**The 3th Training Workshop**
***Forest transition to sustainable forestry management and rehabilitation***

# *Country Report and Case Study* of the Republic of Korea

**25th February, 2013**

**Mi Sun Park**
**Seoul National University**

# 1. Background

- **1.1. Ecological Factors**
  - Geography
    - The Korean peninsula is located between 33˚ 7´ and 43˚ 1´ N Latitude, and 124˚ 11´ and 131˚ 53´ E longitude at the heart of the North Western Pacific.
    - It extends about 960 km southward and its width is about 170 km from east to west.
    - The Korean peninsula encompasses 221,000 km2, 45% of which makes up the Republic of Korea
  - Climate
    - Annual mean rainfall ranges from 600mm to 1,800mm with uneven seasonal distribution.
    - The rainy season begins in late June and lasts approximately 30 days, and two or three typhoons from the northern Pacific Ocean affect Korea between June and October every year. 50~60% of the annual rainfall is likely concentrated during summer causing great concerns for unstable water supply.

[Source] Korea Forest Service http://english.forest.go.kr

# 1. Background

## 1.1. Ecological Factors

– Flora

| Forest zone | North latitude | Annual mean te mperature | Forest cover type and tree sp ecies |
|---|---|---|---|
| Warm temperate f orest | Below 35° | Above 14℃ | broad-leaved deciduous forests, conife r and deciduous mixed forests, and pin e forests : evergreen broad-leaved tree s, Camellia japonica, etc. |
| Cool temperate fo rest | Between 35~43° e xcept for alpine re gions | 5-14℃ | mostly pine forests but a few broad-le aved deciduous forests: deciduous bro ad-leaved trees, oak trees, pine trees, bamboos, etc. |
| Sub-boreal forest | Uplands and alpin e regions | Below 5℃ | mixed forests : spruce trees, Korean pi nes, etc. |

[Source] Korea Forest Service http://english.forest.go.kr

# 1. Background

- **1.1. Ecological Factors**
  – Fauna
    - South Korea also has several indigenous species of *deer*, including the roe deer and the Siberian musk deer. Wild boars have been growing more common in recent years, thanks to reduced hunting pressure.
    - Large mammals such as tigers, bears, and lynx were once abundant throughout the Korean peninsula. However, many have disappeared due to human settlement, loss of forest habitat and over-hunting.

  – **Land Use**
    - About 20% of the total land area in the ROK is used for agriculture while forests cover 64%.

[Source] Korea Forest Service http://english.forest.go.kr

# 1. Background

## 1.2. Economic Factors

– GDP: 9 US$ Billion (1970) → 844 US$ Billion (2005)
– OECD member country since 12 December 1996

## 1.3. Social Factors

– *Population: 49.8 million* (*http://www.index.go.kr*)
– *Population density: 497 persons/km2 (2011)* (*http://www.index.go.kr*)
– Urban population
  : 4 million (21%) in 1950 → 38.7 million (81%) in 2005 (United Nations, 2010)

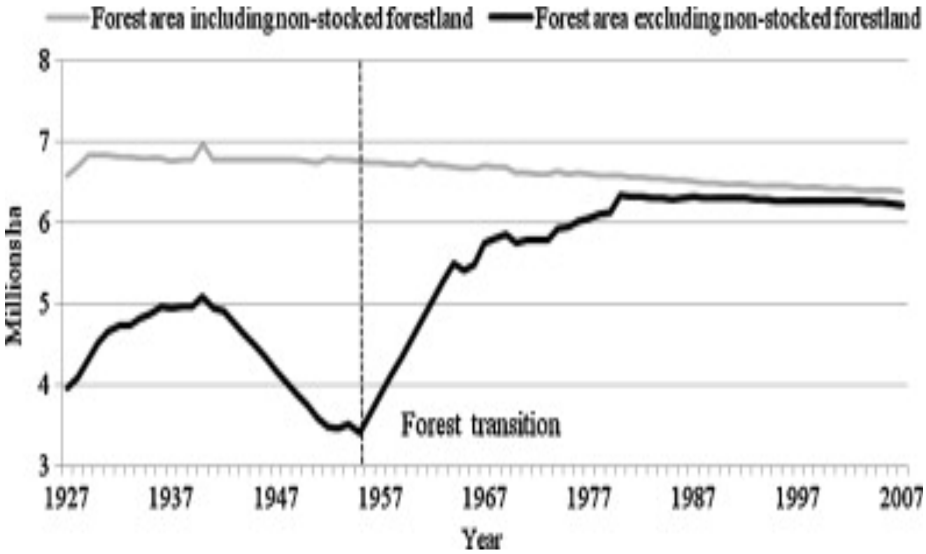
# 2. Forests and Forestry

**2.1. Extent of forests**
**2.2. Social, environmental and economic value of forests**
**2.3. Forestry regulation**
**2.4. Forestry administration**
**2.5. Forestry ownership**
**2.6. Forestry utilization and management**
**2.7. Forestry product marketing and process**

