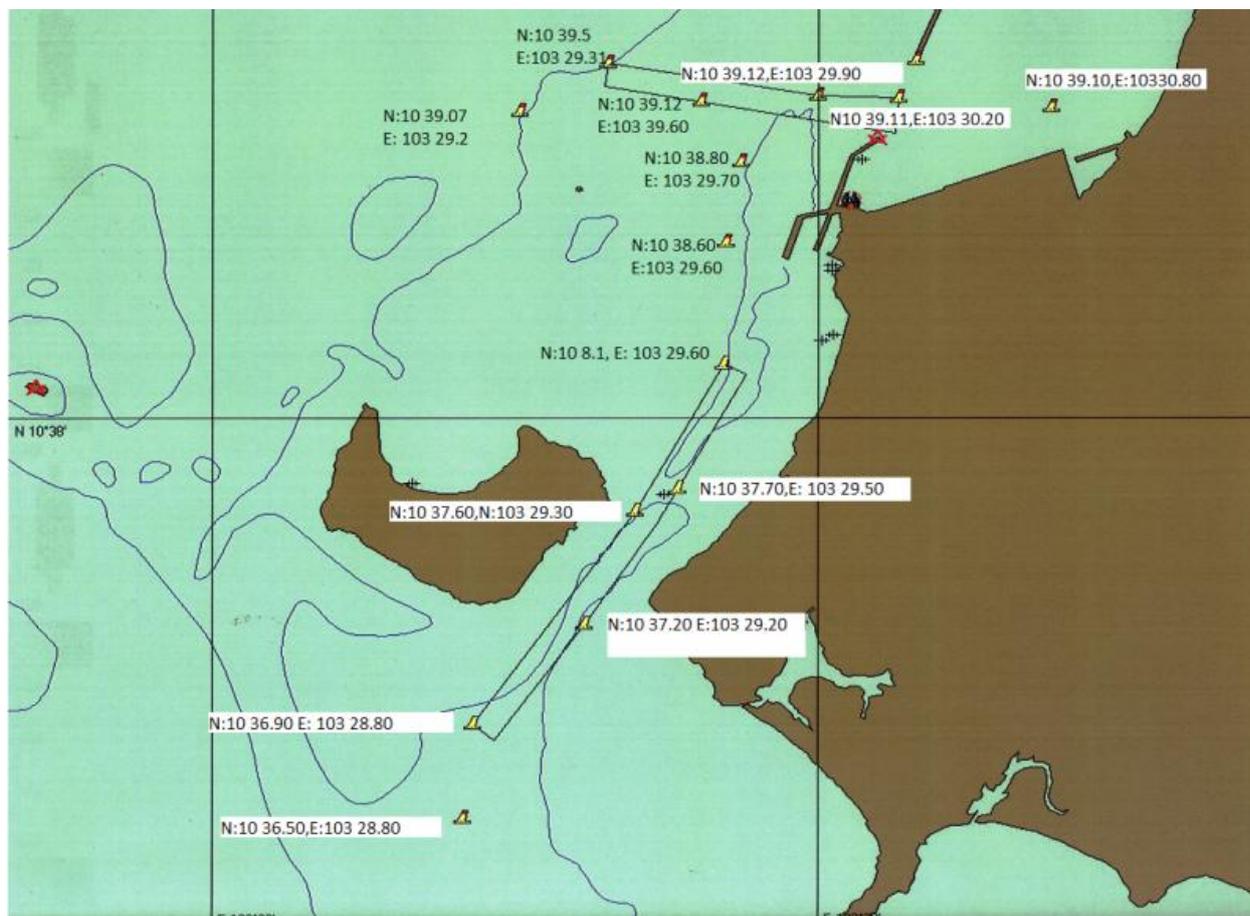


Source: PAS

Figure 3-2: Port Layout

3.2.2 Access Channel to Sihanoukville Port

Access channel to the port is 5.5km, marked by buoys and leading lights for daylight navigation only. Due to rocky outcrops in the channel, the entrance to the port is restricted to vessels with a draft of less than 8.5m. The port is located 540 nautical miles (1000 km) from Singapore.



Source: PAS

Figure 3-3: Marine Chart

3.2.3 Sihanoukville Port's Major Infrastructure

a) Sihanoukville Port's Wharf

Sihanoukville Port has one jetty and two wharfs:

- The Old Jetty, completed in 1960, has two berths for 10,000 DWT and 7,000 DWT vessels at a time. The jetty has a total length of 580m with a reported depth alongside of -9.0m and -8.0m drafts. This jetty was repaired under the ADB's Special Rehabilitation Assistance Project (SRAP) in 1996 and its outer berth is also used for passenger ships.
- The “new wharf” (locally known as “New Quay”), which located in the Northeast, completed in 1970 with 350m long by -8.5m draft and can accommodate three vessels for offloading and loading cargoes. However, the pavement of the apron is worn out and damaged. The “new wharf” area is sheltered by two breakwaters. The northern one was never completed. With the result that, the entrance is some 200m wider than that planned. This may be aggravating some problems of waves in the port.
- The second wharf is a Container Terminal completed in 2007 with a berth's length 400m and berth depth -10.0m draft. The capacity of the Container throughput is 350,000 TEUs per year and the capacity of the container storage is 114,000 TEUs.
- In addition to the above facilities, Sihanoukville Oil Terminal for the Petroleum-Oil-Lubricant (POL) traffic is some 10km north of the main port. This was originally an oil refinery, opened in 1969 and destroyed a year later at the outset of civil war. Now Sokimex and Tela use those facilities for the importation of POL.

Table 3-1: Infrastructure at Sihanoukville Port

| Channel | Berth | | | | | | Other Facilities & Remarks |
|--|----------------------|-----------|----------------|-------|--------|------|--|
| | Name | Structure | Length | Depth | Year | | |
| [South Channel] Length 5.5km Depth: -8.5m Width: 80-100m | Old Jetty | Outer | Jetty | 290m | -9.0m | 1960 | Warehouses: 5; 36,000m ² , (84,000T) [Container yard] 3 yards, 174,000m ² |
| | | Inner | Jetty | 290m | -8.0m | 1960 | |
| | New wharfs | | Concrete Block | 350m | -8.5m | 1970 | |
| | Container Berth | | Concrete Block | 400m | -10.0m | 2007 | |
| | (Private Facilities) | | | | | | |
| [North Channel] Length 1km Depth:-10m Width: 150-200m | Sokimex | | Jetty | 200m | -10.5m | - | |
| | Tela | | Pontoon | 110m | -6.5m | - | |
| | - | | Stone Wharf | 53m | -4.2m | - | |
| | | | | | | | |

Source: Prepared based on the Study on the Master Plan for Maritime and Port Sectors in Cambodia, March 2007 JICA (Updated by PAS)

b) Sihanoukville Port's Anchorage

Basically, working hour is from 7:00 to 17:30 or by one hour before ship arrival using VHF channel N° 16 (156.80MHZ). There are three anchorage areas:

- o Northern Anchorage 10 ° 39'5N, 103 ° 29'0E
- o Southern Anchorage 10 ° 36'0'N, 103 °28'5E
- o Tanker Anchorage 10 ° 39.5'N, 103 ° 25.7'E

c) Sihanoukville Port's Service Equipment

In order to timely service the market-economic situation and adhere to safety performance in providing service to customers, PAS has prepared its operating facilities as follow:

- **Navigation Equipment**
 - o Tug boat: 5 (1800HP: 1, 1600HP: 2, 800HP: 2)
 - o Pilot boat: 1
 - o Mooring boat: 1
 - o Speed boat: 2
 - o Patrol boat: 1
- **Cargo Handling Facilities**
 - o Quay Gantry Cranes (QGC) 30.5T: 2
 - o Mobile Harbor Cranes 64T: 02
 - o Rubber Tyred Gantry Cranes (RTG) 40.6T: 7
 - o Super Stackers 45T: 6
 - o Empty Stacker 7.5T: 2
 - o Chassis/Trailers 20'-40': 17
 - o Shore Cranes 10-50T: 8
 - o Forklifts 5-25T: 10
 - o Trucks 10-20T: 10

3.2.4 Shipping Schedule at Sihanoukville Port

5 companies had their ships called regularly at Sihanoukville Port:

Table 3-2: Ship Call at Sihanoukville Port (as of Oct. 2012)

| Lines | Calling Schedules | Frequency | Rotation Ports |
|--|--|---|--|
| RCL (3calls/week) | 1. Wed. 8 :00 –Thu. 16 :00 2. Thu. 14 :00 – Fri. 22 :00 3. Fri. 20 :00 – Sat. 23 :59 | 1 call/week 1 call/week 1 call/week | 1. SIN-SHV-SGZ-SIN 2. HKG-SHV-SGZ-HKG-(HPH-TXG-KEL) 3. KUN-SHV-SGZ-SIN-KUN |
| MAERSK LINE (2 calls/week) | 1. Tue. 15 :00 – We. 07 :00 2. Fri. 22 :00 – Sun 00 :01 | 1 call/week 1 call/week | 1.SGN-SHV-LZP-TPP-SIN-BTG-MNL-KAO-YAT-HKG-SGN 2. SIN-SHV-TPP-SIN |
| SITC (BEN LINE) (1 call/week) | Sun 09 :00 – 23 :00 | 1 call/week | HCM-SHV-BKK-LZP-HCM-NSA-NBO-SGH-OSA-KOB-BUS -SGH-HGK-HCM |
| ITL (ACL) (1 call/week) | Sat. 06:00 – Sun. 08 :00 | 1 call/week | SGZ-SHV-SIN-SGZ |
| American President Line (APL) (1 call/week) | Fri. 08 :00 – Sun. 06 :00 | 1 call/week | SIN-SHV-SIN |

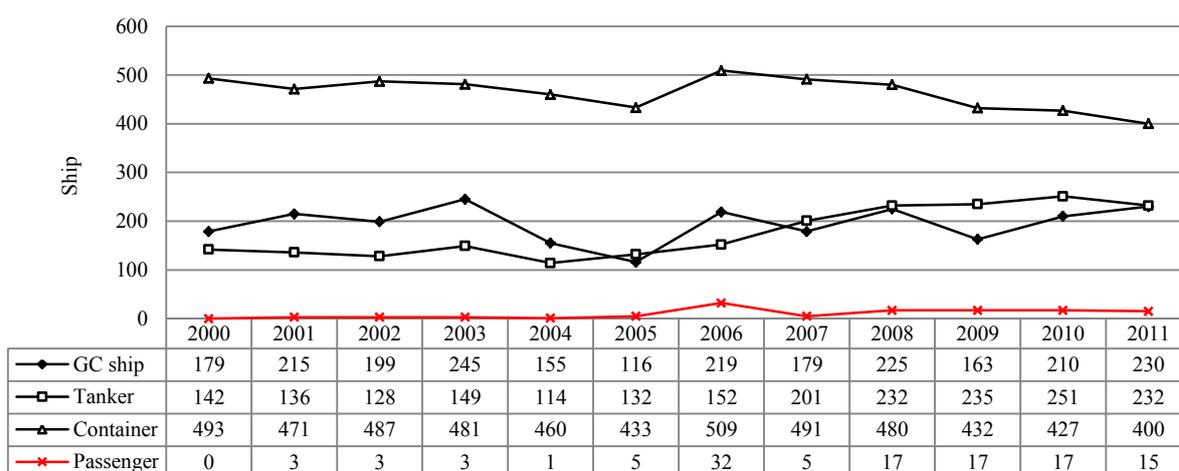
Source: PAS

Remark:

| | | |
|----------------------------|------------------------------------|---------------------------------|
| BKK : Bangkok, Thailand | KEL : Keelung, Taiwan | SIN : Singapore |
| BUS : Busan, South Korea | LZP : LaemChabang, Thailand | SGH : Shanghai, China |
| BTG : Bantagas, Philippine | MNL : Manila, Philippine | SGZ : Songkhla, Thailand |
| HKG : HongKong | NSA : Nansha, China | TXG : Taichung, Taiwan |
| HPH : Hai Phong, Vietnam | NBO : Ningbo, China | TPP : Tanjung Pelepas, Malaysia |
| HCM : Ho Chi Minh, Vietnam | OSA : Osaka, Japan | YAT : Yantian, China |
| KOB : Kobe, Japan | SHV : Sihanoukville Port, Cambodia | |
| KUN : Kuantan, Malaysia | SGN : Saigon, Vietnam | |

3.2.5 Ship Call at Sihanoukville Port

General Cargo (GC) ship, Oil tanker (Tanker) and Containerized Cargo (CC) ship account more than 98% ship call at Sihanoukville Port. Passenger ship account less than 2% of total ship call.

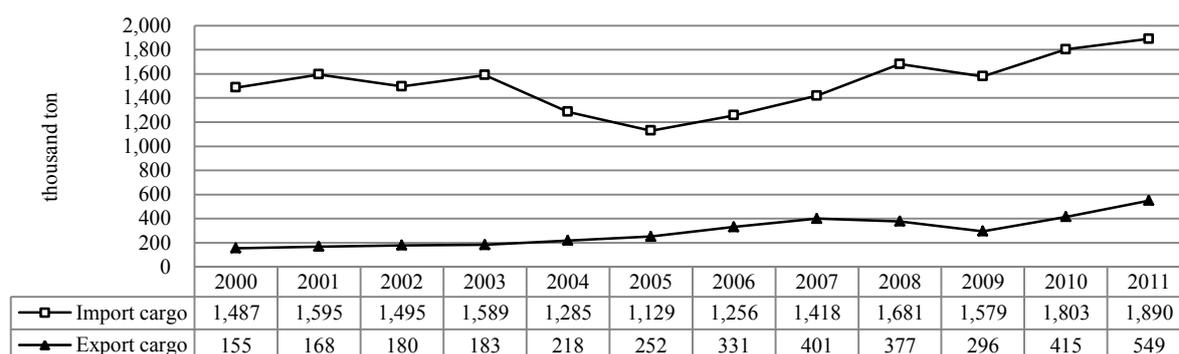


Source: PAS

Figure 3-4: Number of Ship Call at Sihanoukville Port

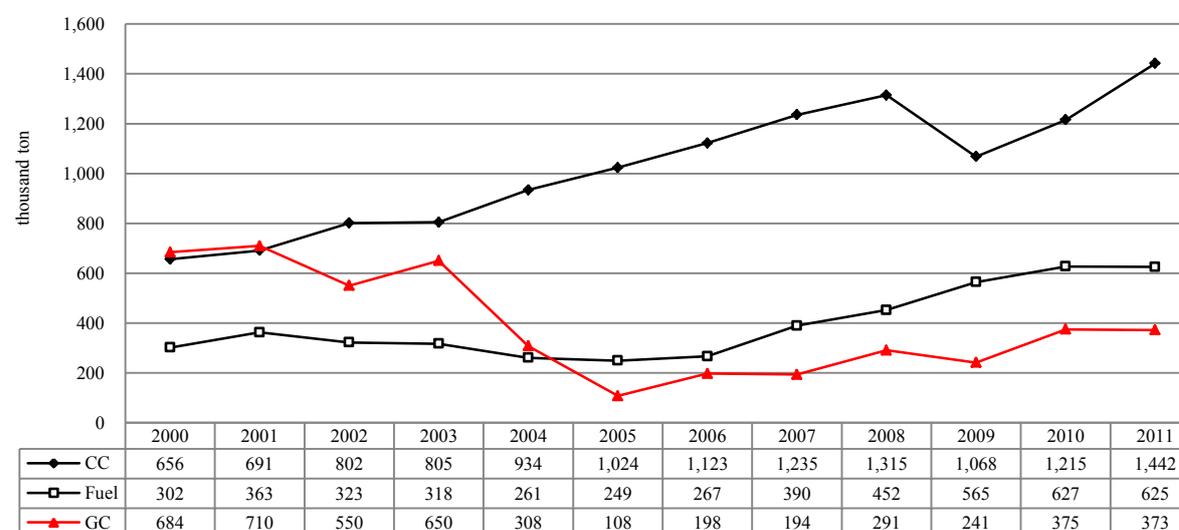
3.2.6 Cargo Throughput at Sihanoukville Port

Export increases more than 3 folds over the last 11 years and within the same period of time Import increases by only less than 1 fold. However import volume always remains higher compare to export volume.



