Side event for WWF7

Irrigated agriculture and rural development
- focusing on Theme 2.1 Water for food -

14 September 2014

Prof. Tai Cheol Kim
Vice President, Chair of Round Table Meeting & Member of TF-WWF7, ICID

Dr. Sung-hee Lee
Researcher, Research Institute of KRC, Co-coordinator of Theme 2.1.3
• TASK FORCE TO GUIDE ICID INPUTS TO 7th WORLD WATER FORUM (TF-WWF7)

• Terms of Reference (ToR):

• 1. To provide overarching lead role on behalf of ICID for inputs to 7th WWF by liaising with:
   • (i) National Committees for required inputs for active participation in the themes of 7th WWF which are of direct relevance to ICID, and (ii) Workbodies on specific subjects related with 7th WWF
   • 2. To liaise with Korean National Committee (KCID) for preparatory work of 7th WWF;
   • 3. To liaise with 7th WWF Program Committee and other International Bodies, especially FAO, interested to participate in the activities proposed to be organized during the 7th WWF; and
   • 4. To regularly report to the IEC of the developments in the preparatory works leading to 7th WWF and recommend ICID inputs for consideration in 64th IEC.

• Members: (i) VPH Mr. Shinuke Ota, Chairman (Japan); (ii) PH Prof. dr. Bart Schultz (The Netherlands); (iii) PH Prof. Dr. Chandra Madramootoo (Canada); (iv) VP Prof. Kim Tai-Cheol (Korea); (v) VP Mr. François Brelle (France); (vi) VPH Karim Shiati (Iran); (vii) Er. Avinash C. Tyagi, Secretary General, ICID - Resource Person.
The final reports of the Work Teams.
Contribution of Agricultural Water for the Development of Rural Society in Asia

2013 : 1st internal workshop
1. (Japan) Examples of restructuring of PIM to cope with changes in social structure : Irrigation management
2. (Korea) Policy directions of irrigation system suitable to economic status : Policy directions
3. (Korea) Multi function of irrigation water for the development of rural society : Multi-function
4. (Turkey) Southeastern Anatolian Project (GAP) : Case project
5. (Taiwan) The impact of agriculture policy to rural water management (from PAWEES) : Policy impact
6. (Japan) Leased Paddy and Crisis of Sustainability of Water User Associations : Irrigation management
7. (Thai) Screening Rice Varieties Suitable for System of Rice Intensification (SRI) : Water saving

2014 : 2nd workshop - Round Table Meeting

PAWEES 2014 International Conference
30-31 October, 2014
Koishikawa, Taiwan

The conference objective is to create an interactive platform for paddy and water environment related researchers, scientists, practitioners, policy makers and other professionals from Asia-Pacific region and other around the world to share and present their recent advancements, research findings, perspectives and experiences in response to, but not limited to, sustainable water and environmental management.

CONFERENCE THEME
The conference plans on the general theme “Sustainable Water and Environment Management in Monsoon Area” accompanied by the following focal topics:

Topic 1: Development of rural society with water in Asia
Topic 2: Establishment of sustainable paddy farming
Topic 3: Integrated watershed management
Topic 4: Droughts and flood disaster risk management

Allocate a topic for PAWEES-ASRWG collaboration

Framework of the Meeting

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 14</td>
<td>09:00-10:00</td>
<td>Round Table</td>
<td>Opening Ceremony</td>
<td>Policy Directions (Keynote)</td>
</tr>
<tr>
<td>Sep 14</td>
<td>10:30-12:30</td>
<td>Opening Ceremony</td>
<td>Opening Ceremony</td>
<td>Round Table 2</td>
</tr>
<tr>
<td>Sep 14</td>
<td>13:30-15:30</td>
<td>Lunch Break</td>
<td>Water Management</td>
<td>Round Table 3</td>
</tr>
</tbody>
</table>

Round Table 1 (Room No. 103)
Chairs: Prof. Takahashi, Prof. Takahashi
Topics:
- Governance on land use development in developing country
- Farmers' participation in policy making
- Water management (Keynote: Prof. Takahashi)

Round Table 2 (Room No. 104)
Chairs: Prof. Chuong, Prof. Tran
Topics:
- Agriculture, food, water, and development in Asia (Keynote: Prof. Tran)
- Water management (Keynote: Prof. Takahashi)
- Round Table 3 (Room No. 105)
Chairs: Prof. Takahashi, Prof. Tran
Topics:
- Integrated watershed management
- Droughts and flood disaster risk management
- Water management (Keynote: Prof. Takahashi)
2014 RTM Theme: Irrigated agriculture and rural development

**RTM Session 1: Governance on rural development in developing country**

1. (ICID) A way to achieve food security and reach an advanced status (keynote) Policy transition
2. (FAO) Irrigation and Rural Development: A Changing Relationship (Background) Managing transition
3. (KRCA) Agricultural Water Infrastructure Development Policy in Korea Development policy
4. (KOICA) KOICA’s SaeMaulUnDong and rural development Rural & Int’l cooperation
5. (ADB) ?