# 3. Historic review of forest cover change

## Forest Cover

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




[Source] Bae et al. (2012: 200)

# 3. Historic review of forest cover change

## Growing Stock

<Average annual rate of changes in growing stock volume in three stages>

| | Forest degradation (1927-1952) | Forest stagnation (1953-1972) | Forest growth (1973-2007) |
|---|---|---|---|
| Per-capita volume of growing stock (%) | -2.9 | 0.0 | 14.4 |
| Per-hectare volume of growing stock (%) | -1.9 | 0.3 | 20.0 |

Source: Bae et al. (2012: 201)

# 4. Major forces to drive the forest transition

## 4.1. Drivers to deforestation and forest degradation

### 4.1.1. Logging and harvesting

**Illegal logging**

**Fuel woods**

### 4.1.2. Other land use

**Agriculture**

**slash-and-burn fields**

### 4.1.3. Forest fire and disease

### 4.1.4. Natural calamities

**frequent droughts and floods until 1960s**

### 4.1.5. Others

# 4. Major forces to drive the forest transition

## 4.2. Drivers to afforestation and forest rehabilitation

## 4.2.1. Plantation

- Forestation Project: 440,000 ha forests for fuel woods in 1972
- Erosion Control Project
  - for increasing agriculture productivity and reforestation
  - Budget 4.8 Billion won from 1967-1971 (20% of total forest projects )

**The 1st 10-year National Greening Project**

- In 1978, the 100ha afforestation was achieved four years earlier than planned
- Nation-wide greening program as a key project of New Village Movement
- Project for decreasing slash-and-burn fields (1974-1978)

# 4. Major forces to drive the forest transition

## 4.2. Drivers to afforestation and forest rehabilitation
## 4.2.1. Plantation

- Forestation Project: 440,000 ha forests for fuel woods in 1972
- Erosion Control Project
  – For increasing agriculture productivity and reforestation
  – Budget 4.8 Billion won from 1967-1971 (20% of total forest projects )

- **The 1st 10-year National Greening Project (1973-1978) – 1st NFP**
  – In 1978, the 100ha afforestation was achieved four years earlier than planned
  – Project for decreasing slash-and-burn fields (1974-1978)

- **The 2nd 10-year National Greening Project (1979-1987) – 2nd NFP**
  – Establishing large-scale commercial forest that could develop into sustainable timber resources for domestic demands on timber products
  – Developing a foundation of forest resource management

*NFP: National Forest Plan

# 4. Major forces to drive the forest transition

## 4.2. Drivers to afforestation and forest rehabilitation

### 4.2.2. Forest management action

**The 3rd National Forest Plan (1988-2997)**

Establishing foundation and infrastructure of forest management

– forest road construction
– forest mechanization
– education for foresters and forestry workers

## 4.2.3. Others

# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

### 4.3.1. Social-demographic issues

**Migration from rural to urban areas**

– Urban population
  : 4 million (21%) in 1950 → 38.7 million (81%) in 2005 (United Nations, 2010)

**Increase of income level: purchase of non-wood fuel**

# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

### 4.3.2. Forest governance issues

**Forest institution**

– Establishment of Korea Forest Service (1961)

– Forestry Cooperatives
  - Transfer of professional knowledge on forestry
  - Promoting citizens' participation
  - PR of national greening policies

– Local Communities
  - Forest Gye as small communities: practical actors in planting trees
  - New Village Movement (Diligence, Self-help and Cooperation)

# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

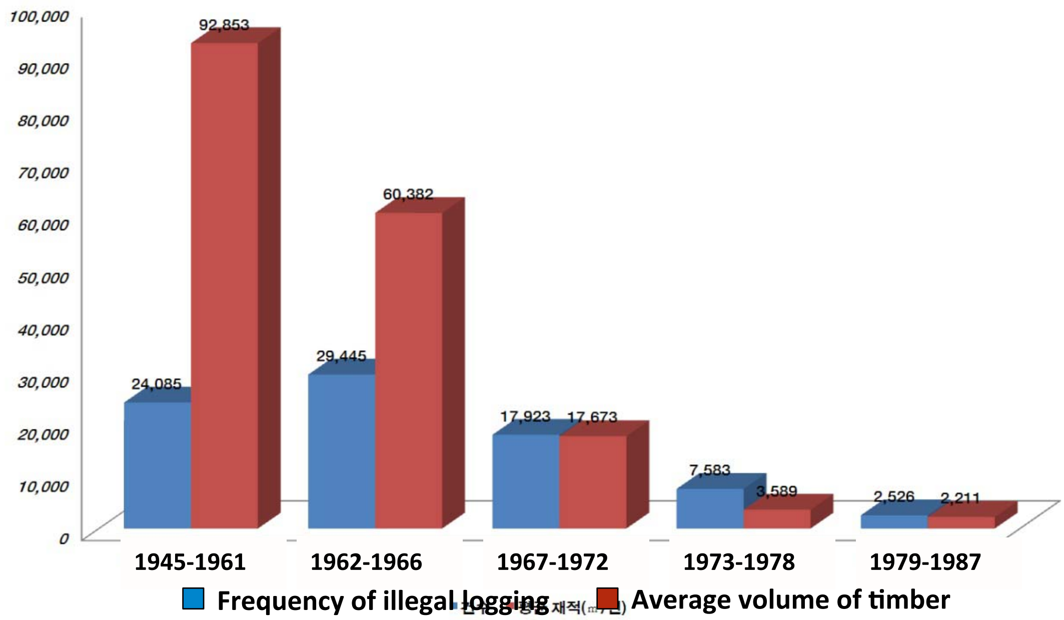
### 4.3.2. Forest governance issues

**Law enforcement**

- Law on control of forest products (1961)
- Forest Law (1961)
- Law on arranging forest protection officers (1963)
- Law on facilitating land-greening (1963-1964)
- Law on prohibition of slash and burn agriculture (1966)

# 4. Major forces to drive the forest transition

Decrease of Illegal Logging




Source: KFS 1989, 1997

# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

### 4.3.2. Forest governance issues

**Multi-sectoral coordination**

**Cooperation among Ministries**:

The Ministry of Commerce, the Ministry of Home and the Korea Forest Service

**Energy sector**

- Replacing conventional firewood with anthracite coal by remodeling kitchen fire holes in rural homes
- Importing alternative fuels

**Economic sector**

- Linking between economic development plan and forest rehabilitation plan

# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

### 4.3.3. Forest policy issues

**Forest finance: government accounting (budget)**

Unit: Million Korean Won

| Year | General | Special Accounting | | | Total |
|---|---|---|---|---|---|
| | | National Forest Management | Finance Management | Economic Development | |
| 1972 | 742 | 1,556 | 300 | 3,677 | 6,275 |
| 1971 | 683 | 1,445 | 282 | 3,452 | 5,862 |
| 1970 | 667 | 921 | 273 | 3,030 | 4,891 |
| 1969 | 473 | 942 | 192 | 3,055 | 4,662 |
| 1968 | 310 | 863 | 100 | 1,986 | 3,241 |
| 1967 | 193 | 581 | 50 | 1,256 | 2,080 |
| 1961 | 1,516 | | | 3,995 | 5,511 |
| 1960 | 1,221 | | | 3,726 | 1,221 |
| 1959 | 1,106 | | | - | 1,106 |
| 1958 | 1,167 | | | 4,969 | 1,167 |
| 1957 | 1,104 | | | 1,803 | 1,104 |

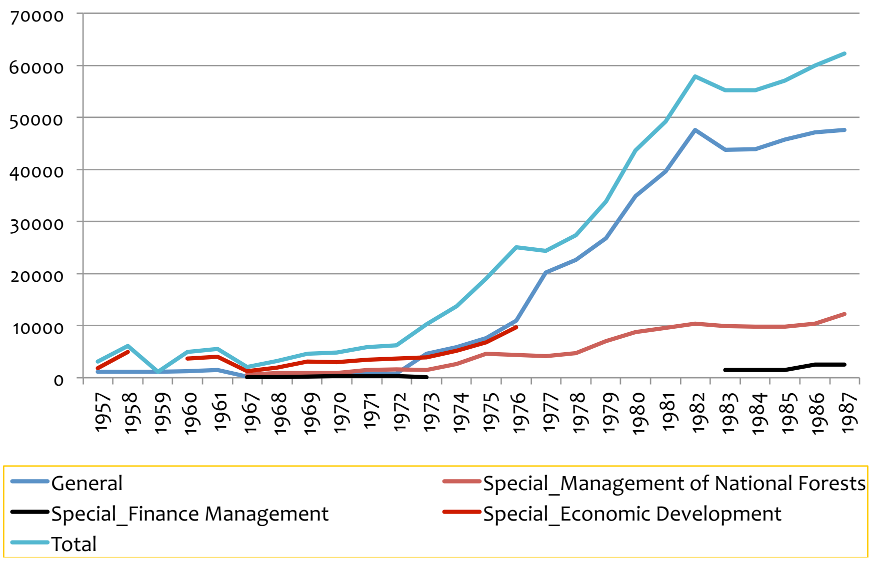
# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