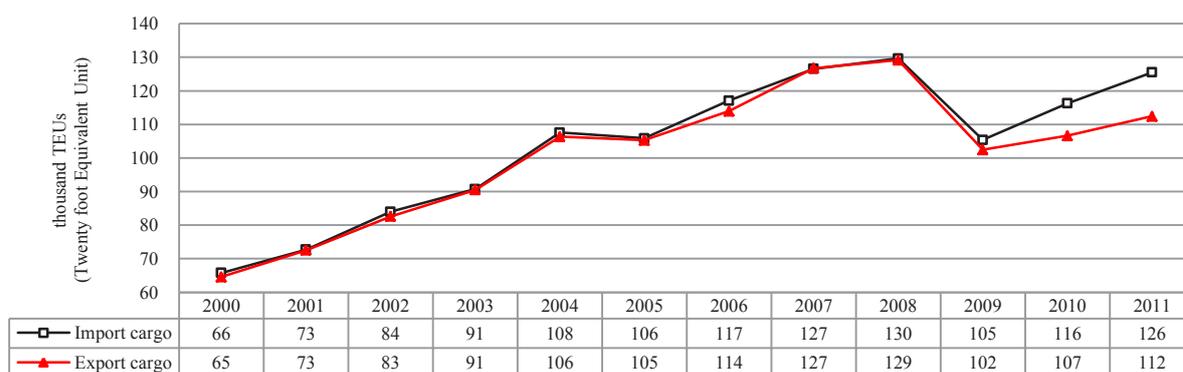
Source: PAS

Figure 3-5: Import & Export Trends of all Cargos at Sihanoukville Port



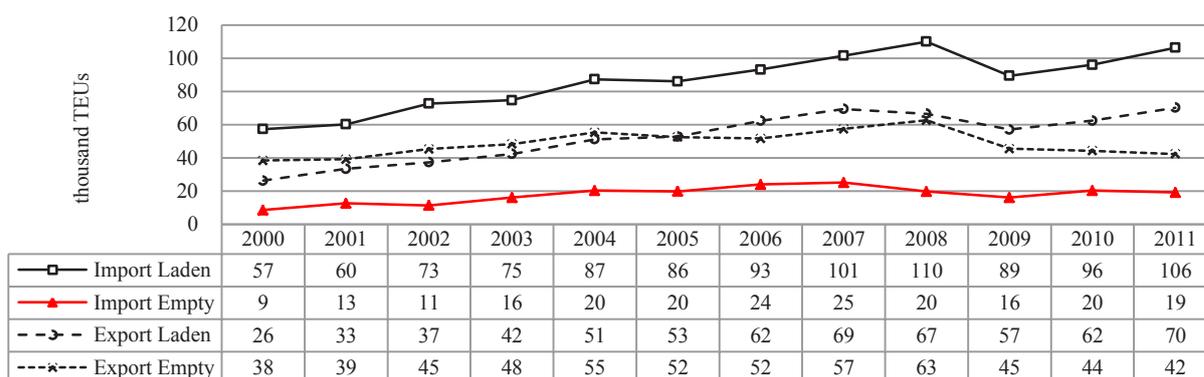
Source: PAS

Figure 3-6: Trends of all Cargos at Sihanoukville Port



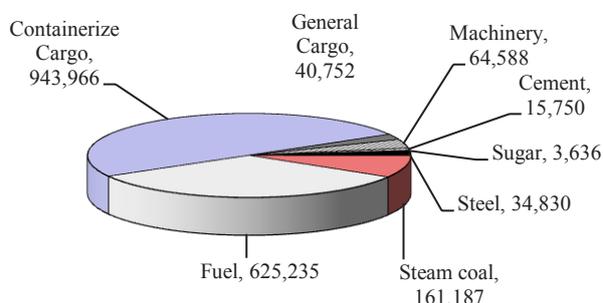
Source: PAS

Figure 3-7: Import & Export Trends of Containerized Cargo at Sihanoukville Port



Source: PAS

Figure 3-8: Trends of Ratio of Empty and Laden Containers at Sihanoukville Port



Source: PAS

Figure 3-9: Composition of Imported Items at Sihanoukville Port in 2011 (tons)

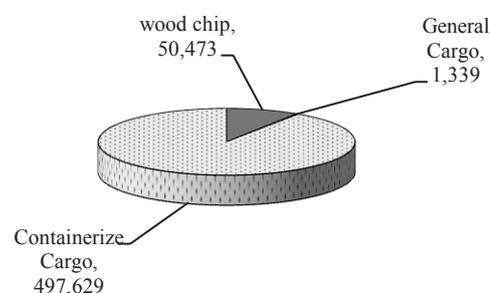
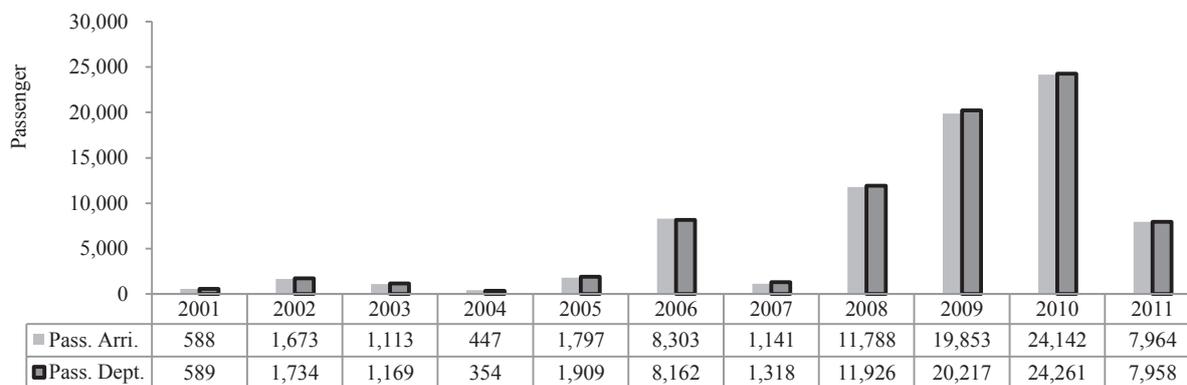


Figure 3-10: Composition of Exported Items at Sihanoukville Port in 2011 (tons)



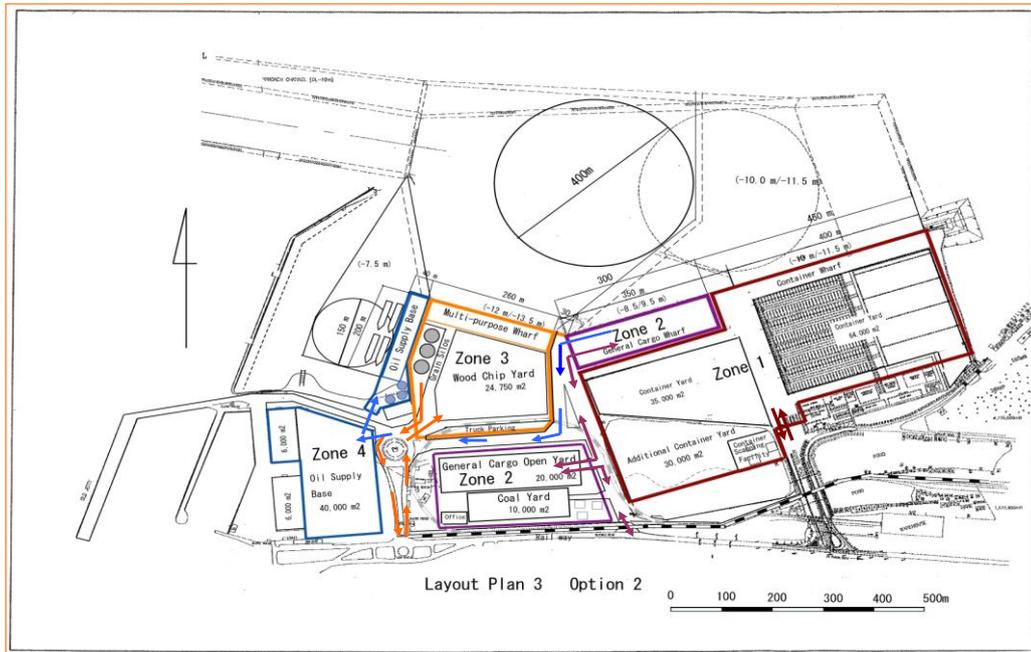
Source: PAS

Figure 3-11: Number of Passenger at Sihanoukville Port

3.2.7 Future Development Plan

To ensure survivability and profitability in the business world, future development plan of PAS depends directly on export and import demands. Taking into consideration these demands, this future plan will be:

- To support the export of 1 million ton of rice by 2015. This demand requires expansion and construction of the storage facilities, terminal and links with railway (zone 1 & zone 2).
- To support the export of forest-related product. This demand requires the refurbishment of wood chip yard where it also could be used as multi-purpose terminal (zone 3).
- To support current oil import and also prepare ground for future oil export (zone 4). Excluding overlapped area with neighbor countries, there are 6 offshore oil blocks (from A to F blocks). In 2005, Chevron announced oil discovery in Block A (6,278 km²) and Commercial discovery was announced in 2010. Oil exploitation is expected to taking place in the very near future.



Source: PAS

Figure 3-12: Future Development Plan

3.2.8 Special Economic Zone (SEZ)

To minimize transport cost, Japanese-funded SEZ of 70ha was established next to the port terminal.

- Construction started: Oct. 2009
- Completion: 31st Mar. 2012
- Factory area: 45ha
- Commercial and Multi-purpose area: 6ha
- Inter-Modal logistic area: 4.4ha
- Green area: 5.2ha
- Admin., maintenance office and parking: 0.9ha
- Utilities and roads: 8.5ha



Source: MPWT

Figure 3-13: Long Term Development Plan

3.3 Other Seaports

3.3.1 Koh Kong Port (SP1)

SP1 was managed by provincial Department of Public Works and Transport (DPWT). It was built in 1992, at Lat: 11d32'859"N / Long: 102d56'426"E; size: 30m x 10m. Accessibility to this port could be made by dusty dirt road. Water level at low and high tide is between 3m and 5m. Water level could support up to 300-tonne vessel. Goods brought to this port are mostly cement and construction material, which are estimated around 4,000 -7,000 tons per month. There are between 2-3 ship calls per month at SP1.

3.3.2 Sre Ambel Port (SP2)

Sre Ambel Port is located at Lat:11d 06'921"N/ Long:103d 43'607"E in Rondaochhor Village, Sre Ambel District, Koh Kong Province and is 100km from Sihanoukville City and 140km from Phnom Penh. Accessibility to this port could be made by laterite road. Recently the name of the port has been changed to Sre Ambel New Port. Construction of the port started in 2003 and port operation launched on 01st July 2003. It has a total land area of 12 ha (600m x 200m with potential increased to 400ha). Total concrete berth length is 500 m with a width of 30 m and a water depth of 4m. There is a plan to secure a depth of 6m through dredging. SP2 was established by MDH Trading Company. Most imported goods are food and construction materials from Thailand though some originate in Singapore. Cargo throughput is estimated around 10,000 -12,000 tons per month. There are between 3-4 ship calls per month at SP2.

3.3.3 Oknha Mong Port (SP3)

The Oknha Mong Port is located in Keo Phos Village, Chroy Svay Commune, Sre Ambel District, Koh Kong Province and is 76 km from Sihanoukville. Port construction started on January 01, 2003 and operations commenced on August 01, 2004. Port has a land area of 64 ha while the total terminal area is about 26 ha. Total berth length is 1,111m with a width of 200 m and a water depth of 4.5m at low tide and 5.5m at high tide. The port is 100% privately owned. Most of the transport is carried out by the wooden boats that carry cargoes from Thailand with the capacity of 300 tons. About 35 to 50 ships call at this port. Most vessels are small size and carry fruits from Thailand (Klong Srun Port). Cement is carried by convoys consisting of 1 tugboat and 4 barges (each with about 1,000 ton capacity). Each month an average of 16 to 20 barges carry cement from Thailand directly from Bangkok.

3.3.4 Stunghav Port and Oil Terminal (SP4 And SP5)

Stunghav Port is officially known as Stunghav International Port & SEZ. This port is established by Attwood investment Group Co., Ltd. It locates about 30 km from the main NR4 leading to Sihanoukville city. Port development plan has a maximum water depth of 12m. The land area for port and industries will consist of about 520 ha obtained by reclamation while the basin will be 400 ha, protected by breakwaters of more than 7.6km in length. The volume of materials dredged for the basin and approach channel (in case that the dimension of the channel is 3.7 km in length and 300m in width) is estimated at about 21million m³. The Stung Hav dry cargo terminal is only 50m long with permissible ship draft of only 3.5m to 4.5m in the maximum. Vessel from SP2 mostly carries construction material (350 tons/ship x 7-10 ships/month). Vessels from Thailand, mostly carries general cargo (300 tons/ship x 3 ships/month). All shipments are carried by barges.

3.3.5 Kampot Port (SP6)

Kampot Port or Kampong Bay Port is a wooden port and situates in the town on a river bank 4 km from the sea. It is managed by a joint DPWT and Veng Hour Co., Ltd. SP6 is able to take vessels of up to 150 tonnes or more. It could be accessible by two main approaches from the sea, one of which has fairway depths of 10m to within 11km of the port. The other southern channel could accommodate vessels of less than 4.6m draft. A wooden jetty can be used by 30-40 tonne ship. There is another DPWT-managed port, which currently is unused. It locates at Prek Chark, bordering Kaeb and Kampot provinces, close to Vietnam border. It facilities

- Berthing point: 10d28'250"N/104d24'000"E , Draft: 4.00m
- Entrance channel: 10d27'000"N/104d25'000"E, Draft : 3.50 m
- Anchorage position: 10d25'000"N / 104d22'000"E , Draft: 6.00 m

3.3.6 Kaeb Port (SP7)

This port is used for passenger to make trip between Kaeb town and islands. Its draft at berth is 2.5m, therefore it is suitable only for small local passenger boats. This port is managed by DPWT of Kaeb. This port could be accessible by good road.

Table 3-3: Cambodia's other Seaports

| No. | Port | Company | Investment scheme | Cost in Million | Agency | Project Start |
|-----|--------------------------------|--|-------------------|-----------------|---------|---------------|
| SP1 | Koh Kong | - | - | - | DPWT | 1992 |
| SP2 | Sre Ambel New Port | MDH trading company | - | - | Private | 2003 |
| SP3 | OKNHA MONG | OKNHA MONG PORT Co.,LTD | BOO | | Private | 2004 |
| SP4 | Port for Petroleum at Stunglav | SOKIMEX | | | PAS | 2001 |
| SP4 | Port for Petroleum at Stunglav | TELA PETROLEUM GROUP INVESTMENT CO.,LTD | BOO | \$14.50 | PAS | 2004 |
| SP4 | Int. Port at Stunglav | ATTWOOD IMPORT EXPORT Co.,LTD | - | \$30.00 | Private | |
| SP6 | Int. Port at Kampot | Veng Hour Co., Ltd. | - | \$9.00 | DPWT | |
| SP7 | Int. Tourist Port at Kep | Aussic-Cam Group Investment and Development Co., Ltd (Local) | BOT | | DPWT | |
| SP7 | Int. Tourist Port at Kep | Rotong Development Co., Ltd | BOT | | DPWT | |
| SP7 | Commercial Port at Kep | KEP POWER SUPPLY CO.,LTD | BOT | \$41.00 | DPWT | |

Source: MPWT

3.3.7 Maritime Activities at Other Seaports

Among local seaports, Koh Kong port which is located near Thai border, receive the most ship call (34%) and 72% Gross Registered Tonnage (GRT).

