POLICY INTEGRATION FOR REFORESTATION IN THE REPUBLIC OF KOREA

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Scholarship on Forest Transition (FT)

• Since 1990, FT study began.

FT Pathways

1st Phase

2nd Phase (2000s-)

3rd Phase (2010s-)

Forest Cover Change

(1990s -)

(?)
Scholarship on Forest Transition (FT)

- Since 1990, scholarship on FT began.

FT Pathways

1st Phase (1990s -)
2nd Phase (2000s -)
3rd Phase (2010s -)

Forest Cover Change

Needs to Interpret drivers to FT

Interpret drivers to FT
Scholarship on Forest Transition (FT)

*Five forest transition pathways*
(Lambin and Meyfroidt, 2010)

- Forest scarcity
- Economic development
- State forest policy
- Globalization
- Smallholder tree-based land use intensification
South Korean Forest Transition

South Korean Forest Cover Change

< Forest area change in South Korea from 1927 to 2007 >

[Source] Bae et al. (2012: 200)
South Korean Forest Transition

Source: Bae et al. (2010, p. 28)
South Korean Forest Transition

Growing Stock of Forests

*Average annual rate of changes in growing stock volume in three stages*

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Per-capita volume of growing stock (%)</td>
<td>-2.9</td>
<td>0.0</td>
<td>14.4</td>
</tr>
<tr>
<td>Per-hectare volume of growing stock (%)</td>
<td>-1.9</td>
<td>0.3</td>
<td>20.0</td>
</tr>
</tbody>
</table>

Source: Bae et al. (2012: 201)

Korean Forest Transition in the early of 1970s
South Korean Forest Transition Pathway

Drivers of Deforestation and Forest Degradation

- **Korean War (1950-1953)**
  - Total volume of growing stock of forests
    : 74 million m$^3$ (1945) → 49.4 million m$^3$ (1955) (Bae, 2010: 29)
- **Expansion of agricultural lands**
  - Agricultural lands: from 1.97 mil. ha (1952) to 2.34 mil. ha (1968) (Bae et al., 2012: 200)
  - The area of illegal slash-and-burn fields: from 46,190 ha in 1967 to 124,643 ha in 1979 (Lee and Bae, 2007)
- **Social demand on fuelwoods**
  - Firewood and charcoal accounted for 62.5% of the total primary energy source in 1960s (KCC, 2001)
- **Increase of population**
South Korean Forest Transition

- Drivers for reforestation
  - Government-led efforts
  - Political will
  - Economic development
  - Training & Education
  - Rural-urban migration
  - Increase of productivity of agricultural lands
South Korean Forest Transition

• Drivers for reforestation
  • Government-led efforts
  • Political will
  • Economic development
  • Training & Education
  • Rural-urban migration
  • Increase of productivity of agricultural lands
South Korean Forest Transition

*Five forest transition pathways*

(Lambin and Meyfroidt, 2010)

- Forest scarcity
- Economic development
- **State forest policy → South Korean Case**
- Globalization
- Smallholder tree-based land use intensification
Research Design

Limitations of previous researches
- Historical description of national policies and strategies (Lee and Lee, 2005; Lee et al., 2010; Bae et al., 2012)
- No linking with policy theories

Need of further research
→ Policy analysis using theories to interpret and understand the forest transition pathway better
Research Design

Forest Policy Analysis Methods

- Policy instruments (Krott, 2005; Cubbage et al., 2007; van Gossum et al., 2012)
  - Regulatory, economic and informational instruments
- Policy arrangement (Vennman et al., 2009; van Gossum et al., 2011; Park and Youn, 2013)
  - Actors, game of rules, discourse and resources/power
- Governance (Agrawal & Chhatre, 2006; Andersson, 2006)
  - Network between public and private sector
- **Policy integration** (Zingerli et al., 2004; Bjaerstig, 2013; Storch and Winkel, 2013)
  - Integrated policy system
Theory: Policy Integration

Policy Integration (Briassoulis, 2005, p. 50)

- ‘a process of incorporating certain concerns (e.g. environmental, social, economic) into an extant policy to produce an integrated policy’
- ‘broadly as a process of uniting and harmonizing separate policies to produce an integrated and coherent policy system’ (Briassoulis, 2005, p. 50)
Theory: Policy Integration

Horizontal Dimension
(Overall Responsibility for Reforestation)

Vertical Dimension
(e.g. Ministry/Dept.)

Forestry

Vertical Dimension
(e.g. Ministry/Dept.)

Energy

Vertical Dimension
(e.g. Ministry/Dept.)

Economy

Modified from Lafferty and Hovden (2003, p. 14)
Method

• Main Research Question
  “how the sectoral policies for reforestation were integrated in the ROK”

• Document Analysis
  • Research articles, reports and legal and policy documents regarding Korean reforestation
Results 1.

- Coordinated national plans
  - 1\textsuperscript{st} & 2\textsuperscript{nd} National Forest Development Plan
    : over 2 million ha reforested
  - Saemaul Undong
    : mobilized citizens for erosion control works
  - 1\textsuperscript{st} Comprehensive National Territorial Development Plan
    : resource development and environmental conservation
  - 2\textsuperscript{nd} & 3\textsuperscript{rd} National Economic Development Plan
    : investment plan on forestry sector including afforestation, protection and erosion control
Results 1.

