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.

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**ASIAN REGIONAL WORKING GROUP (ASRWG)**

Work Team on the “Contribution of Agricultural Water to the Rural Development in Asia”

1. **Name of WT:** “Contribution of Agricultural Water to the Rural Development in Asia”

2. **Mandate:** How to contribute the development of rural society in Asia with water
   (a) Suggest the technical and policy directions and prospects.
   (b) Suggest the sustainable water management and development and the improvement of the livelihood of rural community.

3. **Scope:** Case study on irrigation project including template (Domestic fund project, foreign grant/loan project, Comprehensive rural development, Small & large-scale irrigation project, and ODA project from both a receiving and donating side, etc.)

4. **Duration:** 2013 – 2018 (5 years)

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**WT draft time schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Members involved</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>1st WT workshop at Mardin</td>
<td>IEC Taiwan, Turkey, Iran, Japan, Korea, Thailand</td>
<td>Mardin, Turkey</td>
</tr>
<tr>
<td>2014</td>
<td>2nd WT workshop at Gwangju</td>
<td>WT- Malaysia, Taiwan, Thailand, Japan, India, Korea, Turkey (6), Indonesia, Philippines, Laos, India, Iraq, Nepal, Pakistan, Myanmar, Uzbekistan, Cambodia, China (11) etc., FAO, ADB, JICA, RMM, DAC (5)</td>
<td>Seoul, Korea, During the Congress</td>
</tr>
<tr>
<td>2015</td>
<td>3rd WT workshop at Montpellier</td>
<td>WT members and Chairman</td>
<td>Montpellier, France</td>
</tr>
<tr>
<td>2016</td>
<td>4th WT workshop (internal WS in ASWRG)</td>
<td>WT member and Chairman</td>
<td>Chiang Mai, Thailand 2nd WS</td>
</tr>
<tr>
<td>2017</td>
<td>Collect and select papers</td>
<td>WT members and Chairman</td>
<td>Mexico</td>
</tr>
<tr>
<td>2018</td>
<td>Contribute to WWF-8</td>
<td>WT members and Chairman</td>
<td></td>
</tr>
</tbody>
</table>
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

2014: 2nd workshop -> Round Table Meeting

PAWEES 2014 International Conference
30–31 October, 2014
Kosatung, Taiwan

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

CONFERENCE THEME
The conference focuses on the general theme “Sustainable Water and Environmental Management in Monsoon Asia” 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 water management
Topic 4: Droughts and flood disaster risk management

Allocate a topic for PAWEES-ASRWG collaboration

Framework of the Meeting

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 14</td>
<td>Opening &amp; Welcome</td>
<td>Development of rural society with water in Asia</td>
</tr>
<tr>
<td>Sep 14</td>
<td>09:00–10:00</td>
<td>Water saving (Japan)</td>
</tr>
<tr>
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<td>10:00–12:00</td>
<td>Workshop: Development of rural society with water in Asia</td>
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<td>13:00–14:00</td>
<td>Lunch</td>
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</tr>
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Round Table Meeting (Room No. 301)

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### 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)
2. (FAO) Irrigation and Rural Development: A Changing Relationship (Background)
3. (KRCA) Agricultural Water Infrastructure Development Policy in Korea
4. (KOICA) KOICA’s SaeMaulUnDong and rural development
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
2. (Ghana) Agricultural water development and its effects on Food Production.
3. (Argentina) The national prevention plan for drought as public policy to access water.
4. (India) Achievements and Challenges in Irrigation Development: Experiences
5. (Angola) Agricultural water development and its effects on food production.
6. (DR Congo) Agricultural Water Development and its Effects On Food Production
7. (Ethiopia)
8. (Cote D’Ivoire) Report on the rice irrigation
9. (Madagascar) Water use and actor for development

