Results of Continuous Pumping Test
and Recovery Test at No.1 Test Well

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Figure 4.2.4.31

LOCATION MAP

WELL LOCATION
Province: Kg. Chhnang
District: Kg. Tralaach
Commune: Chhuk Sa
Village: Trapaeng Khtum
Village No.: 035G

WELL SPECIFICATION
Drilled Depth: 51.0 m
Well Depth: 47.0 m
Screen Depth(s): 23.15 - 43.075 m
Screen Length: 19.88 m
Static WL: 4.200 m

THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

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Results of Continuous Pumping Test and Recovery Test at No.2 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

**LOCATION MAP**

**WELL LOCATION**
- **Province:** Kg. Chhnang
- **District:** Kg. Tralaach
- **Commune:** Chrees
- **Village:** Prey Pis
- **Village No.:** 045G
- **Long.-E (deg):** 104.7241
- **Lati.-N (deg):** 11.9743
- **UTM-E (m):** 469969
- **UTM-N (m):** 1323735

**WELL SPECIFICATION**
- **Drilled Depth:** 67.0 m
- **Well Depth:** 36.0 m
- **Screen Depth(s):** 20.1 - 32.04 m
- **Screen Length:** 7.92 m
- **Static WL:** 2.665 m

**Figure 4.2.4.32** Results of Continuous Pumping Test and Recovery Test at No.2 Test Well

**Continuous Pumping Test**
- **Time since pumping began, \( t \) (min):**
  - Drawdown, \( s \) (m):
    - 20.0
    - 16.0
    - 12.0
    - 8.0
    - 4.0
    - 0.0
- **Residual Drawdown, \( s' \) (m):**
  - \( T = 2.30Q/(4\pi\Delta s) = 1.986 \text{ m}^2/\text{day} \)
  - \( S = 2.25Tt/r^2 = 3.02E-05 \)
- **Discharge, \( Q \):** 23.04 m³/day
- **Radius of influence, \( r \):** 0.075 m
- **Slope factor, \( T \):** 2.30

**Recovery Test**
- **Time ratio, \( t/t' \):**
  - Drawdown, \( s' \) (m):
    - 20.0
    - 16.0
    - 12.0
    - 8.0
    - 4.0
    - 0.0
- **Residual Drawdown, \( s'' \) (m):**
  - \( T = 2.30Q/(4\pi\Delta s') = 1.643 \text{ m}^2/\text{day} \)
  - \( \Delta s'' = 2.57E+00 \text{ m} \)
- **Discharge, \( Q \):** 23.04 m³/day
- **Radius of influence, \( r \):** 0.075 m

**LOCAL KARSTIC MAP**

**UML (m):**
- **UTM-E:**
  - 456000
- **UTM-N:**
  - 1300000
- **UTM-N:**
  - 1400000
- **UTM-E:**
  - 450000
- **UTM-N:**
  - 500000

**4-82**
Results of Continuous Pumping Test and Recovery Test at No.3 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

**Figure 4.2.4.33**

**LOCATION MAP**

**WELL LOCATION**

- Province: Kg. Chhnang
- District: Kg. Tralaach
- Commune: Taa Chees
- Village: Sampoor
- Village No.: 061G
- UTM-E: 473655
- UTM-N: 1328354
- Long.-E(deg): 104.7579
- Lati.-N(deg): 12.0161

**WELL SPECIFICATION**

- Drilled Depth: 65.0 m
- Well Depth: 52.0 m
- Screen Depth(s): 12.40 - 48.04 m
- Screen Length: 19.80 m
- Static WL: 2.740 m

**Results of Continuous Pumping Test**

- \( Q = 15.00 \text{ m}^3/\text{day} \)
- \( r = 0.075 \text{ m} \)

\[
T = 2.30Q/(4\pi\Delta s) = 0.884 \text{ m}^3/\text{day} \\
S = 2.25T\pi r^2 = 7.01\text{E-02} \\
\Delta s = 3.11\text{E}+00 \text{ m} \\
\]

\[
T = 2.30Q/(4\pi\Delta s') = 0.699 \text{ m}^3/\text{day} \\
\Delta s' = 3.93\text{E}+00 \text{ m} \\
\]

**Figure 4.2.4.33**

**Results of Continuous Pumping Test and Recovery Test at No.3 Test Well**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
### Results of Continuous Pumping Test and Recovery Test at No.4 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