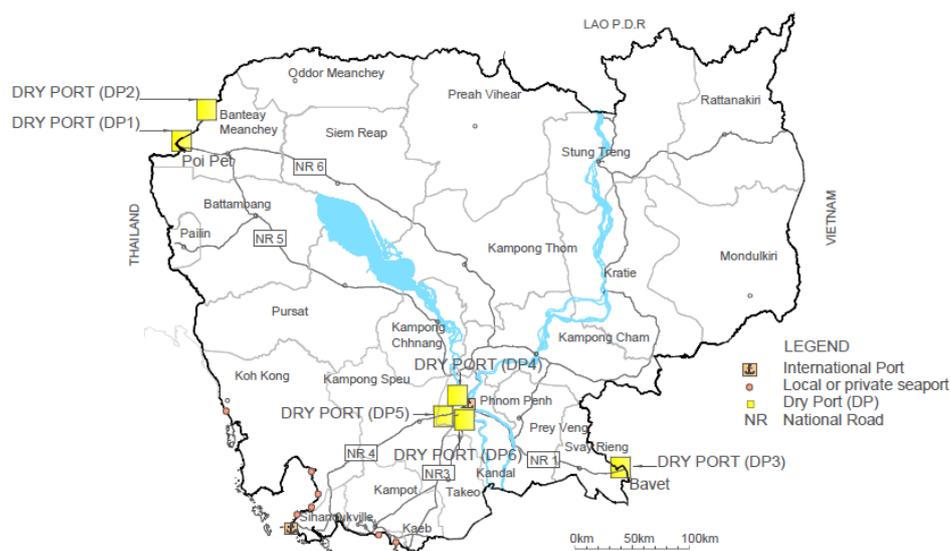
Table 3-4: Shipping Activities at other Small Seaports (as of 2011)

| No. | Port | GC ship | GRT | GC ship % | GRT % |
|-----------|------------|---------|--------------|-----------|-------|
| SP1 | Koh Kong | 213 | 1,196,371.96 | 34% | 72% |
| SP2 | Sre Ambel | 194 | 98,721.54 | 31% | 6% |
| SP3 | Oknha Mong | 206 | 202,335.51 | 33% | 12% |
| SP6 | Kampot | 1 | 5,264.00 | 0% | 0% |
| SP4, 5, 7 | Others | 11 | 167,867.00 | 2% | 10% |
| Total | | 625 | 1,670,560.01 | | |

Source: MPWT

3.4 Dry Ports (DP)

Dry ports in Cambodia locates at 3 main locations: Bavet (Cambodia-Vietnam border), Poi Pet (Cambodia-Thai border) and around Phnom Penh. The main purposes of these dry ports are to process goods from point of entrance. In this case, containers arriving at Sihanoukville Port could be taken by road to the dry ports near Phnom Penh for customs clearance, saving time and reducing inconvenience for customers based in Phnom Penh.



Source: MPWT

Figure 3-14: Dry Ports in Cambodia

Table 3-5: Dry Port Development

| No. | Location | Developed by | Invest. scheme | Cost Million | Partner | Status |
|------|-------------------|--|----------------|--------------|---------|---------------------|
| DP1 | Poi Pet | LY SAYKHENG Co.,LTD. | BOO | | MEF | 2002 |
| DP2 | Poi Pet (O neang) | CHHAY CHHAY INVESTMEN Co., LTD. | BOO | | MEF | - |
| DP3 | Bavet, NR1 | HAN SENG LAND and PROPERTY Co.,LTD. | BOO | | MEF | 2002 |
| DP4 | NR5 (6km) | GREEN TRADE COMPANY | - | - | MEF | Completed |
| DP5 | Chomchav, NR4 | OLAIR WORLDWIDE LOGISTIC CO., LTD. | BOO | \$2,5 | MEF | Licensed: July 2007 |
| DP 6 | Chomchav, NR4 | TENG LAY IMPORT EXPORT AND TRANSPORT CO., LTD. | BOO | \$6.2 | MEF | Licensed: July 2007 |

Source: MPWT

4 Inland Waterway and River Ports

4.1 Present State of River Navigation

The Master Plan on Waterborne Transport in the Mekong River System in Cambodia, was developed in 2006, by Belgian. The Master Plan set out 60 action plans for the development of inland waterway transport in Cambodia. Some of the action plans are now under implementation.

Cambodia’s navigable inland waterways measure a total length of 1,750km. Most of the major river ports are located along these major rivers. The Mekong mainstream accounts for 30% of the total, the Tonle Sap River 15%, the Bassac River 5%, and other tributaries 50%. Year-round navigation is possible through 580km long and one third width of the river.

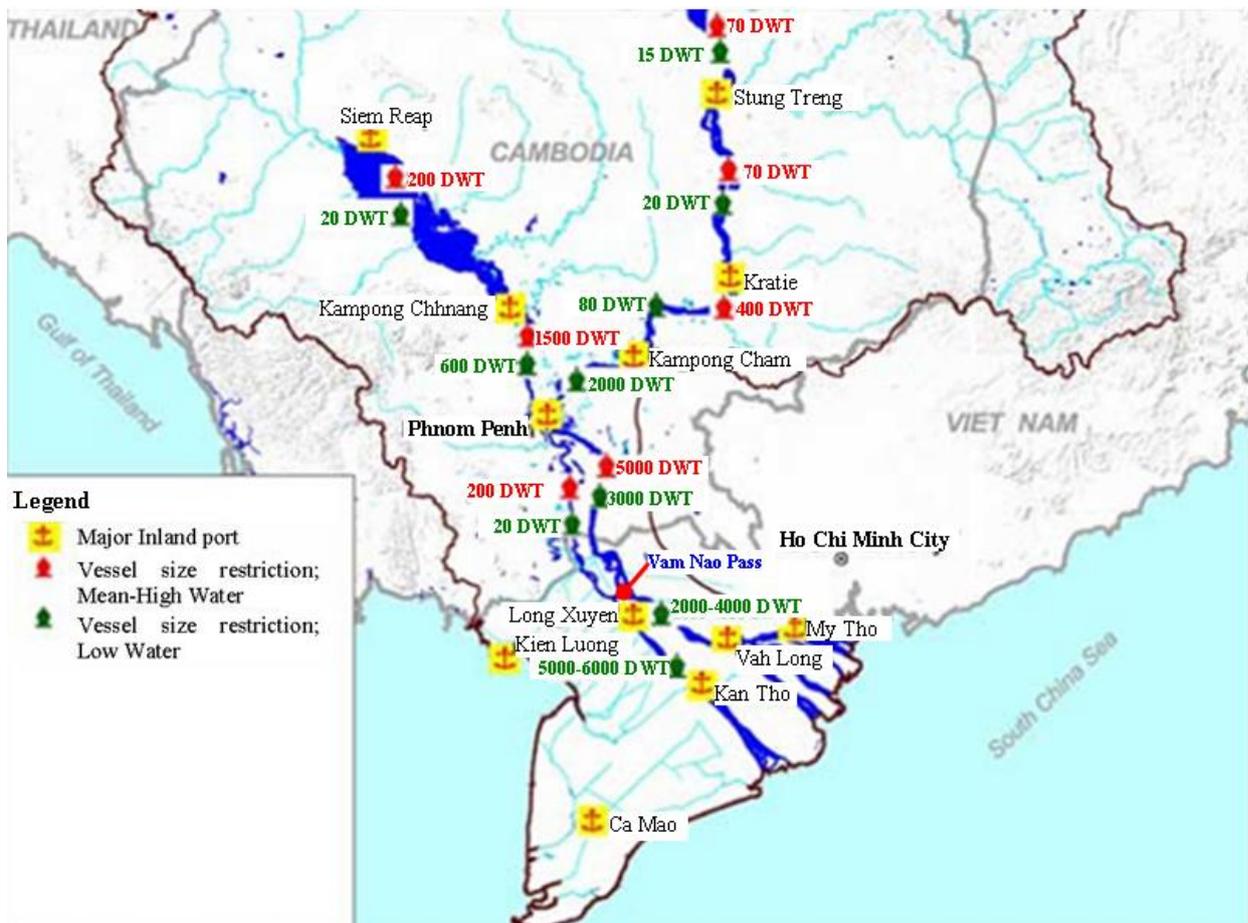
4.2 Navigable Vessel Size in Mekong River Channel

For the 102 km stretch between Phnom Penh and Cambodian-Vietnam border, the bends of the river prevent the passage of vessels more than 110m long. To travel from Phnom Penh to South China Sea, currently vessel must take Mekong route in Cambodia and also Mekong route in Vietnam. It has to wait for high tide to pass the most difficult path, which locates at the mouth of the Mekong River. Its water level supports only up to 4,000DWT in high tide and 3,000DWT in low tide.



Source: MPWT

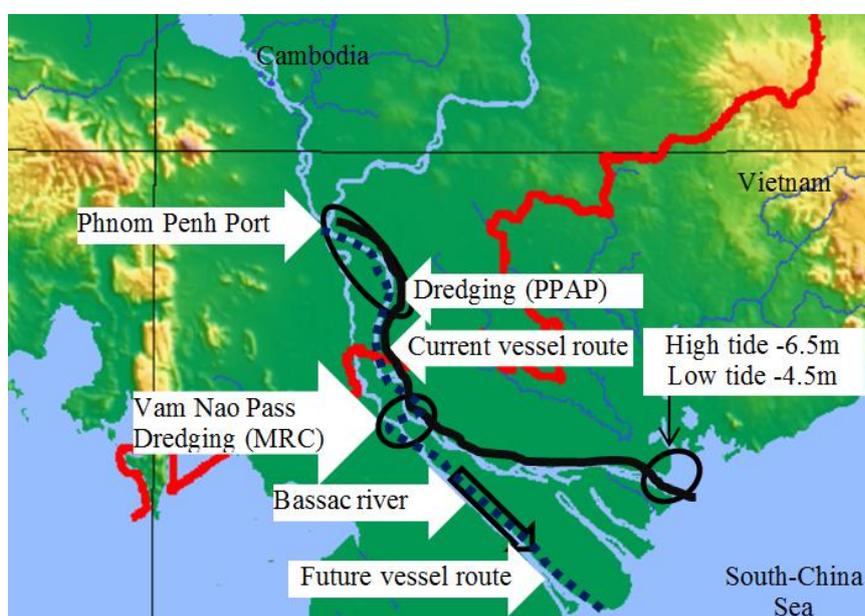
Figure 4-1: Major Rivers And Domestic River Ports



Source: Master Plan for Waterborne Transport on the Mekong River System in Cambodia, Final report (Volume 1 Main Report, Draft), September 2006, Belgian Technical Cooperation

Figure 4-2: Maximum Navigable Vessel Size in the Mekong River Basin

To take advantage of deep water channel at Bassac River in Vietnam, Cambodia and Vietnam agreed in 2009 that future vessel route will take Mekong route in Cambodia reroute at Vam Nao Pass, use Bassac river in Vietnam. After the completion of dredging at 3 locations in Cambodia (to be done by PPAP financed by Royal Government of Cambodia, RGC) and dredging at Vam Nao pass (by MRC), 5,000DWT cargo vessel can navigate without obstacle in any season.



Source: http://upload.wikimedia.org/wikipedia/commons/7/75/Vietnam_Topography.png

Figure 4-3: Dredging Locations and Vessels Movement Direction

Table 4-1: Maximum Navigable Vessel Size in The Mekong River Basin by Section

| River | River Section | Length (km) | Year-round navigation possible? | Vessel Size Restriction (DWT) | |
|------------------------|--|-------------|--|-------------------------------|-----------------|
| | | | | Low Water | Mean-high water |
| Mekong Mainstream | Golden Triangle - Luang Prabang | 362 | Yes - but is limited by rocky passages and strong currents | | 60 |
| | Luang Prabang - Vientiane | 425 | Yes - but requires small boats and skilled pilots during dry season | 15 | 60 |
| | Vientiane - Savannakhet | 459 | Yes | 200 | 500 |
| | Savannakhet - Pakse | 261 | No "high water" only navigation possible | Less than 10 | 50 |
| | Pakse - Khinak | 151 | Yes | 50 | |
| | Khinak - Veune Kham | 14 | No - navigation not possible at any time due Khone Falls | | |
| | Veune Kham - Stung Treng | 30 | Yes - with size limitations at low water | 15 | 50 |
| | Stung Treng - Kratie | 128 | Yes - with size limitations at low water | 20 | 50 |
| | Kratie - Kampong Cham | 121 | Yes | 80 | 400 |
| | Kampong Cham - Phnom Penh | 100 | Yes - navigable by sea-going ships | 2,000 | |
| Bassac River | Phnom Penh - Junction of Vam Nao Pass | 154 | Yes - navigable by sea-going ships | 3,000-4,000 | 5,000 |
| | Vam Nao pass - South China Sea | 194 | Yes - navigable by sea-going ships | 3,000-4,000 | 3,000- 4,000 |
| Tonle Sap (Cambodia) | Phnom Penh - 5km South of Kampong Chhnang | 94 | Yes - navigable by sea-going ships | 1,000 | 2,000 |
| | Kampong Chhnang - Chhnoc Trou | 46 | Yes - with size limitations at low water | 20 | 150 |
| Mekong Delta Waterways | Chhnoc Trou - Chong Kneas109 | 109 | Yes - with size limitations at low water | 20 | 150 |
| | Dense network of man-made canals, natural creeks and Mekong tributaries, with a total navigable length of 4,785 km | 4,785 | Yes - Vessel size restrictions within this network vary from 10-300DWT | | |
| | Sekong - Mekong tributary (Lao PDR and Cambodia) | | Yes - this waterway is navigable between the Lao PDR and Cambodia, providing an alternative international transit corridor to the Mekong, which is non-navigable through the Khone Falls | | |

Source: Master Plan for Waterborne Transport on the Mekong River System in Cambodia, Final report (Volume I Main Report, Draft), September 2006, Belgian Technical Cooperation

4.3 Present State of Phnom Penh Port

Phnom Penh Port is under the management of state enterprise supervised by MPWT and Ministry of Economy and Finance (MEF). This autonomous enterprise was established by Sub-Decree No. 51, dated 17 July 1998. The Phnom Penh port is the country's traditional river port, accessible by vessels from the South China Sea through Vietnam. Phnom Penh Port is located in the city, along the Tonle Sap, some 3-4 km from its junction with the Mekong.



Source: Google map

Figure 4-4: Phnom Penh Port's Key Infrastructures

4.3.1 Phnom Penh Port's Major Infrastructure

Phnom Penh Port is located at 3 areas: a) Port No. 1 or the main port located along Tonle Sap about 4km North of Mekong junction, b) Port No. 2 located about 1km south of Port No. 1 and Port No. 3 located 25km south of Phnom Penh along Mekong river. Port No.3 is under construction and the operation will start from beginning of 2013.