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

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

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

- Examples of restructuring of participatory irrigation management
- Policy directions of irrigation system suitable to economic status
- Multi function of irrigation Water for the Development of Rural Society
- Multi function Water for the Development of Rural Society
- The Impact of Agriculture Policy to Rural Water Management
- Irrigation Water Infrastructure Development Policy development
- Irrigation and Rural Development: A Changing Relationship (Background)
- Comprehensive Approach Towards Sustainable Agriculture
- Transition towards sustainable rural development
- Application of advanced irrigation technology in rural development
- Process of comprehensive agricultural development project and cases
- Process of comprehensive agricultural development project and cases
- Process of comprehensive agricultural development project and cases
- The National Prevention Plan for Drought as public policy to access water

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### 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!
Keynote in Round Table Meeting

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)</th>
<th>GDP (US$/C)</th>
<th>Time Spirit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950s</td>
<td>Korea war</td>
<td>Farmland reform, Foreign aids</td>
<td>140,000ha irrigated out of 1mln.ha, Repair works</td>
<td>20,000</td>
<td>80</td>
<td>Starving</td>
</tr>
<tr>
<td>1960s</td>
<td>Military government</td>
<td>1st priority, 5yr economy plan, Plan of year round irrigation</td>
<td>Farm pop 60% &amp; 40% GDP, Small irrigation project for 357,000ha/yr, Land consolidation for farm machinery, Tidal land reclamation, Size</td>
<td>25,000</td>
<td>825</td>
<td>Awakening &amp; Forward</td>
</tr>
<tr>
<td>1980s</td>
<td>Industrialization &amp;</td>
<td>Rural community plan, Total subside for irrigation facility</td>
<td>Huge farmers exodus &amp; be factory workers, Export 165,000ha, High yield variety of rice, Export 16blnUS$,</td>
<td>37,400</td>
<td>(10,800)</td>
<td>Democratization</td>
</tr>
<tr>
<td>1990s</td>
<td>Civilian government,</td>
<td>WTO system, Law of rural maintenance and improvement</td>
<td>Restructuring irrigation scheme to adapt to globalization, Export 100blnUS$,</td>
<td>43,900</td>
<td>(6,600)</td>
<td>Globalization</td>
</tr>
<tr>
<td>2000s</td>
<td>Progressive government,</td>
<td>2nd 10yr plan for rural water, Act on special measures for promotion of farmers life</td>
<td>Innovative policy, New rural village, sewage treatment, Rural industrial-complex, Subside of direct payment, Free irrigation water</td>
<td>49,000</td>
<td>(3,000)</td>
<td>Welfare &amp;</td>
</tr>
<tr>
<td>2010s</td>
<td>DAC, Advanced country</td>
<td>One Korea and International cooperation,</td>
<td>5.8% Farmer pop. &amp; 2.2% GDP, Export 500bhnUS$, Promote ODA for irrigation, Inter-Korea economic cooperation.</td>
<td>50,000</td>
<td>(2,800)</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%
  - Urban area: 8%
  - Rural complex: 6%
  - Irrigation: 23%
  - Loan project: 11%
  - I & RD / National budget: 1.8%

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

Water

- **18,000 reservoirs and ponds for 480,000ha**
- **Tidal land reclamation including SMG 170,000ha**
- **33.9 km dike**
- **Weir 98,000ha,**
- **Pumping station 190,000ha,**
- **Ground water 62,000ha**
1990s: 6% farm population grow and supply rice sufficiently by irrigated & mechanized cultivation

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

Modern house, sewage treatment, drinking water for improving rural living condition

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

Contrary to expectation & Innovative policy needed

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

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

Modernity 1961-1990

Policy transitions

OECD data modified

Democratic growth under civilian government : advanced

11
### 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>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-dike)</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

- **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
Restoring irrigation & drainage canal

Enlarging 96 reservoirs (2.7billion US$)

Ecosystems

Multiple function of paddy farming

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

Green tourism by Rural new village project

- Farm household : 37
- Population : 103
- Amenity : High mountain, Clean lake, Organic farming, and Farm staying

Developing green tourism → Urban - Rural exchange centre, Soccer & baseball ground, swimming pool, and tracking course by the "Rural new village project"

Established the village company in 2009


Gopung reservoir CA : 26km² SV : 7.8mil. m³

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

PMF enacted in 2003 to reduce flood damage caused by climate change.

1,000 Rural villages project for 7bln. US$

429 Rural industrial complex on site area 4,609ha
“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 !!!