**Session 2: Agricultural water development and its effects on food production**

1. (Tanzania) Impact of water saving technology on food production and livelihoods Water saving
2. (Ghana) Agricultural water development and its effects on food Production Water saving
3. (Argentina) The national prevention plan for drought as public policy to access water Public policy
4. (India) Achievements and Challenges in Irrigation Development: Experiences Irrigation development
5. (Angola) Agricultural water development and its effects on food production Irrigation development
6. (DR Congo) Agricultural Water Development and its Effects On Food Production Irrigation development
7. (Ethiopia) ?
8. (Cote D’Ivoire) Report on the rice irrigation Rice irrigation
9. (Madagascar) Water use and actor for development Water development

**Session 3: Process of agricultural development project and cases of well-developed model**

1. (Cambodia) Integrated Rural Development Model under the Cooperation Rural development
2. (Lao DPR) Process of comprehensive agricultural development Agricultural development
3. (Myanmar) Comprehensive Approach Towards Sustainable Agriculture Sustainable development
4. (Thailand) Transition towards sustainable rural development Sustainable development
5. (Vietnam) Application of advanced irrigation technology in rural development Irrigation technology
6. (Bangladesh) Process of comprehensive agricultural development project and cases Sustainable development
7. (Philippines) Process of comprehensive agricultural development project and cases Sustainable development
8. (Indonesia) National Prevention Plan for Drought as public policy to access water Drought prevention
9. (Bolivia) Agricultural development case Agricultural development

**ASRWG WT: Contribution of agricultural water to rural development**

1. Examples of restructuring of participatory irrigation management : Irrigation management
2. Policy directions of irrigation system suitable to economic status : Policy directions
3. Multi function of irrigation Water for the Development of Rural Society: Multi-function
4. Southeastern Anatolian Project (GAP): Case project
5. (Taiwan) The impact of Agriculture Policy to Rural Water Management (from PAWEES): Policy impact
6. Impact caused Flood and Crisis of Sustainability of Water User Associations (from PAWEES): Irrigation management
7. (That) Screening Rice Varieties Suitable for System of Rice intensification (SRI): Water saving

1st probable alternative

Input to implementation roadmap for post-WWF7
Possibility to contribute to the WWF7

Input the output of ASRWG-WT & RTM to Water for food

1. Input materials to Implementation Roadmap for the post-WWF7 or WWF8
   -> Water for food and the poor (through Int’l cooperation and Live aid)

2. Thematic 2.1.1 Governance and policies to manage transitions in water use for agriculture or cross-cutting with Regional process (FAO-RAP, group member ICID-ASRWG)
   Thematic 2.1.3 Modernization of irrigation schemes (ICID, KRC)

Under the umbrella of TF-WWF7 in ICID, this is one of the WG activity, ASRWG.

Thank you!
A way to achieve food security and reach an advanced status
- focusing on irrigation policy transition -

14 September 2014

Prof. Tai Cheol Kim
RTM chair & Vice President

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**Brief history of irrigation and rural development**