Table 4-2: Major Infrastructure at Phnom Penh Port

| Description | Specification | Remark |
|--------------------------------------|--|----------------------|
| Container and General Cargo Terminal | Quay: 20m x 300m | Water depth is -5.0m |
| | Berthing Capacity: 3 vessels at one time | |
| Passenger Terminal | 2 Pontoons of 15m x 45m each | Water depth is -3.5m |
| Warehouse | 70m x 50m = 3,500m ² | |
| | 50m x 30m = 1,500m ² | |
| ICD | Area: 92,000m ² | |

Source: PPAP

Table 4-3: Status of Equipment at Phnom Penh Port

| Handling Equipment | Specification and quantity |
|--------------------|----------------------------|
| Truck | 10 units |
| Trailer | 6 units (40" and 45") |
| Forklift | 11 (4t to 25t) |
| Bulldozer | 1 |
| Excavator | 1 |
| Roller | 1 |
| Dredgers | 2 |
| Empty Stacker | 3 |
| Container Stacker | 5 |
| Cranes | 5 (3 Crawlers, 2 Floating) |
| Speed Boat | 2 |
| Tug Boat | 5 |
| Ferry | 2 |

Source: PPAP

4.3.2 Shipping Companies

Several shipping companies are called at Phnom Penh Port:

Table 4-4: Shipping Companies and Shipping Lines

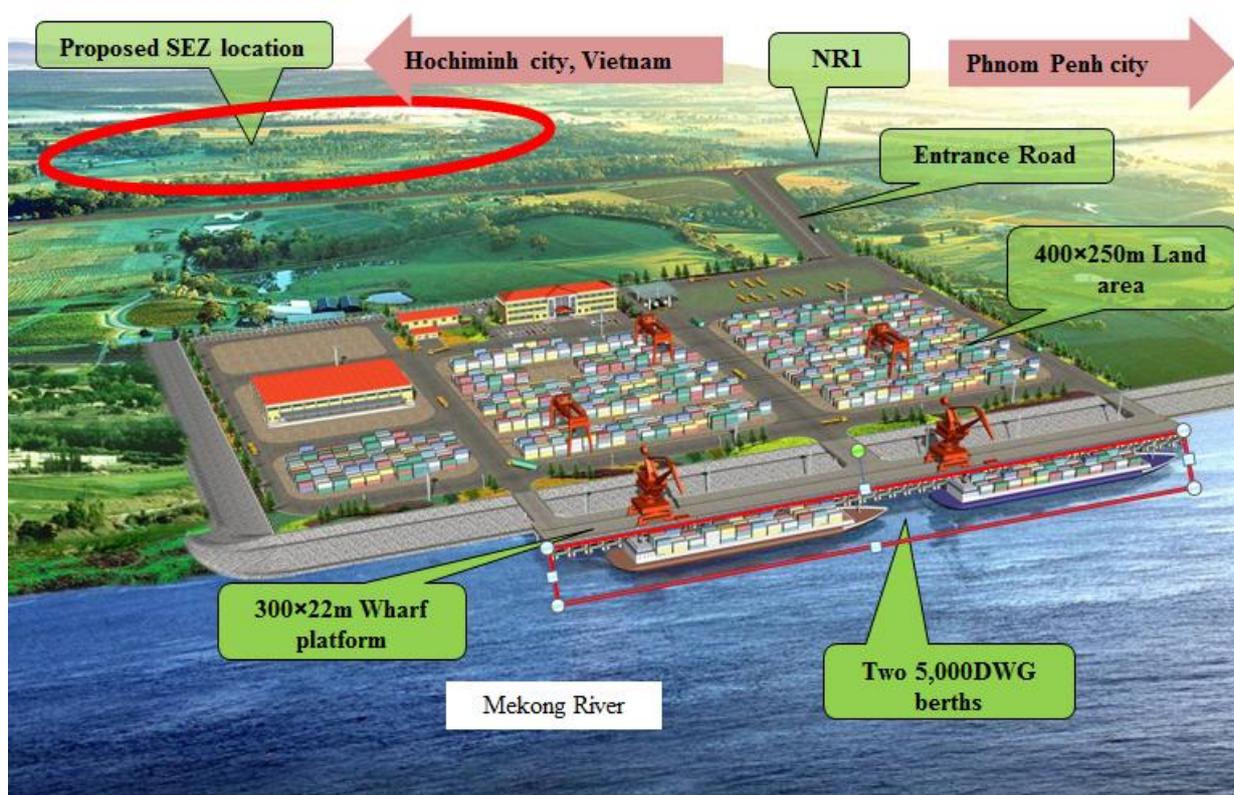
| | | SOVEREIGN BASE Logistics Company | Gemadep Company | Hai Minh Company | New Port Cypress Company |
|----------------------|---------------|--|--------------------------|--------------------|--------------------------|
| Feeder Shipping Line | Vessels | 3 vessels (80-120 TEUs) | 10 vessels (75-120 TEUs) | 1 vessel (56 TEUs) | 3 vessels (75-120 TEUs) |
| | Call per week | 2-3 calls | 5-7 calls | 1 call | 2-3 calls |
| | Other | 2 floating cranes and some trucks | | | |
| Shipping Line | | Maersk Line, MOL, Wan Hai, CMA, OOCL, K-Line, NYK, China Shipping, Star Shipping, HAN JIN, APL, Evergreen, POS Shipping, ZIM, Hyundai, Sun Shipping, RCL and others... | | | |

Source: PPAP

4.3.3 New Phnom Penh Port and SEZ Plan

Because of several restriction to run No.1 and N.2 ports such as low water level, traffic congestion as well as their capacities are getting full, New Phnom Penh Port or the No.3 port is being constructed 25km downstream from the No.2 ports (between NR1 and Mekong river). This is a 28-million USD project funded by China.

- Contractor: Shanghai Construction (Group) General Company
- Construction Period: 30 months (Construction of infrastructure)
- Request further budget to finance superstructure
- Initial capacity: 120,000 ETUs/Year
- Total Capacity = 300,000 TEUs/year (including future plan)
- Berth = 22m x 300m, Port Area = 12 ha
- SEZ plan : To support New Container Terminal (NCT), PPAP is planning to develop SEZ. This project is under preparatory survey by JICA.
 - ◇ Infrastructure : Bonded Warehouse, Agricultural Processing Zone and Industrial zone
 - ◇ Location : NR1, PK : 30, opposite side of current New Container Terminal
 - ◇ Size : Approximately 200ha



Source: PPAP

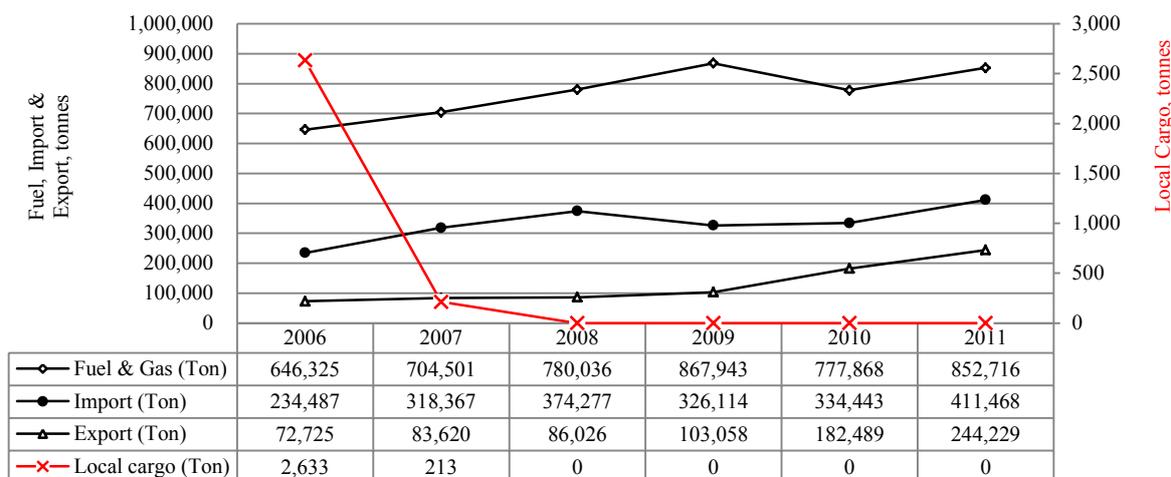
Figure 4-5: New Phnom Penh Port (will be opened by end of 2012)

4.3.4 Km 6 Port and Railway Connection

There is a port located at Km 6, North of Phnom Penh, between NR5 and Tonle Sap. It was intended for river rail transshipment but this function had ceased. There is a warehouse complex having 15 sheds with a total capacity of 70,000 tonnes and 8 sheds of nearly 4,000 tonnes. There is a plan to renew this port to connect to Sihanoukville Port by railway.

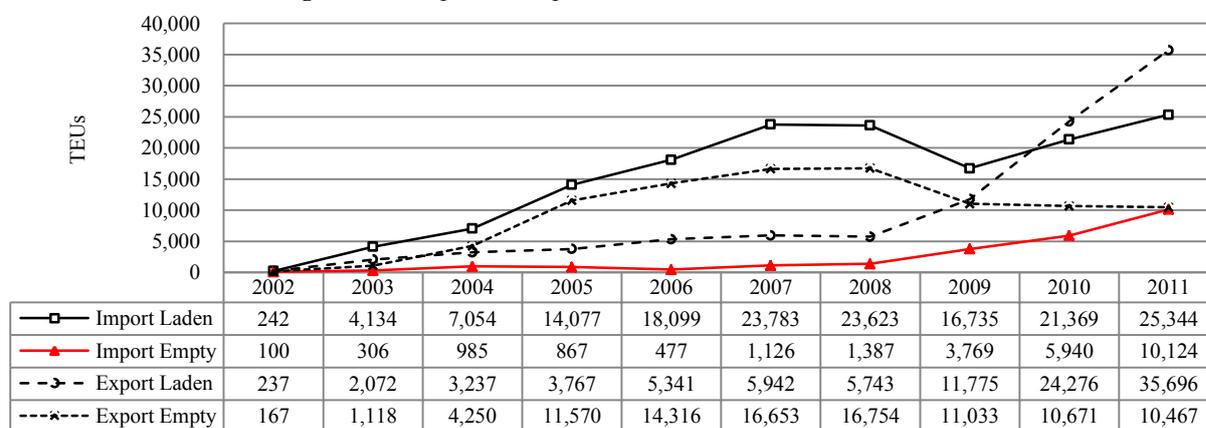
4.3.5 Phnom Penh Cargo Throughput

There is only data of Phnom Penh Port usage is available. Most of Phnom Penh Port service is used for maritime trade service (import and export). Local cargo has ceased to operate since 2008.



Source: PPAP

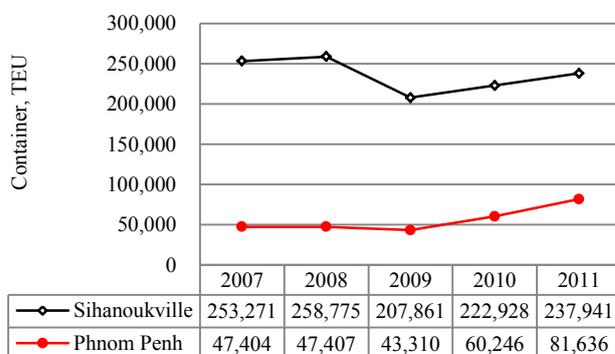
Figure 4-6: Import & Export Trends at Phnom Penh Port



Source: PPAP

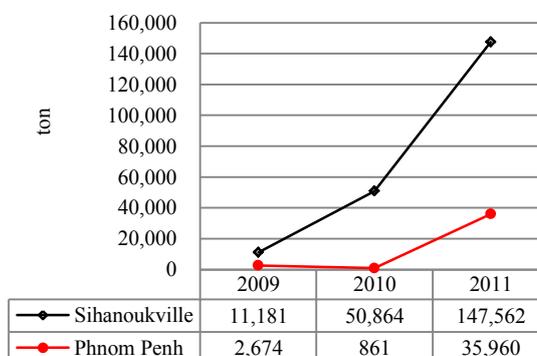
Figure 4-7: Trends of Ration of Empty and Laden Containers at Phnom Penh Port

Phnom Penh and Sihanoukville Port are two major ports in Cambodia. Both of them were hit hard by world economic recession in 2008-2009 but Phnom Penh Port's business health bounced back. By end 2009, it had caught up with its pre-recession level and continues to grow annually and almost double the pre-recession output by year 2011. This indicates that Phnom Penh Port presents strong economic growth. Concerning rice export, in the last three years (2009-2011), rice handling volume at both ports increased by more than 10 times.



Sources: PAS & PPAP

Figure 4-8: Trends of Container (TEUs) at Phnom Penh and Sihanoukville Ports



Sources: PAS & PPAP

Figure 4-9: Trends of Rice (Bulk and Containerized) Export at Phnom Penh and Sihanoukville Ports

4.4 Other River Ports

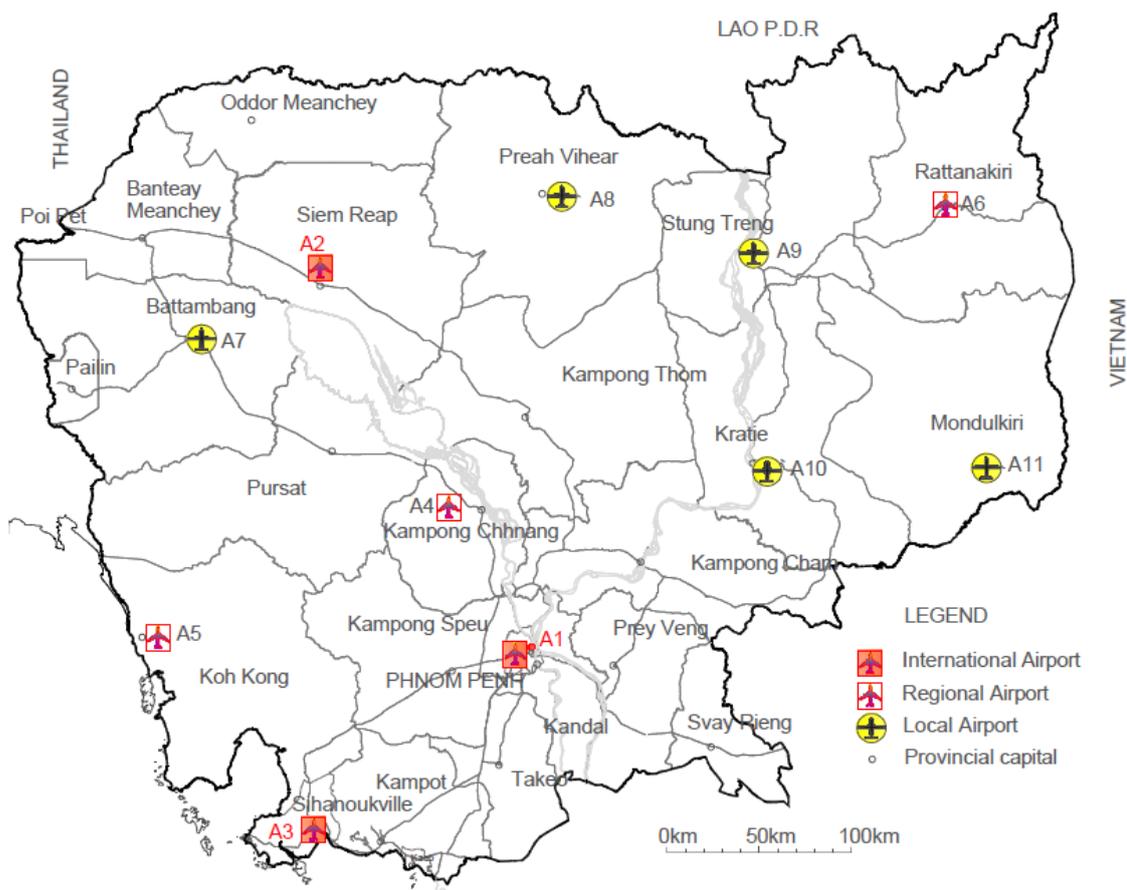
Excluding Phnom Penh, 6 major river ports are located along major rivers: Tonle Sap (3) and Mekong (3):