### 4.3.3. Forest policy issues

**Forest finance: government accounting (budget)**

Unit: Million Korean Won




# 4. Major forces to drive the forest transition

## 4.3. Understanding causes to drive forest transition

### 4.3.4. Industry and globalization

Import of timbers

: degree of self-sufficiency 34%→ 16%

# 5. Forests and Forest Transition in the Future

## 5.1. Forests in the future

## 5.2. Major factors to drive forests in the future

- Urban policies
- Global forest policies
- Carbon markets

**[comparative analyses of transitions to sustainable forest management and rehabilitation]**
**Research Article**

# Three Principles for Successful Reforestation Policies in the Republic of Korea

February 2013


***Mi Sun Park & YOUN Yeo-Chang***
Seoul National University, Republic of Korea

# I. Introduction

## Context of Korean Peninsula

- Korean War (1950-1953)
  - Forest condition in 1952
  - Growing stock level decreased to 36-40% of the level before the war(i.e., a meager 0.5m3/ha)
  - Non-stocked forests reached almost half of the total forest land

- Korean forest transition in the 1970s
  - increase of the stocked forest area as a quantitative indicator
    - 2.6 million ha or 39% of the national forest area was reforested in Republic of Korea through implementation of two national forestation plans (1972-1987) (Bae, 2012)
  - increase of growing stock volume as qualitative indicator

- Korean successful experience on reforestation is estimated as a good case in developing countries (Noronha, 1981; Brown, 2008)

# 2. Forest Transition in the Republic of Korea

Forest Transition Pathway

| Type | Pathway | Countries |
|---|---|---|
| Inadvertent (spontaneous) | Economic development & urbanization | Scotland, France, Denmark, Netherland |
| | Forest scarcity | India, China, Vietnam, Puerto Rico |
| **advertent** | **State forest policies** | **South Korea,** Butan |
| | Globalization | Costa Rica, El Salvador |
| | Smallholder tree land use intensification | Java, Guinea |

**[Lambin & Meyfroidt (2010)]**

# 3. Three Policy Theories

- **Policy Instruments**

**: Regulatory, Economic, Informational Instruments**

- **Environmental Policy Integration**

**:** Horizontal Environmental Policy Integration (HEPI)

: sectoral integration- the integration of policy making by national governments and their composite departments and ministries

- **Public Participation**

# 4. Results

## 4.1. Policy Instrument Mix

## 4.2. Integrated Policies

## 4.3. Public Participation

# 4.1. Policy Instrument Mix

## 4.1.1. Strong regulatory instruments

- Law on control of forest products (1961)
- Forest Law (1961)
- Law on arranging forest protection officers (1963)
- Law on facilitating land-greening (1963-1964)
- Law on prohibition of slash and burn agriculture (1966)

# 4.1. Policy Instrument Mix

## 4.1.1. Strong regulatory instruments

- Introduction of "Forest law (1961)", revised in 1980 [Protection and promotion]
  - Prohibition of entering mountains
  - Prohibition of gathering forest resources (woods, fallen leaves & tree roots)
  - Designation of forest areas
    - 'Forest Protection Zones' for forest protection itself
    - 'Protection Forests' where forest resource use is limited for public interests
    - Forest development zones
  - Control of deforestation
  - Management of the process of harvesting forest resources
  - Individuals' behavior
    - forced labor in planting trees - Mobilization
    - Preventing forest fires
    - Forest owners' duty to control insect pests

# 4.1. Policy Instrument Mix

## 4.1.1. Strong regulatory instruments

– Introduction of “Forest law (1961)”, revised in 1980

[Forest Use]