- Coordinated national plans

<table>
<thead>
<tr>
<th>Plan Type</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st NEDP</td>
<td>(1962-1966)</td>
</tr>
<tr>
<td>2nd NEDP</td>
<td>(1967-1971)</td>
</tr>
<tr>
<td>3rd NEDP</td>
<td>(1972-1976)</td>
</tr>
<tr>
<td>1st NFDP</td>
<td>(1973-1978)</td>
</tr>
<tr>
<td>2nd NFDP</td>
<td>(1979-)</td>
</tr>
<tr>
<td>1st CNTDP</td>
<td>(1972-1981)</td>
</tr>
<tr>
<td>SU</td>
<td>(1970-)</td>
</tr>
</tbody>
</table>

NEDP: National Economic Development Plan
SU: Saemaul Undong
CNTDP: Comprehensive National Territorial Development Plan
NFDP: National Forest Development Plan
## National account for forest management in South Korea

<table>
<thead>
<tr>
<th>Year</th>
<th>NEDP*</th>
<th>General Account</th>
<th>Special Account</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Management of National Forests</td>
<td>Finance Management</td>
<td>Economic Development</td>
</tr>
<tr>
<td>1967</td>
<td></td>
<td>193</td>
<td>581</td>
<td>50</td>
</tr>
<tr>
<td>1968</td>
<td>2nd</td>
<td>310</td>
<td>863</td>
<td>100</td>
</tr>
<tr>
<td>1969</td>
<td></td>
<td>473</td>
<td>942</td>
<td>192</td>
</tr>
<tr>
<td>1970</td>
<td></td>
<td>667</td>
<td>921</td>
<td>273</td>
</tr>
<tr>
<td>1971</td>
<td></td>
<td>683</td>
<td>1,445</td>
<td>282</td>
</tr>
<tr>
<td>1972</td>
<td>3rd</td>
<td>742</td>
<td>1,556</td>
<td>300</td>
</tr>
<tr>
<td>1973</td>
<td></td>
<td>4,595</td>
<td>1,527</td>
<td>151</td>
</tr>
<tr>
<td>1974</td>
<td></td>
<td>5,932</td>
<td>2,612</td>
<td>-</td>
</tr>
<tr>
<td>1975</td>
<td></td>
<td>7,640</td>
<td>4,642</td>
<td>-</td>
</tr>
<tr>
<td>1976</td>
<td></td>
<td>11,001</td>
<td>4,388</td>
<td>-</td>
</tr>
</tbody>
</table>
Results 2.
Collaboration among the governmental branches

- Firewood for heating and cooking
  - In 1955, approximately 10 million m$^3$ of wood for domestic fuel (17% of the total volume of growing stock (Bae and Lee, 2006).
  - In 1960, firewood and charcoal accounted for 62.5% of the total primary energy source (Korea Coal Corporation, 2001, p.70)
Results 2.
Collaboration among the governmental branches

Energy Policy

• Ministry of Commerce and Industry
  : the supply of coals

• Ministry of Agriculture and Forestry
  : prohibiting the inflow of firewood into major cities in 1958
  : establishment of 210,000 ha of fuelwood forests during the 1\textsuperscript{st} NFDP.

• Ministry of Home Affairs
  : remodelling kitchen fire holes to use coal briquettes
Results 2.

- Collaboration among the governmental branches

- MCI: Ministry of Commerce and Industry
- MAF: Ministry of Agriculture and Forestry
- MHA: Ministry of Home Affairs
- SU: Saemaul Undong

- Production of coal briquettes
- Establishment of fuelwood forests
- Remodeling kitchen fire holes through SU
Results 3.

- Organizational reformation
  - KFS under the MAF was moved to the MHA in 1973
  - KFS was under the control by MHA from 1973 to 1987
Results 3.
Organizational reformation

- Enforcement of Local Administration Power linking with Saemaul Undong (SU)
- **SU**: New Community Movement
  - Under control by MHA
  - The MAF, MCI and Ministry of Education: divisions of SU
  - Provinces, Cities and Districts: the divisions of SU
Results 3.

- Organizational reformation: Enforcement of Police Power

Frequency of illegal logging & volume of illegally logged timber

<table>
<thead>
<tr>
<th>Year</th>
<th>Frequency</th>
<th>Average volume (m$^3$/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967-1972</td>
<td>17,923</td>
<td>17,673</td>
</tr>
<tr>
<td>1973-1978</td>
<td>7,583</td>
<td>3,589</td>
</tr>
<tr>
<td>1979-1987</td>
<td>2,526</td>
<td>2,211</td>
</tr>
</tbody>
</table>

Source: Kim et al. (2009)

KFS was under the control by MHA
Conclusion

- Factors of successful reforestation in the ROK
  - The three ways of policy integration
    1) coordinated national plans
    2) collaboration among the governmental branches
    3) organizational reformation

*Integrated policy program as an innovative approach to solving the problem of deforestation*
Conclusion
• Limitation of this study
  • focuses on policy intervention of the state for reforestation
  • Exclusion of several causes (increase of population and improvement of agricultural technology etc.)

• Further Research
  • Policy integration between the national and global legal
  • Comparative analysis
  • Grouping country cases