- **Stung Treng Port:** Stung Treng port, locates in Stung Treng Province, is an important regional centre, located where the Sekong joins the Mekong and also with road access both to Laos (Road 7) and the Vietnam (Road 78). A ferry brings the traffic along Road 7 across the Sekong, but is not much used in the present security situation. The Sekong and its tributaries Sesan and Srepok provide the only mean of access to most parts of the Stung Treng and Rattanakiri provinces. Some 130 boats are registered in Stung Treng including about 50 in the range 10-35 tonnes. There is no dedicated port facilities, however. The river banks have to be used or during the low water season the temporary jetty is to be provided for the ferry.
- **Kratie Port:** As Road 7 is very poor and indirect, most of the current traffic between Phnom Penh and Kratie is carried by river. Kratie is a provincial capital and another important centre for the rubber trade. The port has a 35m long pontoon, used only in the rainy season, and a 1,000m² warehouse said to have a capacity up to 5,000 tonnes.
- **Kampong Cham Port (or Tonle Bet Port, 106km):** Tonle Bet port, locates in Kampong Cham province, which is one of the most important provinces in Cambodia. It is situated on a cross-roads of two main trading routes: north-south along the Mekong from Laos to the sea, and east- west between Thailand and Vietnam along the historic route via Siem Reap. It is growing quickly and is an important centre for the rubber plantations. Much of the transport to and from Phnom Penh is by river. There is a passenger landing and a 10m long pontoon for barges up to about 400 tonne capacity. During the dry season the pontoon is grounded and the river bank is used. There is also a warehouse with a covered area of 550 m², said to have a capacity of about 600 tonnes. Across the river from the town, on the left bank, there is some 5,700 m² of open storage area.
- **Kampong Chhnang Port (or Phsar Krom Port or Chhnok Trou Port):** Kampong Chhnang port locates on the Tonle Sap River, between Phnom Penh and the Great Lake. It has a fishing port at Chhnok Trou and is also a market town for a rather large area on both sides of the Tonle Sap, and lake. Much of the boat traffic transships between road and river, for journeys to/ from Phnom Penh. The port facilities are congested, with a large adjacent market area, and the whole area needs improvement and paving. At present, however, the function of the port is more of a provincial one than a national one, as larger vessels cannot enter the lake in a low water season.
- **Pursat Port:** It has a fishing port at Krakor, which is an important site at the south-east corner of the Tonle Sap Lake. It is important for fishing but also as transshipment point between boats and road transport for journeys between Siem Reap and Phnom Penh. Unlike the River Sap, the lake is navigable the whole year and is used both for passenger and goods traffic. Most of this traffic uses Road 5 to and from Phnom Penh.
- **Siem Reap Port (or Chon Khneas Port):** The port for Siem Reap is located 5 km from the city and can only be used at high water. During the dry season the water level may be as much as 10 m lower and up to 11 km from the port. An access road (which is totally inundated at high water) then connects the town to the lake. A temporary wooden port is constructed at the beginning of each dry season but is destroyed together with any improvements to the access road as the water rises. There are also various mooring places along the access road for intermediate water levels. The port is mainly used for goods traffic to/from Phnom Penh either directly via the Tonle Sap River or with transshipment in Krakor or in Chhnok Trou in the southern end of the lake. Some 12 passenger boats also ply the route and there are some new express services for tourists to Angkor Wat.

5 Airports

5.1 Airports in Cambodia

According to State Secretariat of Civil Aviation of Cambodia (SSCA), there are 11 airports in Cambodia are divided into 4 categories: International (3), Regional (3), domestic (5) and airfields. The Société Concessionnaire de l'Aéroport (SCA) has been undertaking operational management of Phnom Penh International Airport since 1995, Siem Reap International Airport, since 2001, and Preah Sihanouk Airport since 2006. These are under BOT Agreements between the Royal Government of Cambodia and SCA. All other airports are managed by the State Secretariat of Civil Aviation (SSCA), under the Council of Minister, except for Kampong Chhnang Airport. This airport was built by the Khmer Rouge under Chinese support for Cambodia's air force. Later it was intended to use this airport for cargo hub but this BOT-scheme was postponed in 2005. Today this airport is managed by Ministry of Defense.



Source: SSCA

Figure 5-1: Location of Airports in Cambodia

Table 5-1: Airports and Airfields in Cambodia

| Airports | Runway/Surface/Refer Code | Operation status | | Aerodrome Condition | | | | Remarks |
|------------------------------|---------------------------|------------------|----|---------------------|------|---------|------|-----------------------------------|
| | | Yes | No | Exl. | Good | Not Bad | Poor | |
| International Airport | | | | | | | | |
| Phnom Penh (A1) | 3000x45/ Asphalt/ 4D | ▲ | | | ☺ | | | BOT (1995-2040) |
| Siem Reap (A2) | 2550x45/ Asphalt/ 4C | ▲ | | | ☺ | | | BOT (2000-2040) |
| Preah Sihanouk (A3) | 2500x34/ Asphalt/ 4C | ▲ | | | ☺ | | | New BOT (2006-2040) |
| Regional Airport | | | | | | | | |
| Kampong Chhnang (A4) | 2400x45/ Concrete/ 4C | | △ | | | ☹ | | BOT from 1996 (Postponed in 2005) |
| Koh Kong (A5) | 1300x30/ Laterite/ 3C | | △ | | | ☹ | | BOT (To be confirmed) |
| Rattanakiri (A6) | 1300x30/ Laterite/ 3C | | △ | | | ☹ | | ADB Project (2004-2008) |
| Domestic Airport | | | | | | | | |
| Battambang (A7) | 1600x34/ Bitumen/ 3C | | △ | | | ☹ | | |
| Preah Vihear (A8) | 1400x30/ Laterite/ 3C | | △ | | | | ☹ | |
| Stung Treng (A9) | 1300x20/ Bitumen/ 3C | | △ | | | ☹ | | |
| Kratie (A10) | 1180x30/ Laterite/ 3C | | △ | | | | ☹ | |
| Monduliri (A11) | 1500x30/ Laterite/ 3C | | △ | | | | ☹ | Temporary Closed since July 2007 |

Source: SSCA

5.2 Airport Development Plan

According to Cambodia's Tourism Development Strategic plan 2012-2020, Cambodia anticipates to attract seven million foreign tourists annually by 2020. To facilitate traveller, four airports will be constructed:

- Two new international airports will be built in Phnom Penh and Siem Reap. Each is capable to receive 10 million passengers a year. The expansion of current airports is hindered by limited land/air space (Current Phnom Penh International Airport could accommodate 4 airports at a time and airspace over Angkor Wat is off limit to all flight). The exact locations to build these two new airports have not been released by the Government of Cambodia yet.
- The improvements of local airports are under discussions at Rattanakiri, at Stung Treng, at Preah Vihear and at Koh Kong to support eco-tourism industry.

5.3 Open Sky Policy

Given the importance of trade in ASEAN, member countries have recognized that transport is an important area for cooperation as it can contribute toward the reduction of trade transaction costs for member countries and the region as a whole. Open sky in ASEAN is reviewed at three levels:

- (i) ASEAN-wide initiatives: The ASEAN open sky agreement took effect in December 2008, and is slated for completion by 2015. The agreement allows regional air carriers to take unlimited flights to all 10 ASEAN member countries.
- (ii) Sub-regional initiatives within ASEAN:
 - For Cambodia, a limited open sky agreement, which is a sub-regional air transport cooperation aimed at achieving air transport liberalization was concluded on 15th January 1998 between Cambodia, Lao, Vietnam and Myanmar (commonly called the CLMV Agreement). CLMV provides for unlimited capacity and unlimited traffic rights, including 5th freedom rights across member countries.
 - Cambodia, together with Brunei, Singapore and Thailand, concluded a Multilateral Agreement on the Full Liberalization of All Cargo Air Services in 2003 that allows carriers from the four countries to operate unlimited all-cargo services between and via each of the countries that is party to the agreement.
- (iii) Unilateral initiatives
 - Cambodia has concluded 12 Air Service Agreements, 7 of which are with ASEAN countries.
 - Cambodia has granted 5th freedom rights to Vietnamese carriers for a HCM City/Phnom Penh/Vientiane service

Reference: Right of the Freedoms of the air applies to commercial aviation that is carrying paying passengers, transporting cargo or mail. In total there are 9 rights of freedoms.

Table 5-2: Right of the Freedom of the Air

| Freedom | Description | Example |
|---------|--|---|
| 1st | The right to fly over a foreign country, without landing there | Toronto - Mexico City, as a Canadian company, overflying the United States. |
| 2nd | The right to refuel or carry out maintenance in a foreign country on the way to another country | Toronto - Mexico City, as a Canadian company, but stopping for fuel in the United States. |
| 3rd | The right to fly from one's own country to another | Toronto - Chicago, as a Canadian company |
| 4th | The right to fly from another country to one's own | Toronto - Chicago, as an American company |
| 5th | The right to fly between two foreign countries during flights while the flight originates or ends in one's own country | Bangkok - Kuala Lumpur - Doha, as a Qatari company |
| 6th | The right to fly from a foreign country to another one while stopping in one's own country for non-technical reasons | Dubai - Cairo - Paris, as an Egyptian company |
| 7th | The right to fly between two foreign countries while not offering flights to one's own country | Kuala Lumpur - Jakarta, as an Italian company |
| 8th | The right to fly between two or more airports in a foreign country while continuing service to one's own country | Chicago - New York - Toronto, as a Canadian company |
| 9th | The right to fly inside a foreign country without continuing service to one's own country | Beijing - Shanghai, as an Italian company |

5.4 Phnom Penh International Airport (Former Pochentong Int. Airport)

Phnom Penh International Airport or A1 locates on Russian Federation street about 8km west side of Phnom Penh capital. It sits on the junction of NR3 and NR4. During off-peak hour it takes about 20min drive from Phnom Penh center.



Source: Google maps

Figure 5-2: Satellite View of Phnom Penh Int. Airport

Table 5-3: Phnom Penh Int. Airport Data

| | | |
|--------------------------|--|------------------------------|
| Commencement of Services | 1956 | Checked in July 2008 |
| Airport Name Code | ICAO code: VDPP | IATA code: PNH |
| Location, ARP | N 11 ⁰ 32' 48", E104 ⁰ 50' 39" | UTM: N 12-76-416, E 4-83-004 |
| Runway Bearing / Number | 046 ⁰ -226 ⁰ | 05/23 |
| Airport Reference Code | 4D | Precision RWY 23 |
| Aerodrome City | Phnom Penh | |
| Distance from City / PNH | From City: 10m | From PNH: Reference |
| Airport Land / Elevation | 387 ha | Altitude Elevation: 12m |

Source: SSCA

Table 5-4: Phnom Penh Int. Airport Service and Management

| Design Capacity | | Operation Services |
|---|-------------------|--|
| Annual Passenger: 1.5 M Pax/y | | Aircraft Type: B767, B757, B737, B717, |
| Annual Cargo: 30 000 tones/y | | A320, A321, ATR72, AN24, AN12, |
| Peak Hour | Int'l: 759 Pax/PH | AN26, Y7, Y12, F27, F28... |
| Passenger | Dom: 300 Pax/PH | Hour of Operation: 23:00 UTC-17:00 UTC (6:00-24:00 LT) |
| Airport Management, Maintenance and Development: SCA/CAMS | | |
| Air Traffic Services, Maintenance and Development: CATS | | |
| Airport ownership and Control: RGC/SSCA | | |

Source: SSCA

Table 5-5: Phnom Penh Int. Airport Equipment and Utilities

| Facility | Facility |
|---|---|
| EDC Substation: 3 substations (No140, No142, No 527). | Baggage Conveyer System: 4 units for Int'l Passenger Terminal, Flight Information System. |
| Generating Power Station: 75kVA-500kVA, 6 units. | |
| Water Supply System: Phnom Penh Water Supply Networking. | Ground Service Equipment (Ground handling): Available all of kinds for Passenger, Cargo and Aircraft from ATR72 up to B767 types. |
| RFF: Category 8, (4 fire engines, 1 ambulance). | |
| Disabled Aircraft Removal Equipment: N/A. | |
| Security Equipment: X-ray Baggage Screening 5 units for VIP, Int'l, Dom, Cargo. Metal Detected Gate 4 units for VIP, Int'l, Dom. CCTV in Int'l Passenger Terminal, and Terminal Area. | Airside Maintenance Equipment: Mowers, Tractors. Refueling System: By truck transport from two Airport Fuel Stations. |

Source: SSCA

Table 5-6: Phnom Penh Int. Airport Aerodrome Facilities

| Facilities | | Dimension, m | | Surface | Strength |
|---------------------|------|----------------------------|----------|----------|-----------------|
| Runway | | 3000×45 (widening in 2004) | | Asphalt | PCN 80/F/B/X/U |
| RWY shoulder | | 7.5m each side | | Asphalt | N/A |
| RWY strips | | 3120×300 | | Grass | N/A |
| RWY End Safety Area | 05 | 150×90 | | Grass | N/A |
| | 23 | 150×90 | | Grass | N/A |
| Taxiway | A | 210×30 | | Concrete | >PCN 56/R/D/X/U |
| | B | 210×30 | | Concrete | >PCN 56/R/D/X/U |
| TWY shoulder | A | 5m each side | | Asphalt | N/A |
| | B | 5m each side | | Asphalt | N/A |
| Apron | Main | 470×130 | 8 stands | Concrete | >PCN 56/R/D/X/U |
| | East | 189×103 | 6 stands | Asphalt | 100 tones |

Source: SSCA

Table 5-7: Phnom Penh Int. Airport Building and Landside Facilities

| Facility | | Area, m2 | Floor, level | Structure | Remarks |
|-----------------------------|-----------|--------------|--------------|---------------------|----------------------------|
| Passenger Terminal | Int'l | 17300 | 2 | RC/Steel frame | 4 aerobridges, in 2003 |
| | Dom. Arr. | 1560 | 1 | RC/Steel frame | Built in 2004 |
| VIP Terminal | New | 1400 | 1 | RC | Built in 2002 |
| Operation building | | 950 | 5 | RC | SSCA/CATS |
| Control tower | | 25 | 25m height | RC/Steel frame | CATS |
| Cargo Terminal | | 5400 | 1 | RC/Steel frame | SCA/CAMS |
| Firefighting station | | 1220 | 1 | RC/Steel frame | SCA/CAMS |
| Maintenance workshop | | 600 | 1 | Steel frame | SCA/CAMS |
| Administration building | | 1728 | 1 | Steel frame | SCA/CAMS |
| Power & Generating building | | 290+260 | 1 | RC/RC Steel frame | SCA/CAMS |
| Terminal Area | Public | 1300 | | Asphalt | 350 lots |
| Car park | VIP | 6000 | | Asphalt | 170 lots (overlay in 2007) |
| Airport fence | | 9550 + 2480m | | RC Break net | Boundary/Airside |
| Fence of terminal area | | 440m | | Steel Bar/Steel net | Airside/Landside |

Source: SSCA

5.5 Siem Reap International Airport

Siem Reap International Airport or A2 locates about 1km north of NR6 or about 4km west side of Siem Reap town. It is Cambodia main tourist attracted town. During off-peak hour it takes about 5min drive from Siem Reap town center.