**Figure 4.2.4.34**

####LOCATION MAP

**WELL LOCATION**

- **Province:** Kg. Chhnang
- **District:** Rorea Bier
- **Commune:** Krang Leav
- **Village:** Tuek L'ak
- **Village No.:** 072G

**WELL SPECIFICATION**

- **Drilled Depth:** 23.0 m
- **Well Depth:** 22.0 m
- **Screen Depth(s):** 12.08 - 20.00 m
- **Screen Length:** 7.92 m
- **Static WL:** 2.648 m

####Continuous Pumping Test

- **Time ratio:** \(t/t\) (min)
- **Drawdown:** \(s\) (m)

\[T = 2.30Q/(4\pi\Delta s) = 10.51 \text{ m}^2/\text{day}\]

\[S = 2.25Tt/r^2 = 4.09E+00\]

- **Q** = 63.38 m\(^3\)/day
- **r** = 0.075 m

\[\Delta s = 1.10E+00 \text{ m}\]

####Recovery Test

- **Time ratio:** \(t/t'\)
- **Residual Drawdown:** \(s'\) (m)

\[T = 2.30Q/(4\pi\Delta s') = 13.64 \text{ m}^2/\text{day}\]

\[\Delta s' = 8.50E-01 \text{ m}\]

- **Q** = 63.38 m\(^3\)/day
- **r** = 0.075 m

\[\Delta s' = 8.50E-01 \text{ m}\]
Results of Continuous Pumping Test and Recovery Test at No.5 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

**Figure 4.2.4.35**

**LOCATION MAP**

**WELL SPECIFICATION**

- **Province:** Kg. Chhnang
- **District:** Rorea Bier
- **Commune:** Prasneb
- **Village:** Prasneb
- **Village No.:** 082G
- **Drilled Depth:** 68.0 m
- **Well Depth:** 62.0 m
- **Screen Depth(s):** 44.11 - 58.025 m
- **Screen Length:** 9.94 m
- **Static WL:** 2.60 m

**WELL LOCATION**

- **Long.-E(degree):** 104.4351
- **Lati.-N(degree):** 12.3142
- **UTM-E(m):** 438577
- **UTM-N(m):** 1361365

**Results of Continuous Pumping Test**

- $Q = 11.52 \text{ m}^3/\text{day}$
- $r = 0.075 \text{ m}$
- $\Delta s = 1.55 \times 10^1 \text{ m}$
- $T = 2.30 Q(4\pi \Delta s) = 0.136 \text{ m}^2/\text{day}$
- $S = 2.25 T r / r^2 = 1.61 \times 10^{-1}$

**Continuous Pumping Test**

**Time since pumping began, $t$ (min)**

**Drawdown, $s$ (m)**

**Residual Drawdown, $s'$ (m)**

**Time ratio, $t/t'$**

**Results of Recovery Test**

- $Q = 11.52 \text{ m}^3/\text{day}$
- $r = 0.075 \text{ m}$
- $\Delta s' = 1.71 \times 10^1 \text{ m}$
- $T = 2.30 Q(4\pi \Delta s') = 0.124 \text{ m}^2/\text{day}$

**Recovery Test**

**Time ratio, $t/t'$**

**Drawdown, $s$ (m)**

**Residual Drawdown, $s'$ (m)**
**Figure 4.2.4.36**

Results of Continuous Pumping Test and Recovery Test at No.6 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

**WELL LOCATION**

- **Province:** Kg. Chhnang
- **District:** Rorea Bier
- **Commune:** Srae Thmei
- **Village:** Chamkar Ta Mau
- **Village No.:** 085G

**WELL SPECIFICATION**

- **Drilled Depth:** 33.0 m
- **Well Depth:** 24.0 m
- **Screen Depth(s):** 12.12 - 20.04 m
- **Screen Length:** 7.92 m
- **Static WL:** 1.31 m

**LOCATION MAP**

**WELL**

- **Discharge:** $Q = 27.96 \text{ m}^3/\text{day}$
- **Radius:** $r = 0.075 \text{ m}$

**Continuous Pumping Test**

- $\Delta s = 1.29 \times 10^0 \text{ m}$
- $T = 2.30 Q/(4\pi\Delta s) = 3.970 \text{ m}^2/\text{day}$
- $S = 2.25 T t / r^2 = 1.32 \times 10^{-02}$

**Recovery Test**

- $\Delta s' = 1.82 \times 10^0 \text{ m}$
- $T = 2.30 Q/(4\pi\Delta s') = 2.816 \text{ m}^2/\text{day}$
Results of Continuous Pumping Test and Recovery Test at No.7 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