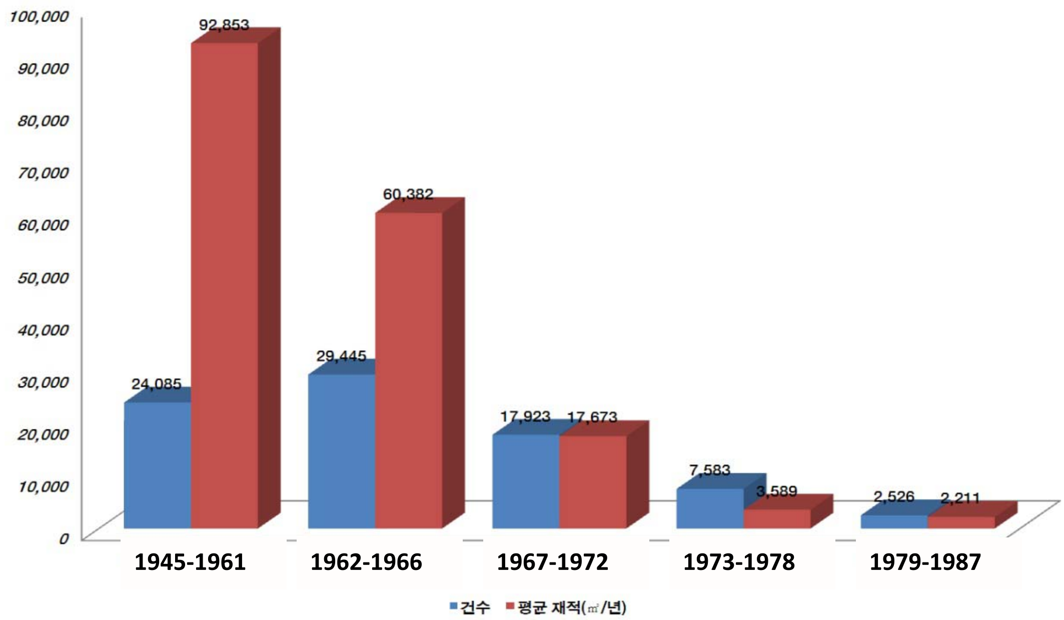
- Forest owners’ duty to construct forest management planning
- Designation of forest use (protection forests & seed stands)
- Registration of forestry
- Duty to planting trees after harvesting trees
- Management of fuel production forests

[Penalty]