Source: Google maps

Figure 5-3: Satellite View of Siem Reap Int. Airport

Table 5-8: Siem Reap Int. Airport Data

| | | |
|--------------------------|--|--------------------------------------|
| Commencement of Services | 22 June 1968 | Checked in July 2008 |
| Airport Name Code | ICAO code: VDSR | IATA code: REP |
| Location, ARP in WGS 84 | N 13 ^o 24'39", E 103 ^o 48' 44" | UTM: N 14-82-886, E 3-71-414 |
| Runway Bearing / Number | 048 ^o -228 ^o | 05/23 |
| Airport Reference Code | 4C | Precision RWY 05 from September 2008 |
| Aerodrome City | Siem Reap | |
| Distance from City / PNH | From City: 8km | From PNH: 237 |
| Airport Land / Elevation | 197 ha | Altitude Elevation: 18m |

Source: SSCA

Table 5-9: Siem Reap Int. Airport Service And Management

| Design Capacity | | Operation Services |
|--|-------------------|---|
| Annual Passenger: 1.5 M Pax/y | | Aircraft Type: B737, B717, A320, A321, B757 ATR72, AN24, Y7, Y12, F27, F28... |
| Annual Cargo: 3 000 tones/y | | Hour of Operation: 23:00 UTC-17:00 UTC (6:00-24:00 LT) |
| Peak Hour | Int'l: 600 Pax/PH | |
| Passenger | Dom: 150 Pax/PH | |
| Peak Hour Aircraft Movement: 10 fl/PH | | |
| Airport Management, Maintenance and Development: SSCA/CAMS | | |
| Air Traffic Services, Maintenance and Development: CATS | | |
| Airport ownership and Control: RGC/SSCA | | |

Source: SSCA

Table 5-10: Siem Reap Int. Airport Equipment and Utilities

| Facility | Facility |
|--|--|
| EDC Substation: 1 substation with 2x630kva | Baggage Conveyer System: one unit for Int'l |
| Generating Power Station: 2x875KVA | Passenger Terminal, Flight Information System |
| Water Supply System: Purification System from the Well | Ground Service Equipment (Ground handling): Available all of kinds for Passenger, Cargo and Aircraft from ATR72 up to B 757 types. |
| Rescue and Fire Fighting: Category 7 | Airside Maintenance Equipment: Mowers, Grip Tester, Sweeper, Liner Marker, Mobile workshop. |
| 2 fire engines, 1 ambulance | Refueling System: By truck transport from one Temporary Airport Fuel Station |
| Disabled Aircraft Removal Equipment: (N/A) | |

Source: SSCA

Table 5-11: Siem Reap Int. Airport Aerodrome Facilities

| Facility | | Dimension, m | | Surface | Strength |
|---------------------|------|----------------|-----------|----------|----------------|
| Runway | | 2550 x 45 | | Asphalt | PCN 73/F/B/X/U |
| RWY shoulder | | 2.5m each side | | Asphalt | N/A |
| RWY strips | | 2670 x 300 | | Grass | N/A |
| RWY End Safety Area | 05 | 150 x 90 | | Grass | N/A |
| | 23 | 200 x 60 | | Asphalt | N/A |
| Taxiway | A | 240 x 20 | | Concrete | PCN 44/R/B/X/T |
| | B | 600 x 23 | | Asphalt | >PCN 50/F/BX/T |
| TWY shoulder | A | 5m each side | | Concrete | N/A |
| | B | 7.5m each side | | Asphalt | N/A |
| Apron | Main | 625 x 121.5 | 14 stands | Concrete | >PCN 29/B/XT |
| | East | 230 x 55 | 4 stands | Asphalt | 50 tones |

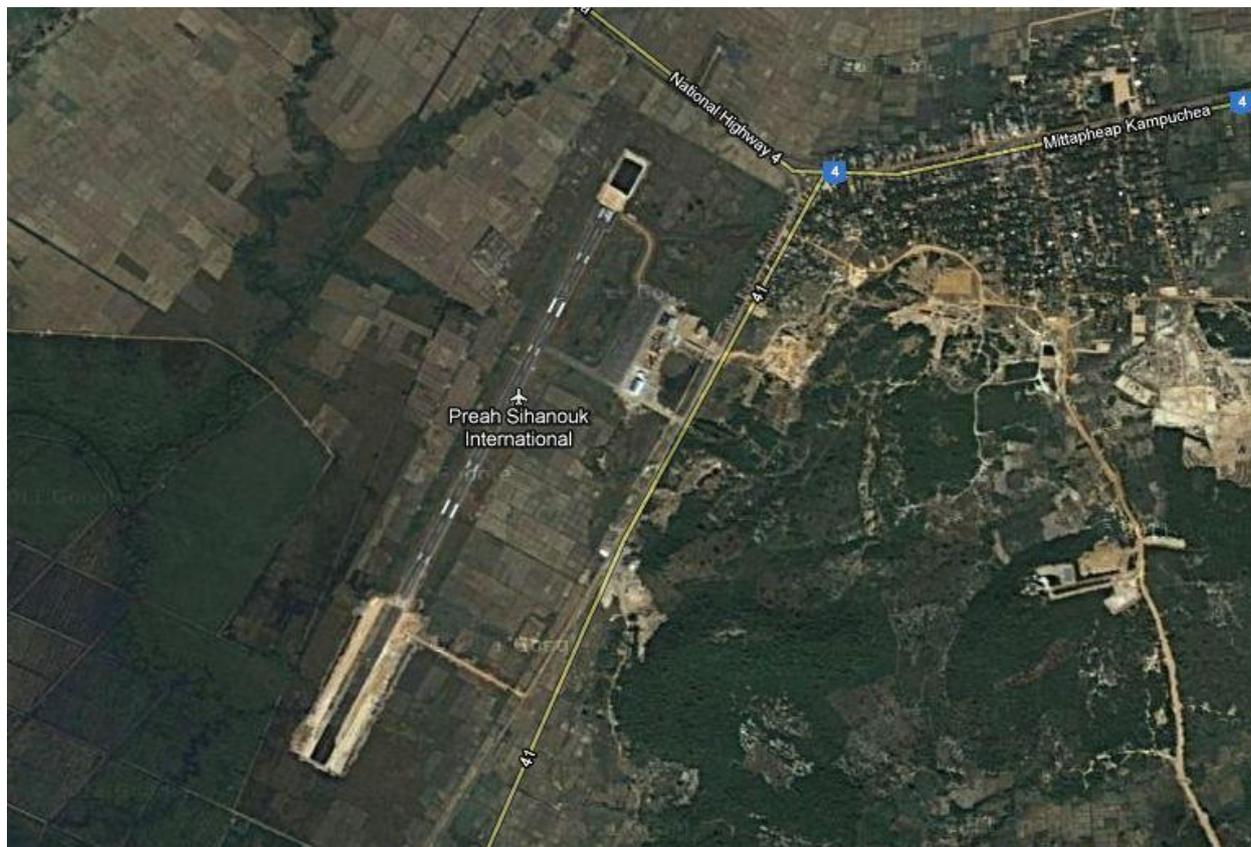
Source: SSCA

Table 5-12: Siem Reap Int. Airport Building and Landside Facilities

| Facility | | Area, m2 | Floor, Level | Structure | Remarks |
|-------------------------------------|----------|----------|--------------|----------------------|------------------|
| Passenger Terminal | Int'l | 12850 | 1 | RC/Steel frame | 2006 Complete |
| | Dom | 768+2500 | 1+2 | RC/Steel frame | 2001 Temporary |
| VIP Terminal | Existing | 425 | Upper Floor | RC/Steel frame | In Int'l TB |
| | New | . | . | . | In Planning |
| Operation & Administration Building | | 1440 | 2 | RC | SSCA/CATS/CAMS |
| Control Tower | | 20 | 19.5m height | RC/Steel frame | CATS |
| Cargo Terminal | | 650 | 1 | Steel frame | SCA/CAMS |
| Fire Fighting Station | | 580 | 1 | RC/Steel frame | SCA/CAMS |
| Maintenance Workshop | | 700 | 1 | RC/Steel frame | SCA/CAMS |
| Power & Generating Building | | 400 | 1 | RC/Steel frame | SCA/CAMS |
| Staff Accommodation | | 3290 | 2 | RC/Steel frame | SSCA/CATS/CAMS |
| Terminal Area, Car park | Public | 8235 | . | Concrete | 235 lots |
| | VIP | 600 | . | Concrete | 15 lots |
| Airport Fence | | 8000m | . | RCP/Barbed Steel net | Boundary/Airside |
| Fence of Terminal Area | | 230m | . | RC/Steel bar | Airside/Landside |

5.6 Preah Sihanouk International Airport (Keng Kang Airport)

Preah Sihanouk International Airport or A3 locates on NR4, east of Sihanoukville town about 15km. It is Cambodia main seaport town. It sits on the junction of NR4 to Sihanoukville town and NR41 to military port at REAM. During off-peak hour it takes about 15min drive from Sihanoukville town center.



Source: Google maps

Figure 5-4: Satellite View of Preah Sihanouk Int. Airport

Table 5-13: Preah Sihanouk Int. Airport Data

| | | |
|---|---------------------------------------|----------------------------|
| Commencement of Services | 12 April 1967 | Checked in May 2008 |
| Airport Name Code | ICAO code: VDSV | IATA code: KOS |
| Location, ARP, in WGS 84 at RWY CL, 650m from THR21 | N 10° 34' 46", E 103° 38' 12" | UTM: N11-69-806, E3-50-848 |
| Runway Bearing / Number | 028° -208° | 03-21 |
| Airport Reference Code | 3C | Non-Precision |
| Aerodrome City | Sihanoukville (Kang Keng/Kampong Som) | |
| Distance from City / PNH | From City: 23m | From PNH: 170km |
| Airport Land / Elevation | 123.84 ha (In boundary fence) | Altitude Elevation: 10m |

Source: SSCA

Table 5-14: Preah Sihanouk Int. Airport Service and Management

| Design Capacity | | Operation Services |
|---|---------------|--------------------|
| Annual Passenger: Pax/y | | Aircraft Type: |
| Annual Cargo: tones/y | | |
| Peak Hour | Int'l: Pax/PH | |
| Passenger | Dom: Pax/PH | Hour of Operation: |
| Airport Management, Maintenance and Development: SCA/CAMS | | |
| Air Traffic Services, Maintenance and Development: CATS | | |
| Airport ownership and Control: RGC/SSCA | | |

Source: SSCA

Table 5-15: Preah Sihanouk Int. Airport Equipment and Utilities

| Facility | Facility |
|---|---|
| EDC Substation: N/A | Security System: X-Ray, Metal Detected Gate |
| Power Supply System: 2 Generators 350KVS + 350 KVA | Baggage Flow System: 1 Unit |
| Water Supply System: Tank 30 m ² , Transport by trucks | Ground Service Equipment (Ground Handling): |
| Rescue and Fire Fighting: Category 5, 2 trucks | Airside Maintenance Equipment |
| Disable Aircraft Removal Equipment: N/A | Refueling System: N/A |

Source: SSCA

Table 5-16: Preah Sihanouk Int. Airport Aerodrome Facilities

| Facility | Dimension, m | Surface | Strength |
|---------------------|----------------------|---------|----------|
| Runway | 2200 x 34 | Asphalt | PCN=50t |
| RWY shoulder | | Grass | N/A |
| RWY strips | 2320 x 300 | Grass | N/A |
| RWY End Safety Area | 03: 150 x 60 | Grass | N/A |
| | 21: 200 x 60 | Grass | N/A |
| Turning Pad | THR 03: at 1795 only | Asphalt | PCN=50t |
| Taxiway | 179 x 18 | Asphalt | PCN=50t |
| TWY shoulder | 3m both sides | Asphalt | N/A |
| Apron | 275 x 80/ 5 stands | Asphalt | PCN=50t |

Source: SSCA

Table 5-17: Preah Sihanouk Int. Airport Building and Landside Facilities

| Facility | Area, m ² | Floor, level | Structure | Remarks |
|--------------------------|----------------------|--------------|----------------------|------------------------|
| Passenger Terminal | 1600 | 1 | RC/Steel frame | Ext in 2006, Dom/Intl. |
| Operation and Office Bd. | | Upper floor | | In Passenger terminal |
| Control Tower | 36 | 16m height | RC/Steel frame | |
| Firefighting station | 400 | 1 | Steel frame shad | Temporary |
| Maintenance workshop | | | | In Planning |
| Staff Accommodation | | | | In Planning |
| Terminal Area, Car park | 2000 | | Asphalt | 50 lots |
| Airport fence | 5233m | | RC Break/Barbed wire | |
| Terminal fence | 280m | | Steel | |

Source: SSCA

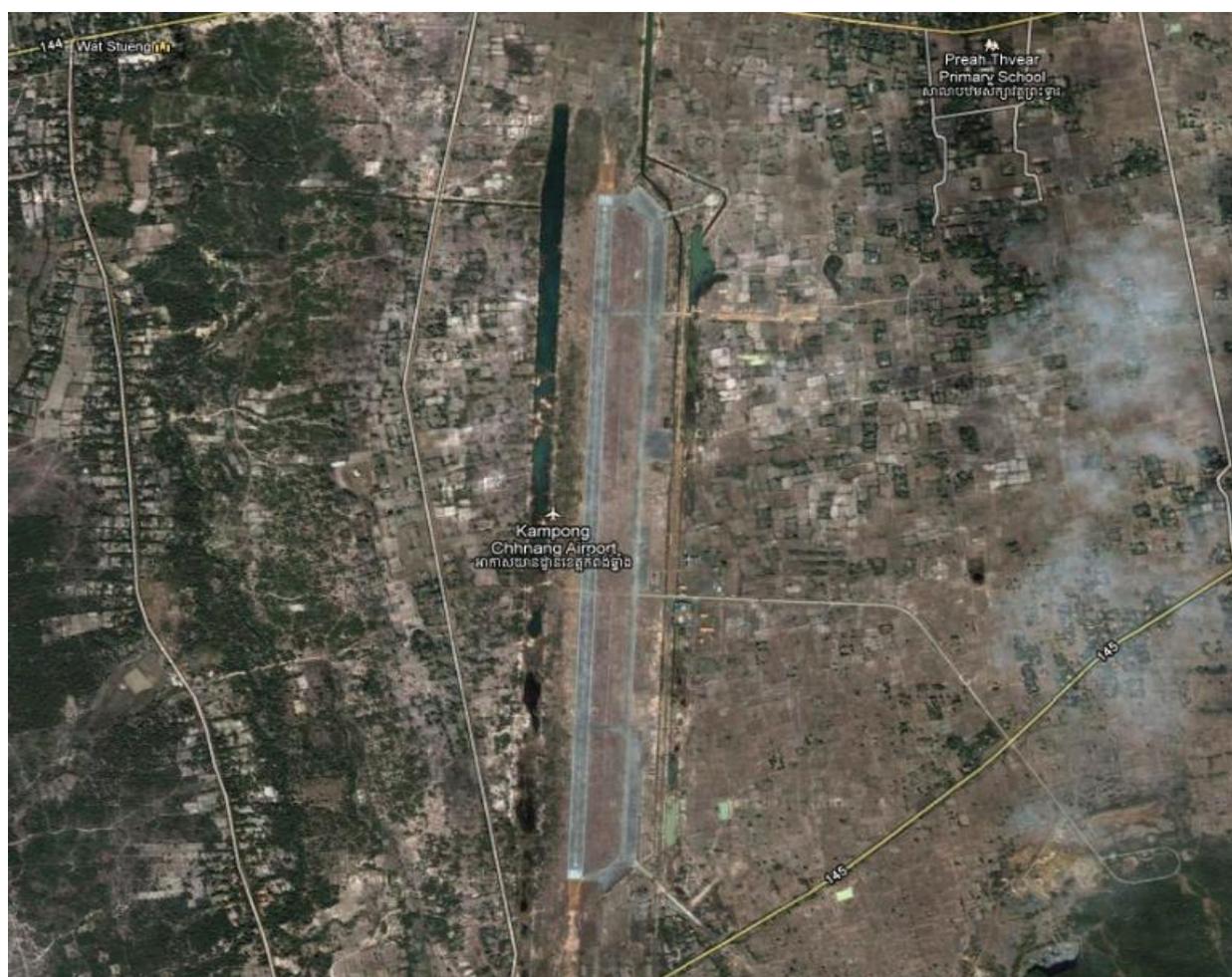


Source: Google map

Figure 5-5: Strategic Location of Preah Sihanouk Int. Airport

5.7 Kampong Chhnang Airport

Kampong Chhnang airport locates in Roleapha-ear district, Kampong Chhnang province. It is surrounded by 3 communes: Pongror, Banteaypreal and Krang Leav communes. To go there, we must travel north (from Phnom Penh) along the National Road Number 5, pass Kampong Chhnang town about 5km and then turn left to the-only reinforced concrete road.