Figure 4.2.4.37

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

<table>
<thead>
<tr>
<th>WELL LOCATION</th>
<th>WELL SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province: Kg. Chhnang</td>
<td>Drilled Depth: 85.6 m</td>
</tr>
<tr>
<td>District: Saamakki Mean Chey</td>
<td>Well Depth: 64.0 m</td>
</tr>
<tr>
<td>Commune: Seedthei</td>
<td>Screen Depth(s): 30.30 - 60.00 m</td>
</tr>
<tr>
<td>Village: Peareach</td>
<td>Screen Length: 17.82 m</td>
</tr>
<tr>
<td>Village No.: 162G</td>
<td>Static WL: 10.150 m</td>
</tr>
</tbody>
</table>

**LOCATION MAP**

**WELL SPECIFICATION**

- \( Q = 10.94 \text{ m}^3/\text{day} \)
- \( r = 0.075 \text{ m} \)
- \( \Delta s = 2.34 \times 10^1 \text{ m} \)
- \( T = 2.30Q/(4\pi\Delta s) = 0.0855 \text{ m}^3/\text{day} \)
- \( S = 2.25T/r^2 = 1.12 \times 10^{-1} \)

\( Q = 10.94 \text{ m}^3/\text{day} \)
\( r = 0.075 \text{ m} \)

\( T \) cannot be obtained due to insufficient pumping time by large drawdown.

**WELL LOCATION**

- Province: Kg. Chhnang
- District: Saamakki Mean Chey
- Commune: Seedthei
- Village: Peareach
- Village No.: 162G

**WELL SPECIFICATION**

- Drilled Depth: 85.6 m
- Well Depth: 64.0 m
- Screen Depth(s): 30.30 - 60.00 m
- Screen Length: 17.82 m
- Static WL: 10.150 m

**Figure 4.2.4.37 Results of Continuous Pumping Test and Recovery Test at No.7 Test Well**
Results of Continuous Pumping Test and Recovery Test at No.8 Test Well

LOCATION MAP

WELL LOCATION
- Province: Kg. Chhnang
- District: Saamakki Mean Chey
- Commune: Tbaeng Khops
- Village: Tbaeng Khops
- Village No.: 168G
- Long.-E(deg): 104.6422
- Lati.-N(deg): 11.8172
- UTM-E(m): 461026
- UTM-N(m): 1306360

WELL SPECIFICATION
- Drilled Depth: 41.0 m
- Well Depth: 34.5 m
- Screen Depth(s): 14.20 - 30.04 m
- Screen Length: 15.84 m
- Static WL: 2.979 m

Figure 4.2.4.38
Results of Continuous Pumping Test and Recovery Test at No.8 Test Well

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
Results of Continuous Pumping Test and Recovery Test at No.9 Test Well

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Figure 4.2.4.39

THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

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Results of Continuous Pumping Test and Recovery Test at No.10 Test Well

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE STUDY ON GROUNDWATER DEVELOPMENT IN CENTRAL CAMBODIA**

**Figure 4.2.4.40**

**LOCATION MAP**

**WELL LOCATION**
- Province: Kg. Chhnang
- District: Baribour
- Commune: Trapeang Chan
- Village: Kbal Damrei
- Village No.: 197G

**WELL SPECIFICATION**
- Drilled Depth: 42.0 m
- Well Depth: 26.9 m
- Screen Depth(s): 7.90 - 23.74 m
- Screen Length: 11.88 m
- Static WL: 3.650 m

**WELL DATA**
- **Continuous Pumping Test**
  - $Q = 3.740 \text{ m}^3/\text{day}$
  - $r = 0.075 \text{ m}$
  - $T = 2.30 Q/(4 \pi \Delta s) = 0.073 \text{ m}^3/\text{day}$
  - $S = 2.25 T r / r^2 = 1.71E-01$
  - $\Delta s = 9.41E+00 \text{ m}$

- **Recovery Test**
  - $Q = 3.740 \text{ m}^3/\text{day}$
  - $r = 0.075 \text{ m}$
  - $T = 2.30 Q/(4 \pi \Delta s') = 0.127 \text{ m}^3/\text{day}$
  - $\Delta s' = 5.40E+00 \text{ m}$

**Table of Data**

- **Drawdown, $s$ (m)**
- **Residual Drawdown, $s'$ (m)**
- **Time since pumping began, $t$ (min)**
- **Time ratio, $t/t'$**

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4-90