Forest damage, arson

# 4.1. Policy Instrument Mix

Decrease of Illegal Logging




Frequency of illegal logging    Average volume of timber

Source: KFS 1989, 1997

# 4.1. Policy Instrument Mix

## 4.1.2. Economic Instruments

– Government Accounting (Budget) for forest rehabilitation

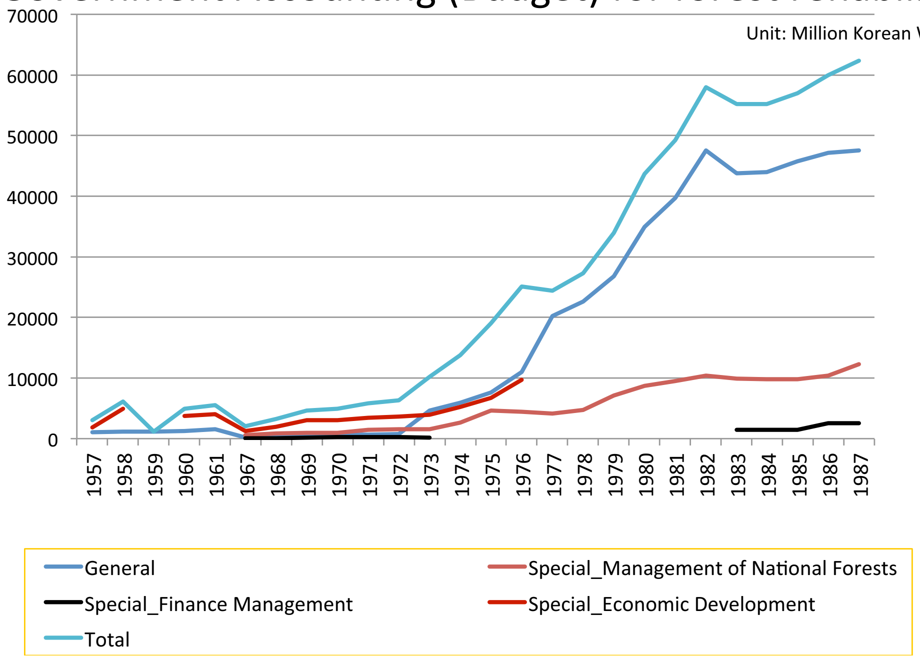
Unit: Million Korean Won

| Year | General | Special Accounting | | | Total |
|---|---|---|---|---|---|
| | | National Forest Management | Finance Management | Economic Development | |
| 1972 | 742 | 1,556 | 300 | 3,677 | 6,275 |
| 1971 | 683 | 1,445 | 282 | 3,452 | 5,862 |
| 1970 | 667 | 921 | 273 | 3,030 | 4,891 |
| 1969 | 473 | 942 | 192 | 3,055 | 4,662 |
| 1968 | 310 | 863 | 100 | 1,986 | 3,241 |
| 1967 | 193 | 581 | 50 | 1,256 | 2,080 |
| 1961 | 1,516 | | | 3,995 | 5,511 |
| 1960 | 1,221 | | | 3,726 | 1,221 |
| 1959 | 1,106 | | | - | 1,106 |
| 1958 | 1,167 | | | 4,969 | 1,167 |
| 1957 | 1,104 | | | 1,803 | 1,104 |

# 4.1. Policy Instrument Mix

## 4.1.2. Economic Instruments

– Government Accounting (Budget) for forest rehabilitation



# 4.1. Policy Instrument Mix

## 4.1.2. Economic Instruments

- Forestry Finance
  - Bank loan for cultivating saplings
- Tax
  - Forestry income tax
    - Lower than general income tax
    - Tax exemption (1981)
  - No forest property tax (1961-1976)
  - Inheritance & gift tax exemption to new planted forests (1972)
- Forest Insurance

# 4.1. Policy Instrument Mix

## 4.1.3. Informational Instruments

- Forest Education
- PR of national greening policies through mass media (radio, newspaper, magazines, television)
  - President's strong leadership towards national greening
- Promotion: catch phrases, posters, press releases, banners, signs
- Knowledge transfer by forest associations
- Various events: Tree-planting
  exhibitions

- **Change of focus**
  Prohibition & Mobilization
  → Advise & Guide

**[Tree-planting event with President Park on 5th April, 1973]**http://photo.foa.go.kr/photo]

# 4.2. Integrated Policies

## Sectoral Strategies

| Forestry | Economy | Food | Energy |
|---|---|---|---|
| • Forest Rehabilitation project – nation wide greening program<br>• Import of timbers | • Link between economic development plan and forest rehabilitation plan | • Providing participants in greening activities food | • Replacing conventional firewood with anthracite coal by remodeling kitchen fire holes in rural homes<br>• Importing alternative fuels |

# 4.2. Integrated Policies

## 4.2.1. Energy Policies

- Import of timbers
  1,700$m^2$ (1950) → 338,430 $m^2$ (1961)

- Alternative fuel of firewoods: coal briquette
  – Change of fuel consumption structure -Remodeling kitchen fire holes: supported by UNKRA (United Nations Korean Reconstruction Agency)

- Establishment of Forests for fuel woods
  - 5 year plan for constructing 'forests for fuel woods' (1959)

# 4.2. Integrated Policies

## 4.2.1. Food Policies

- Food for work
  - Providing wage and food (e.g. flour as aid goods by USA)
  - Planting trees, gathering seeds, transporting fertilizers and seedling
  - Non-timber forest products from planted trees e.g. acorn, chestnuts

  → Offering meals to poor people

  → Offering jobs to people without distinction of sex or age

# 4.2. Integrated Policies

## 4.2.1. Economy Policies

- Economic Development Plan including the national forest plans
- Employment
  - Providing wage and food (e.g. flour as aid goods by USA)

# 4.3. Public Participation

- Forestry Cooperatives
  - Transfer of professional knowledge on forestry
  - Promoting citizens' participation
  - PR of national greening policies

- Local Communities
  - ' Forest-Gae' by forest owners and local residents to protect forests

  1,038 protection areas – prohibition of entering into forests, clearing forests and collecting forest products
  - New Village Movement (Diligence, Self-help and Cooperation)
    - Householders' income increase gathering seeds
    - Linked with energy and welfare strategy

# 5. Conclusion

**Three Principles for Reforestation Policies**

- ***Principle 1: Policy Instrument Mix***

  All three policy instruments (regulatory, economic and informational instruments) shall be mixed for reforestation.
- ***Principle 2: Policy Integration***

  Policies between forest and non-forest sector (energy, food and economy) shall be integrated for reforestation.
- ***Principle 3: Public Participation***

  General public and communities shall take part in the process of reforestation.