Source: Google maps

Figure 5-6: Satellite View of Kampong Chhnang Airport

Table 5-18: Kampong Chhnang Airport Data

| | | |
|--------------------------|---------------------------------|----------------------------------|
| Commencement of Service | Built in 1977 (Military Design) | Checked in May 2006 |
| Airport name code | ICAO code: VDKH | IATA code: KGC |
| Location, ARP | N 12° 15.254', E 104° 33.854' | GP: N 12° 15' 09", E 104°34' 05" |
| Runway Bearing / Number | 002°-182° | 36/18 |
| Airport Reference Code | 4C | Non-Precision |
| Aerodrome City | Kampong Chhnang Province | |
| Distance from City / PNH | From City: 14 km | From PNH: 85 km |
| Airport Land/ Elevation | 2011 h | Altitude Elevation : 17m |

Source: SSCA

Table 5-19: Kampong Chhnang Airport Service and Management

| | |
|---|--|
| Design Capacity | Operation Services |
| Annual Passenger: | Aircraft Type: AN24, C130 ... Military used only |
| Peak Hour Passenger: | Hour of Operation: |
| Peak Hour Aircraft Movement: | |
| Airport Management, Maintenance and Development: TRANSGLOBAL (Dragon Gold/ RGC), No Progress. | |
| Air Traffic Services, Maintenance and Development: | |
| Airport ownership and Control: (RGC/SSCA) | |

Source: SSCA

Table 5-20: Kampong Chhnang Airport Equipment and Utilities

| | |
|--------------------------------------|---|
| Facility | Facility |
| EDC Substation: | Security System: |
| Power Supply System: Generators: | Baggage Flow System: |
| Water Supply System: | Ground Service Equipment (Ground handling): |
| Rescue and Fire Fighting: | |
| Disabled Aircraft Removal Equipment: | Refueling System: |

Source: SSCA

Table 5-21: Kampong Chhnang Airport Aerodrome Facilities

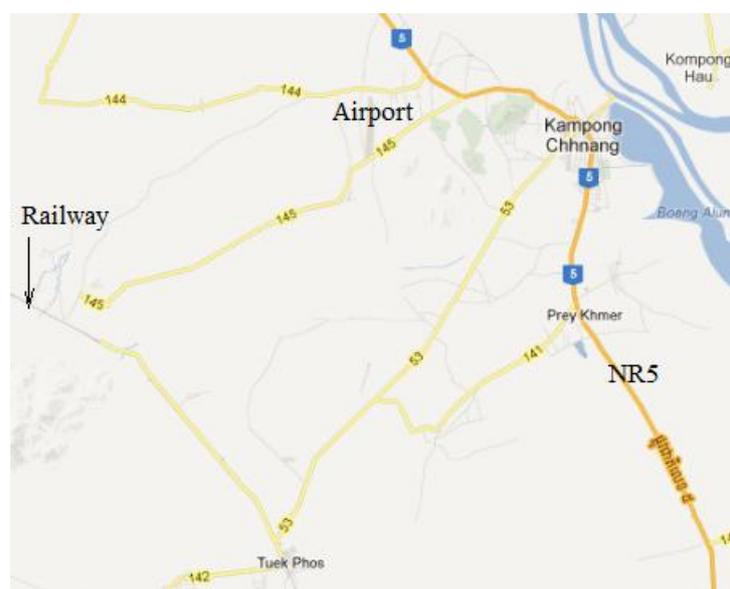
| Facility | | Dimension, m | | Surface | Strength |
|---------------------|--------------|----------------|----------------|----------|-------------------|
| Runway | | 2400×45 | | Concrete | PCN 20-22/R/C/X/T |
| RWY shoulder | | 2.5m each side | | Concrete | N/A |
| RWY strips | | 2520×150 | | Grass | N/A |
| RWY end safety Area | 36 | 200×90 | | Grass | N/A |
| | 18 | 200×90 | | Grass | N/A |
| Taxiway | Parallel | 2400×20 | | Concrete | PCN 20-22/R/C/X/T |
| | Intersection | 2TWY×117.5×20 | | Concrete | PCN 20-22/R/C/X/T |
| TWY shoulder | Parallel | | | Grass | N/A |
| | Intersection | | | Grass | N/A |
| Apron | Main | 106×90 | 2 stands of 4C | Concrete | PCN 20-22/R/C/X/T |
| | 3 areas | 1098×35 | 18 stds. of 3C | Concrete | PCN 20-22/R/C/X/T |

Source: SSCA

Table 5-22: Kampong Chhnang Airport Building and Landside Facilities

| Facility | Area, m ² | Floor | Structure | Remarks |
|-------------------------|----------------------|-------|-----------------|--------------------|
| Passenger Terminal | | | | |
| Operation Building | 75 per floor | 4 | RC | |
| Control Tower | | | | |
| Fire Fighting Station | | | | |
| Maintenance Workshop | | | | 1 Temporary Hangar |
| Administration Building | 50 | 1 | RC/Wooden frame | Temporary |
| Staff Accommodation | | | | |
| Terminal Area, Car park | | | | |
| Airport Fence | | | | |
| Terminal Fence | | | | |

Source: SSCA

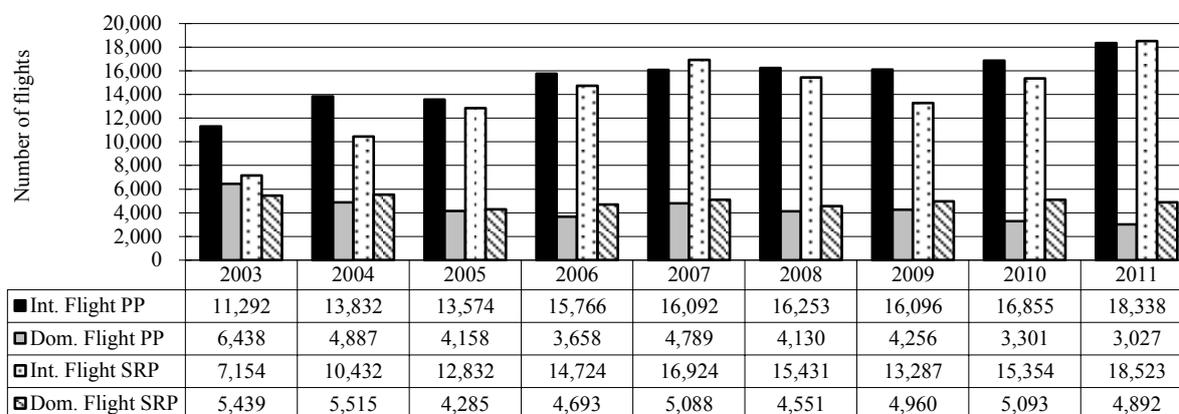


Source: Google map

Figure 5-7: Strategic Location of Kampong Chhnang Airport

5.8 Airport Utilization

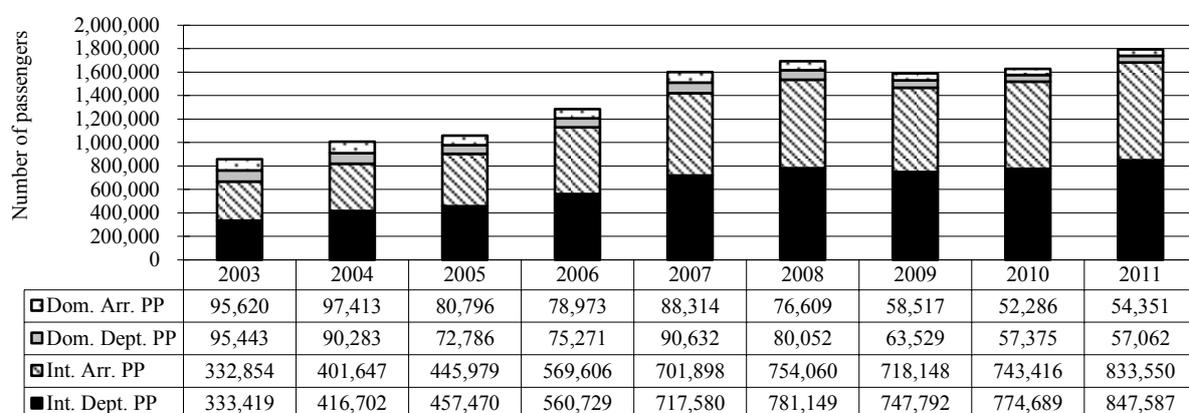
The utilization of international airports has been increasing yearly owing to the increase of tourist demand. The number of international flights per year varies from year to year, and during 9 years between 2003 and 2011, it increased approximately 1.62 times at Phnom Penh International Airport and approximately 2.59 times at Siem Reap International Airport. The number of domestic flights at Phnom Penh International airport decreased 0.47 times and 0.9 times at Siem Reap International airport.



Source: SSCA

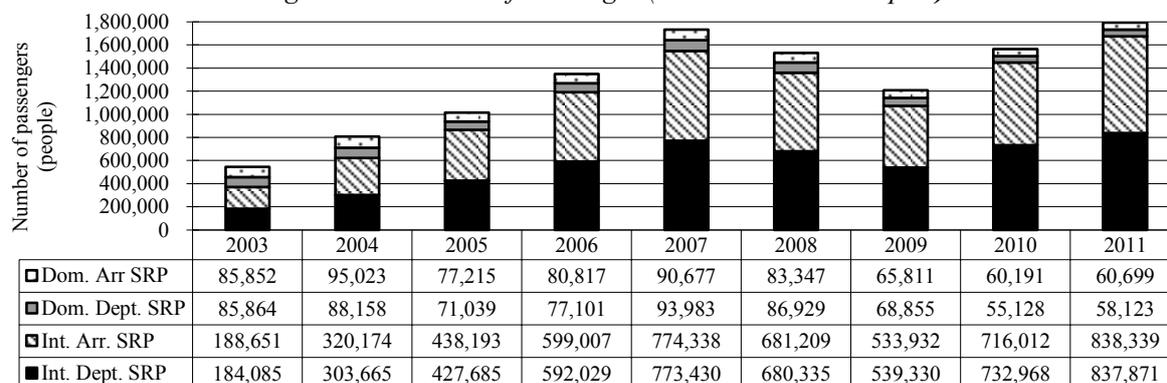
Figure 5-8: Number of Flight

The number of international flight passengers has been increasing yearly (except in 2008-2010) at both international airports (Phnom Penh and Siem Reap International airports), and has marked 1.7 million in 2011. When combined with the number of domestic flight passengers, each airport is used by a total of some 1.8 million passengers a year. Domestic flight passengers have been significantly decreasing since 2007. At Siem Reap International Airport, the number of international flight passengers has been rapidly increasing in the last 6 years. In 2007, it accommodated the largest number of passengers of all airports in Cambodia, exceeding even Phnom Penh International Airport. However, in 2011, Siem Reap international airport surpasses Phnom Penh International airport in all passenger categories except in International departure.



Source: SSCA

Figure 5-9: Number of Passenger (Phnom Penh Int. Airport)



Source: SSCA

Figure 5-10: Number of Passenger (Siem Reap Int. Airport)

6 Cross Border Transport

6.1 Present State of Cross Border Transport Agreement (CBTA)

There are 17 annexes² and 3 protocols³ had been signed, ratified and deposit⁴.

Table 6-1: CBTA Status

| Item | Description/Title | Countries | | | | | | |
|------------|--|-----------|-----|-----|-----|------|----|----|
| | | Cam | PRC | Lao | Mya | Thai | VN | |
| Annex 1 | Carriage of Dangerous Goods | R | R | R | S | S | R | TQ |
| Annex 2 | Registration of Vehicles in International Goods | R | R | R | S | R | R | TI |
| Annex 3 | Carriage of Perishable Goods | R | R | R | S | R | R | TQ |
| Annex 4 | Facilitation of Frontier-Crossing Formalities | R | R | R | S | S | R | C |
| Annex 5 | Cross-Border Movement of People | R | R | R | S | R* | R | I |
| Annex 6 | Transit and Inland Clearance Customs Regime | R | R | R | S | S | S | C |
| Annex 7 | Road Traffic Regulation and Signage | R | R | R | S | S | R | T |
| Annex 8 | Temporary Importation of Motor Vehicles | R | R | R | S | S | S | C |
| Annex 9 | Criteria for Licensing of Transport Operator for Cross-Border | R | R | R | S | S | R | T |
| Annex 10 | Conditions of Transport | R | R | R | S | S | R | T |
| Annex 11 | Road and Bridge Design and Construction Standards & Specifications | R | R | R | S | R | R | T |
| Annex 12 | Border Crossing and Transit Facilities and Services | R | R | R | S | R | R | T |
| Annex 13a | Multimodal Carrier Liability Regime | R | R | R | S | R | R | T |
| Annex 13b | Criteria for Licensing of Multimodal Transport Operators for Cross-Border Transport Operations | R | R | R | S | R | R | T |
| Annex 14 | Container Customs Regime | R | R | R | S | S | S | C |
| Annex 15 | Commodity Classifications Systems | R | R | R | S | R | R | C |
| Annex 16 | Criteria for Driving Licenses | R | R | R | S | R | R | TI |
| Protocol 1 | Designation of Corridors, Routes and Points of Entry & Exit Border Crossing | R | R | R | S | R | R | TI |
| Protocol 2 | Charges Concerning Transit Traffic | R | R | R | S | R | R | T |
| Protocol 3 | Frequency and Capacity of Services and Issuance of Quotas and Permits | R | R | R | S | S | R | TI |

Note: * - Ratified part 1-4

Legend:

R = Ratification has completed and finished

T=Transport C=Customs I=Immigration Q=Quarantine

S = Signed but Ratification still pending

Source: ADB website

6.2 Cambodia's Implementation of CBTA

Up until January 2009, Cambodia has signed (by the Royal Government of Cambodia) and ratified (by the Parliament, Senate and Royal Palace) all the protocols and annexes (20) but Cambodia could deposit (By Ministry of Foreign Affairs) only 12 out of the ratified 20 protocols/annexes.

6.2.1 Air Transport

Cambodia adopted "Open sky policy" that allow direct flight from abroad to land/depart from 2 international airports: Phnom Penh (capital) and Siem Reap (main tourist attraction province).

6.2.2 Land Transport

Bilateral agreement with neighboring countries: Cambodia has CBTA bilateral agreement with 3 countries namely: Vietnam, Lao P.D.R and Thailand. Each country executed different conditions which are shown as follows:

Table 6-2: Bilateral Agreement Status

| Bilateral agreement | Cambodia | Counterpart countries | Remark |
|---------------------|--|--|--|
| With Vietnam | - 300 vehicles - Plan to increase to 500 | - 300 vehicles - Plan to increase to 500 | Cambodia and VN plan to upgrade to 500 vehicles. |
| With Lao | - 40 vehicles (truck only) - 4+4 buses - Proposed more freedom such as open tour | - 40 vehicles (truck only) - 4+4 buses - Proposed schedule tour not open tour (for partner contract) | Bus agreement plus partner contract must be done separately |
| With Thailand | - 40 vehicles: Bus & truck. (Only at Poi Pet) | - 1 st MOU: Location and all procedures (for Poi Pet Only) - 2 nd MOU: Traffic rights - 40 vehicles only at Poi Pet. Another cross border point required separate MOU. | Each Cross Border point required separate MOU. Trial of 4 buses will be made on 25 th December 2012 |

Source: MPWT

² Annex is a technical specification or Standard document designed to be used by all member countries. It is not easy to modify.

³ Protocol is a document mostly made by two countries which describes quantity or locations. This document is much easier to modify.