<table>
<thead>
<tr>
<th>Decade</th>
<th>Korean economy</th>
<th>Law &amp; system for irrigation</th>
<th>Irrigation &amp; rural development policy</th>
<th>Pop (farmer) 1,000 (US$)</th>
<th>GDP (US$)</th>
<th>Time Spirit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950s</td>
<td>Korea war</td>
<td>Farmland reform, Foreign aid</td>
<td>140,000ha irrigated out of 1mln ha, Repair works</td>
<td>20,000</td>
<td>80</td>
<td>Starving</td>
</tr>
<tr>
<td>1960s</td>
<td>Military government</td>
<td>1st priority, 5yr economy plan, Plan of year round irrigation</td>
<td>Farm pop 60% &amp; 40% GDP, Small irrigation project for 357,000ha (7yrs), Land consolidation for farm machinery, Tidal land reclamation,</td>
<td>25,000 (15,000)</td>
<td>825</td>
<td>Awakening &amp; Forward</td>
</tr>
<tr>
<td>1970s</td>
<td>SaeMaulUndong, &amp; Heavy- chemistry</td>
<td>Act on low land reclamation, Law of promotion of rural modernization.</td>
<td>National dream of self-sufficiency of rice, Foreign loan irrigation project for 165,000ha, High yield variety of rice, Export 10bln US$</td>
<td>31,400 (14,410)</td>
<td>2,000</td>
<td>Export-oriented Industry</td>
</tr>
<tr>
<td>1980s</td>
<td>Industrialization &amp; electro technology</td>
<td>Rural community plan, Total subside for irrigation facility</td>
<td>Huge farmers exodus &amp; be factory workers, 30% farmers &amp; 14% GDP, Water fee (350kg/ha)</td>
<td>37,400 (10,800)</td>
<td>4,600</td>
<td>Democratization</td>
</tr>
<tr>
<td>1990s</td>
<td>Civilian government, OECD</td>
<td>WTO system, Law of rural maintenance and improvement</td>
<td>Restructuring irrigation scheme to adapt to globalization, Export 100bln US$</td>
<td>43,390 (6,600)</td>
<td>10,800</td>
<td>Globalization</td>
</tr>
<tr>
<td>2000s</td>
<td>Progressive government, Leading ITC</td>
<td>2nd 10yr plan for rural water</td>
<td>Innovative policy, New rural village, sewage treatment, Rural industrial-complex, Subside of direct payment, Free irrigation water</td>
<td>49,000 (3,000)</td>
<td>15,000</td>
<td>Welfare &amp;</td>
</tr>
<tr>
<td>2010s</td>
<td>DAC Advanced country</td>
<td>One Korea and International cooperation,</td>
<td>5.8% Farmer pop. &amp; 2.2% GDP, Export 500bln US$, Promote ODA for irrigation, Inter-Korea economic cooperation.</td>
<td>50,000 (2,800)</td>
<td>25,000</td>
<td>Eco &amp; ODA</td>
</tr>
</tbody>
</table>
Budget allocation for irrigation project in the modernity (1960 – 1999)

- **Budget, 22.4bln.US$ until 1998**
- **Land & Water 73%**
- **Productivity 84%**
- **Living condition 16%**
- **Disaster prevent 10%**
- **Regional develop 5%**
- **Moder new 5%**
- **Drains 4%**
- **Rural complex 6%**
- **Dept Land & Water 1%**
- **Land Compl. 2%**
- **Loan project 11%**
- **Irr. Water 23%**

I & RD / National budget : 1.8%

18,000 reservoirs and ponds for 480,000ha
Tidal land reclamation including SMG 170,000ha

- **Water**
  - 33.9 km dike
  - 18,000 reservoirs and ponds for 480,000ha
  - Tidal land reclamation including SMG 170,000ha
  - Weir 98,000ha
  - Pumping station 190,000ha
  - Ground water 62,000ha
Manual cultivating is possible: 60% of the farm population grow and supply rice sufficiently by irrigated & mechanized cultivation.

Sprinkling & Drip irrigation for vegetables, fruits, and flowers in Greenhouse

1990s: 6% of the farm population grow and supply rice sufficiently by irrigated & mechanized cultivation.

Modern house, sewage treatment, drinking water for improving rural living conditions.

Rural industrial complex and green tourism for off-farm income.
Rural society become unexpectedly exhausted  
Farmers’ violent demonstration against WTO

Modernity  
1961-1990

Development for Quantitative product, farm income, Market competitive

1-D : Productivity (machinery, fertilizer), Corporative, Improving farmland, Hardware & growth

Homo space for cultivation, Participatory IM, Subside for conservation

Top-down from central to local, National agricultural stakeholders

Economic growth under military government: developed

Policy transitions

Goal

Conservation for quality and High valued local resources, Global

Core network

M-D : Diverse resource for ecosystem & tourism, Processing & agro-business, Software & welfare, Organic farming, 

Land-water manage

Hetero space by urban pressure, Public IM, Bonus for conservation

Governance

Bottom-up from local to central, Global agricultural stakeholders

Post-modernity  
2001-present

OECD data modified

Democratic growth under civilian government: advanced
### Irrigation in the post-modernity (2000~)

1. Sustainable development is reflected into budget
2. More budget allotted to managing & welfare
3. IRD/National: 0.8% in 2010s from 1.8% in 1990s