# Literatures


- Bae, J.S., Joo, R.W., Kim, Y.-S., 2012. Forest transition in South Korea: reality, path and drivers. Land Use Policy 29(1), 198-207.
- Briassoulis, H., 1988. Policy integration for complex environmental problems: the example of meditarranean desertification. Athenaeum Press.
- Habermas, J., 1998. Between facts and norms: Contribution to a discourse theory of law and democracy (W. Rehg, Trans.). Cambridge, MA: the MIT Press.
- Krott, M. 2005. Forest Policy Analysis. Dordrecht, Springer.
- Lafferty, W. M. and Hovden, E. 2003. Environmental Policy Integration: Towards an Analytical Framework. Environmental Politics, 12(3): 1-22.
- Lambin, Eric F. & Meyfroidt, Patrick (2010) Land use transitions: socio-ecological feedback versus socio-economic change. Land Use Policy 27(2), 108-118.


**[comparative analyses of transitions to sustainable forest management and rehabilitation]**
**Case study, Republic of Korea**

# New-Village Movement and Greening Policy in the Republic of Korea

February 2013


***PARK Mi Sun & YOUN Yeo-Chang***
Seoul National University, Republic of Korea

# I. Introduction

## Context of Republic of Korea

- Korean forest transition in the 1970s
  - increase of the stocked forest area as a quantitative indicator
    - 2.6 million ha or 39% of the national forest area was reforested in Republic of Korea through implementation of two national forestation plans (1972-1987) (Bae, 2012)
  - increase of growing stock volume as qualitative indicator
- Korean successful experience on reforestation is estimated as a good case in developing countries (Noronha, 1981; Brown, 2008)
- Linkage between Saemaul Undong (new-village movement) and greening policy

# I. Introduction

## New Village Movement (Saemaul Undong)

- Government-lead movement in1970s
- Principal spirit:

  : Diligence, Self-Help, Cooperation
- Propaganda
  - "we can do it" : progressive approach
- Making villages new

# I. Introduction

- **New Village Movement (Saemaul Undong)**

1. Increasing village income
2. Greening
3. New urban village
4. Village Education

# I. Introduction

## Saemaul Undong in 1970-1981

- The 1st 10-year National Greening Project (1973-)
  - Forest Gye (mutual aid associations) – reforestation activities
  - Leaders training through SU education program
  - Incentives for positive involvement

  → employment for a large number of people

# I. Introduction

Saemaul Undong in 1970-1981

- Supply of fuelwood in rural area
- Replacing conventional firewood with anthracite coal by remodeling kitchen fire holes in rural homes

# 2. THEORY: POLICY ARRANGEMENT

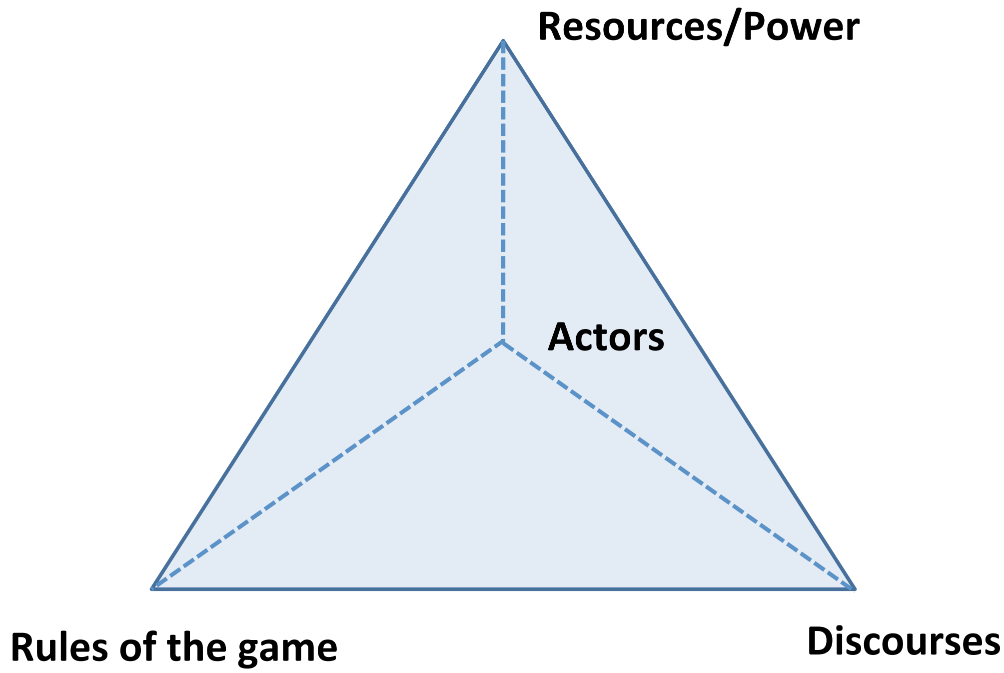
- Definition of Policy Arrangement:

  The temporary stabilisation of the content and organisation of a policy domain (Arts et al. 2006:96)

| Dimension | Definition |
|---|---|
| Discourse | a shared way of apprehending the issue |
| Actors | Policy actors and coalitions in policy making and imple mentation |
| Resources/ Power | Financial resources, production and strategic use of kn owledge, mobilisation potential by social movement |
| Rules of the game | Legislation, Procedures, substantive norms |

# 2. THEORY: POLICY ARRANGEMENT

## The Tetrahedron of Policy Arrangement



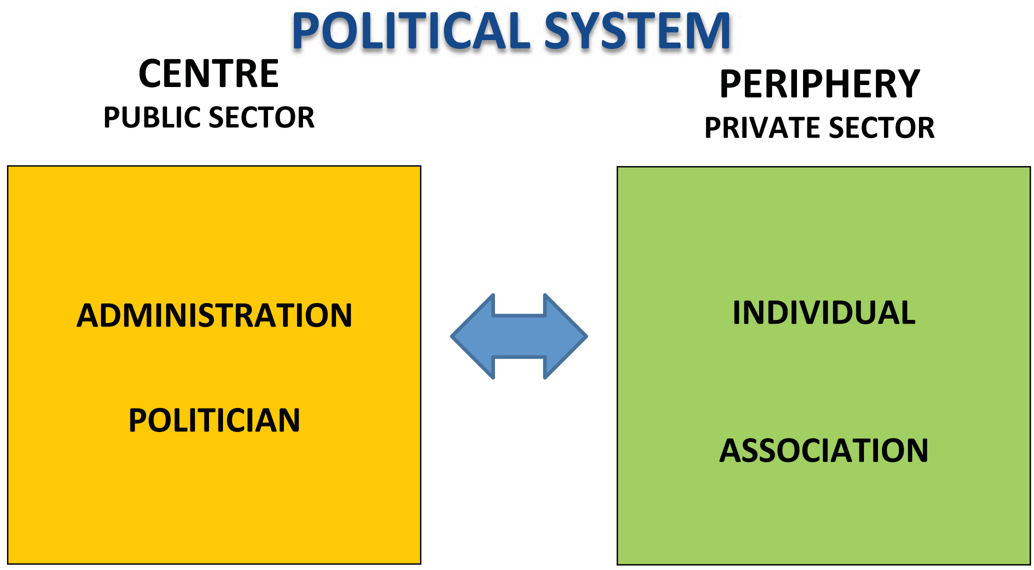

# 2. THEORY: POLICY ARRANGEMENT

## 2.1. DISCOURSE

- A shared way of apprehending the issue
  (Dryzek1997)
  – Norms
  – Values
  – Definitions of problems
  – Approaches to solution

# 2. THEORY: POLICY ARRANGEMENT

## 2.2. ACTORS & COALITION




Source: Applied from Habermas (1998)

# 2. THEORY: POLICY ARRANGEMENT

## 2.3. RULE OF THE GAMES

- Formal procedures of decision making and implementation
  - Legislation
  - Plan

- Informal routines of interaction within institutions

# 2. THEORY: POLICY ARRANGEMENT

## 2.4. RESOURCE/POWER

- **Administrative Power (Available resources)**
  - Money
  - Information
  - Personnel
  - Political legitimacy

# 3. RESULTS

3.1. Discourse

Discourse on rural development

- New Villages
- greening

# 3. RESULTS

## 3.2. Actors

- Political leadership by President PARK
- Coalition among ministries
  - The Korea Forest Service was moved into the Korea Ministry of Home Affairs from the Korea Ministry of Agriculture and Forestry in 1973
- Participation by farmers
- Forest related associations

# 3. RESULTS

## 3.3. Rules

- **Enforcement of regulations**
- **The 1st 10-year National Greening Project (1973-1978) – 1st NFP**
  - In 1978, the 100ha afforestation was achieved four years earlier than planned
  - Project for decreasing slash-and-burn fields (1974-1978)

# 3. RESULTS

## 3.4. Power/ Resources

- Administrative power of President
- Improved administration power of Korea Forest Service
- Centralized Power:
- Increase of national budget for new villages movement and greening
- Official propaganda, mobilization

# 4. Discussion

- Interaction of Discourse, Actor, Rule and Power/ Resource
- Limitation of PAA:

  Description of policy change
- Further analysis:

  causes of policy change, level of policy change

***THANK YOU!***