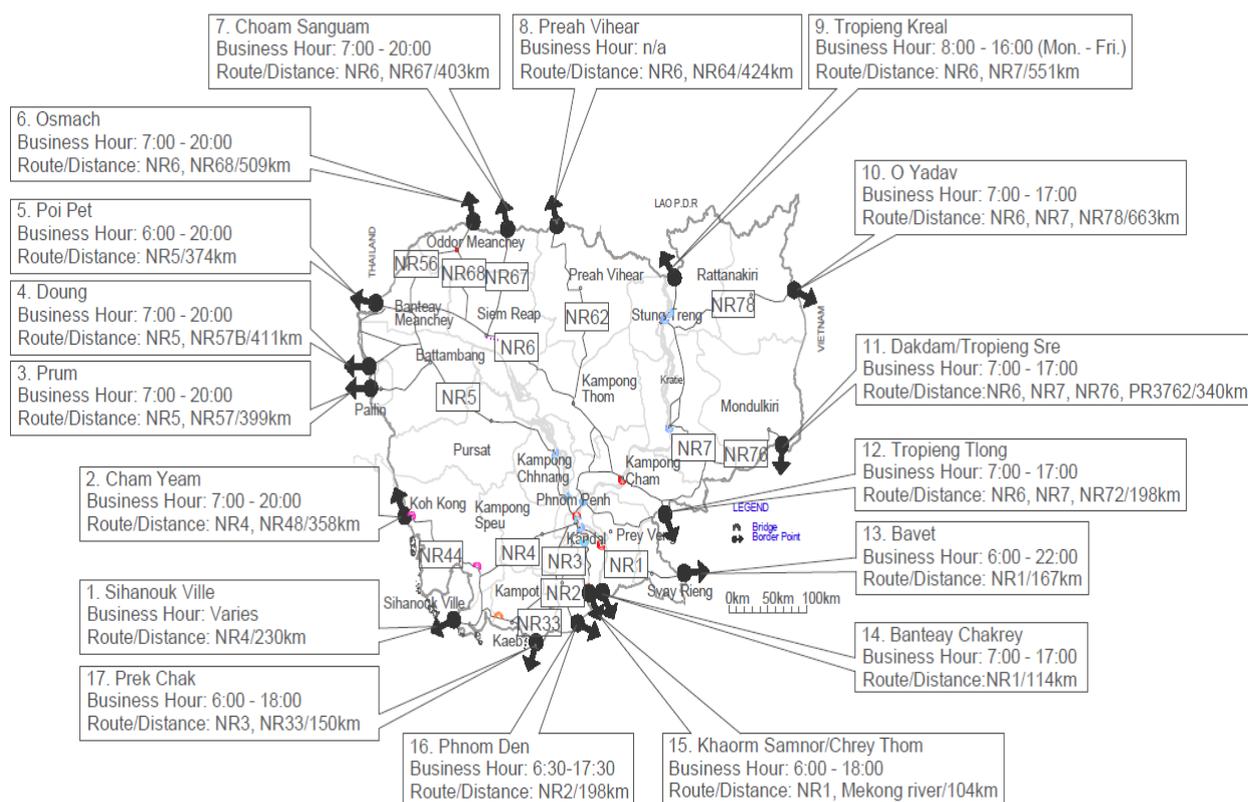
⁴ Deposit is an act of announcement made by the Ministry of Foreign Affairs to inform member countries about its protocols or annexes which had been ratified and was ready to be implemented.

Structure and building: Among six member countries, Cambodia is lack behind in establishing the structure on the ground to facilitate the cross border transportation:

Table 6-3: Structure, Facilities and Inspection Area Status

| Khmer Border | Structure | Facilities | Inspection Area | Remark |
|---------------|-----------|------------|-----------------|---|
| with Lao | No | No | No | 1 transit point |
| With Vietnam | Yes | No | No | 1 transit point used for GMS CBTA, GMS IICBTA ⁵ , BRTA ⁶ . There are no transit operation activities except import and export activities. |
| With Thailand | No | No | No | 2 transit points. There are no transit operation activities except import and export activities. |

Source: MPWT



Source: MPWT

Figure 6-1: Cross Border Points

6.2.3 Inland Waterway Transport

To have access to the sea, Cambodia has to negotiate with the Vietnamese. The negotiation on regulated waterways and transit routes started in late 90's and it was on 17th December 2009 that the Agreement had been signed in Phnom Penh. Transit routes between Vietnam and Cambodia could be made by the following routes:

- The Mekong/Tien River route via the Cua Tieu up to Phnom Penh Port follows regulated waterways No. 1a, 1b, 1c, 1d, and 1e in Vietnam and No. 1c and 1b in Cambodia and vice versa.
- The Bassac/Hau River route via the Cua Dinh An and further via the Vam Nao Pass and the Mekong/Tien River up to Phnom Penh Port follows regulated waterways No. 2a.3, 2a.2, 2a.1, 1c, 1b and 1a in Vietnam and No. 1c and 1b in Cambodia and vice versa.

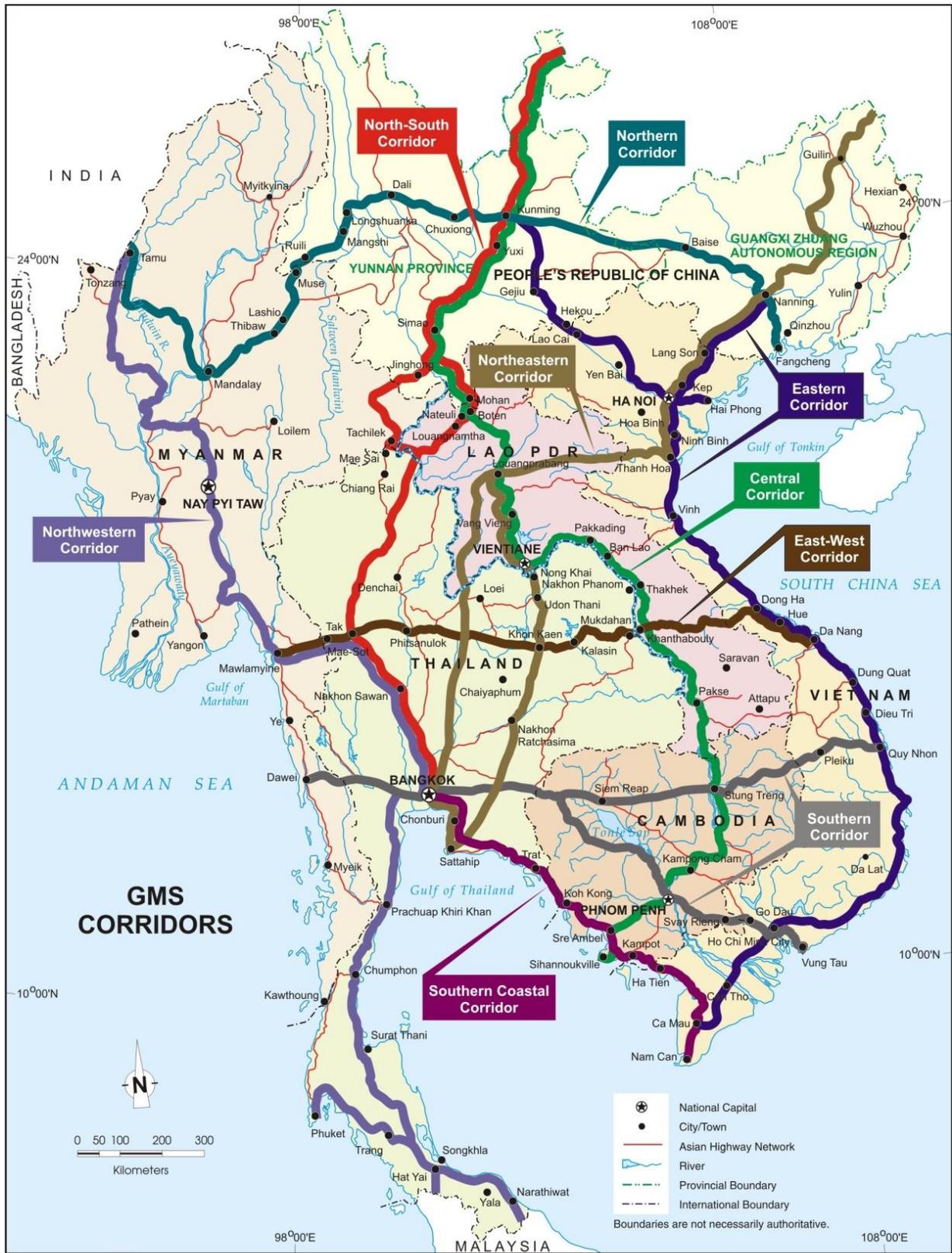
Table 6-4: Regulated Waterway in Cambodia

| Section | Name of Waterway | Starting Point – End Point | Length (km) |
|---------|------------------|---|-------------|
| 1a | Tonle Sap Lake | From Chong Kneas to Kampong Chhnang | 152 km |
| 1b | Tonle Sap | From Kampong Chhnang to Phnom Penh | 100 km |
| 1c | Mekong River | From Phnom Penh to the Kaom Samnor/Vinh Xuong border gate | 102 km |
| 2 | Mekong River | From Kampong Cham to Phnom Penh | 106 km |

Source: MPWT

5 Initiative Implementation Cross Border Transport Agreement

6 Bilateral Road Transport Agreement



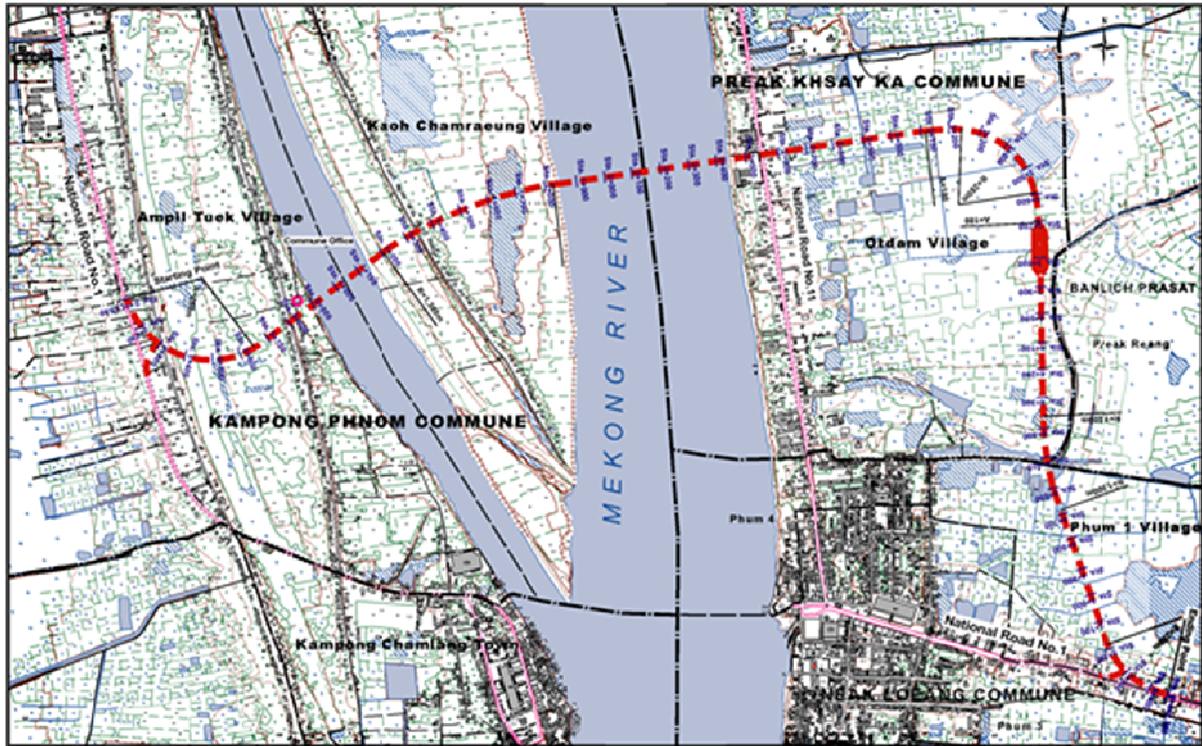
07-gms0109h | RM

Source: <http://www.pashnit.com/forum/showthread.php?t=17686>

Figure 6-2: GMS Corridors

Appendix 1:

Construction of Neak Loeng Bridge

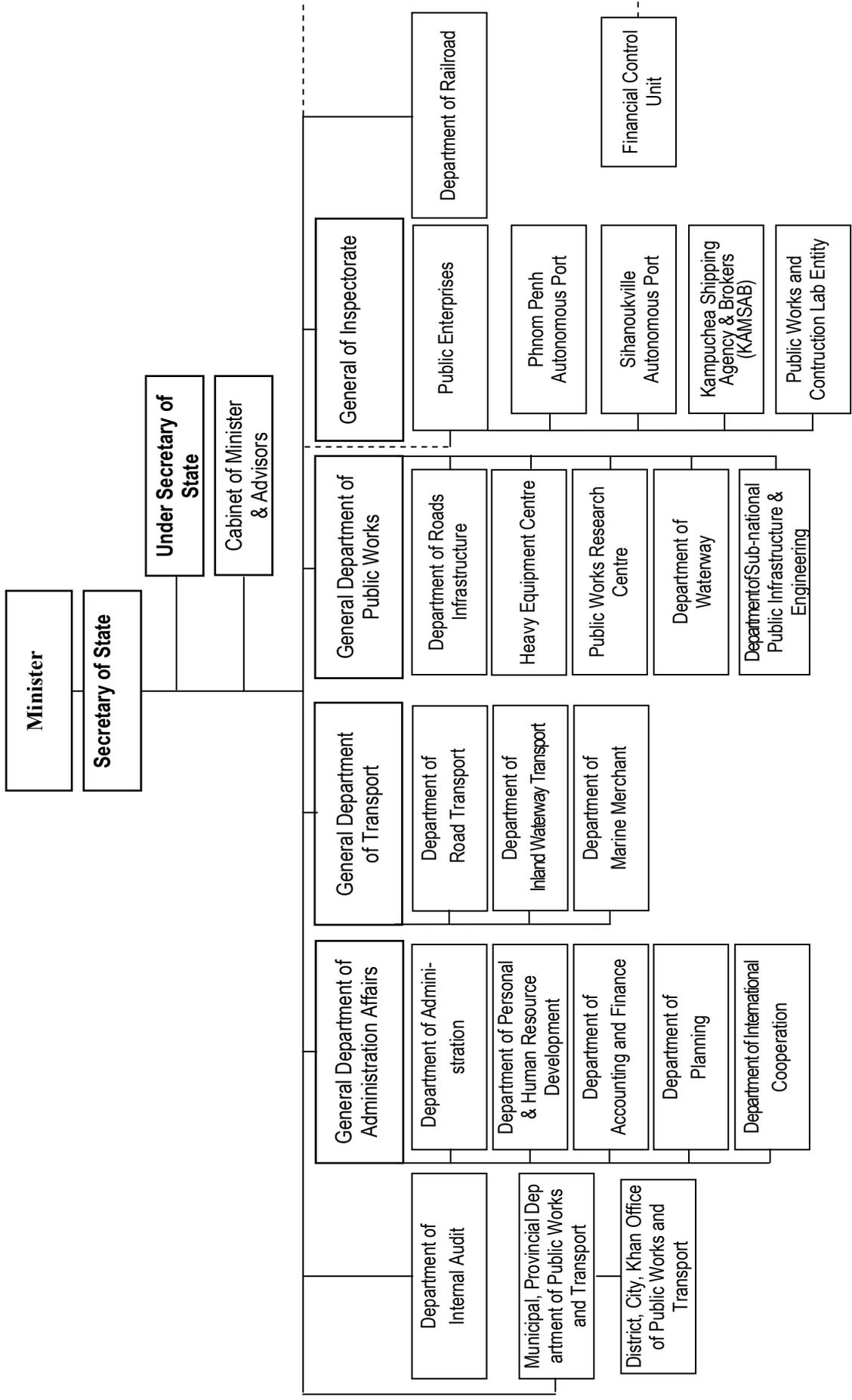


Appendix 2 :



Appendix 3:

Organizational Structure of the Ministry of Public Works and Transport



Supported by:



2012.12