<table>
<thead>
<tr>
<th>Name of irrigation project</th>
<th>~1999</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total amount (mln. US$/yr)</td>
<td>2,392</td>
<td>2,166</td>
</tr>
<tr>
<td>Developing: infrastructure</td>
<td>2,083 (87)</td>
<td>1,369 (63)</td>
</tr>
<tr>
<td>Drought TF measure</td>
<td>41</td>
<td>-</td>
</tr>
<tr>
<td>Drainage facility</td>
<td>252</td>
<td>210</td>
</tr>
<tr>
<td>Repair &amp; reconstruction</td>
<td>402</td>
<td>400</td>
</tr>
<tr>
<td>Rural water development</td>
<td>349</td>
<td>247</td>
</tr>
<tr>
<td>Large-scale consolidation</td>
<td>260</td>
<td>117</td>
</tr>
<tr>
<td>Sea dike repair</td>
<td>77</td>
<td>31</td>
</tr>
<tr>
<td>Consolidation</td>
<td>196</td>
<td>-</td>
</tr>
<tr>
<td>Large-block consolidation</td>
<td>137</td>
<td>80</td>
</tr>
<tr>
<td>Upland irrigation system</td>
<td>150</td>
<td>72</td>
</tr>
<tr>
<td>Farm road paving</td>
<td>197</td>
<td>84</td>
</tr>
<tr>
<td>Others</td>
<td>22</td>
<td>64</td>
</tr>
<tr>
<td>Managing : O &amp; M cost</td>
<td>115 (5)</td>
<td>305 (14)</td>
</tr>
<tr>
<td>Living condition:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village Settlement</td>
<td>88</td>
<td>236</td>
</tr>
<tr>
<td>Rural new village</td>
<td>27</td>
<td>171</td>
</tr>
<tr>
<td>Drinking water system</td>
<td>47</td>
<td>33</td>
</tr>
<tr>
<td>Industrial for off-farm</td>
<td>8</td>
<td>52</td>
</tr>
<tr>
<td>Tourism &amp; sewage</td>
<td>24</td>
<td>-</td>
</tr>
<tr>
<td>(Special project : 2012)</td>
<td>-</td>
<td>(1,384)</td>
</tr>
<tr>
<td>(Saemangeum sea-diike)</td>
<td>-</td>
<td>(199)</td>
</tr>
<tr>
<td>(Enlarging irrigation dam)</td>
<td>-</td>
<td>(1,185)</td>
</tr>
</tbody>
</table>

### Triple bottom line of sustainable development

- **Sustainable Development**
- **Environmental**
- **Economics**
- **Socio-culture**

UNESCO WWAP, 2006

### Repair and reconstruct aged irrigation facilities

- **Effective water management**
- Automated and modernized system with IC-based technology using mobile and sunshine

1. Sustainable development is reflected into budget
2. More budget allotted to managing & welfare
3. IRD/National: 0.8% in 2010s from 1.8% in 1990s

2. **Triple bottom line of sustainable development**
3. **Repair and reconstruct aged irrigation facilities**
4. **Effective water management**
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**Table:**

- **Name of irrigation project**
- **Total amount (mln. US$/yr)**
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  - **Drought TF measure**
  - **Drainage facility**
  - **Repair & reconstruction**
  - **Rural water development**
  - **Large-scale consolidation**
  - **Sea dike repair**
  - **Consolidation**
  - **Large-block consolidation**
  - **Upland irrigation system**
  - **Farm road paving**
  - **Others**
- **Managing : O & M cost**
- **Living condition:**
  - **Village Settlement**
  - **Rural new village**
  - **Drinking water system**
  - **Industrial for off-farm**
  - **Tourism & sewage**
  - **(Special project : 2012)**
  - **(Saemangeum sea-diike)**
  - **(Enlarging irrigation dam)**
Restoring irrigation & drainage canal  

Enlarging 96 reservoirs (2.7 billion US$)

Ecosystems

Multiple function of paddy farming  

Store 4mln m³ to supply environment water 18,000 m³/day

1.000 Rural villages project for 7bln. US$  

429 Rural industrial complex on site area 4,609ha

Alps village in Chilgapsan

Income & Safety

Gopung reservoir CA : 26 km² SV : 7.8 millions m³

Q = 357 m³/s  
Original spillway  
200 yrs freq.

445 m³/s  
Additional spillway  
(802 m³/s, PMF)

PMF enacted in 2003 to reduce flood damage caused by climate change.
“Without innovation in agriculture, no advanced Korea”

“Democratic politics, creative economics, safe society, native culture, and human dignity”

to approach the advanced country in the 2010s from the developed in the 1990s

Seungchon weir  4 river restoration project in Yeongsanggang  Juksan weir

Thank you !!!