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From Greening to Sustainable Forest Management in the Republic of Korea

Introduction to Korean Forest & Forest Research

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Building a Green, Healthy and Resilient Future with Forests
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Outline

1. Greening : Forest Restoration in Korea

2. New demands in Forestry for the 21st Century

3. Role of Research & Research Institute

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I. Greening : Forest Restoration in Korea

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Korean Peninsula

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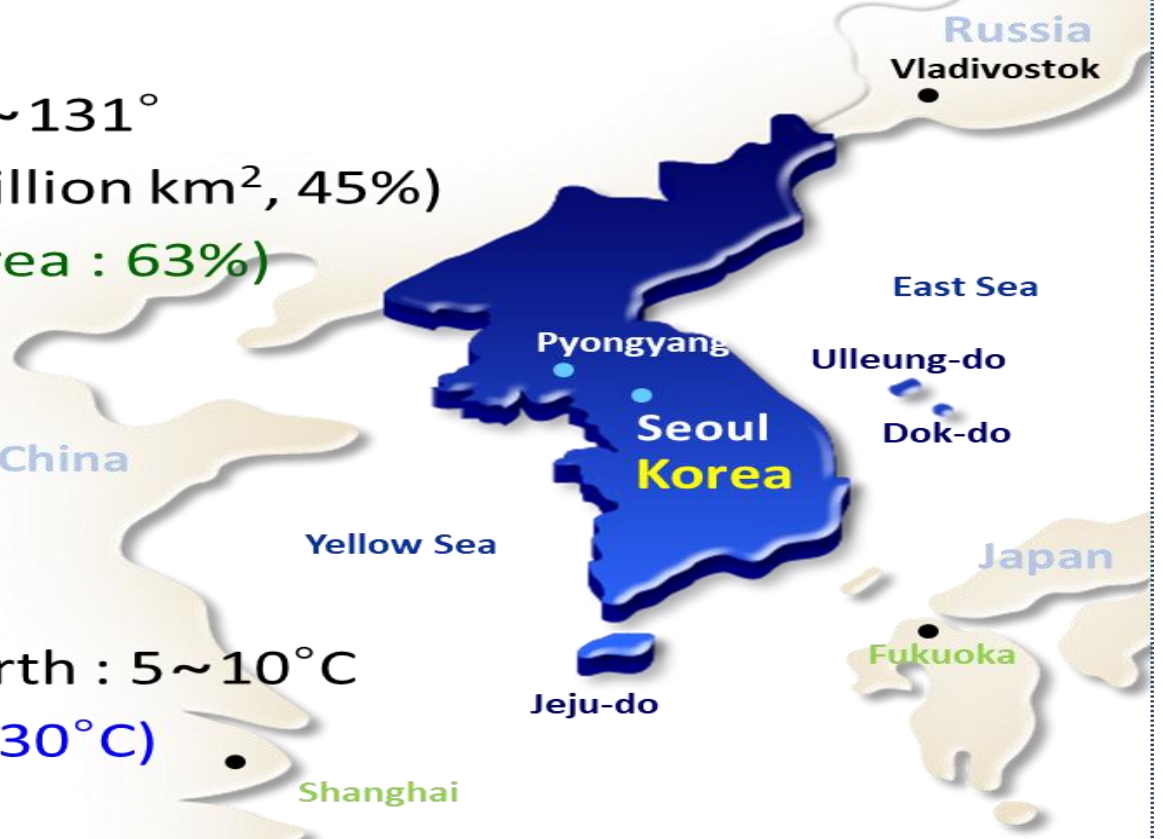
Geography

- Latitude : N 33°~43°, Longitude : E 124°~131°
- Land : 2.2 million km² (South Korea : 1 million km², 45%)
- Forest : 70% of total land area (South Korea : 63%)
- Average Elevation : 420 m



Climate

- Annual mean Temperature

  South : 12~14°C, Central : 10~12°C, North : 5~10°C

  ※ Cold winter : down to - 20°C (extreme -30°C)

- Annual mean rainfall : 500~1,500 mm

  ※ Heavy rainfall

  : 60% of rainfall is measured during monsoon (early summer)

State of Forests until 1960s

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Japanese colonial stage (1910 ~ 1945)

Overexploitation during the Japanese Occupation

- Overexploitation of timber
- Little plantation

During & After Korean War (1950 ~ 1953, ~ 1960s)

Korean War

- Devastation of whole forestland
- Use of fuelwood

► Forest stock : 6m³/ha (1953), 12m³/ha (1960)

Trials of Forest Restoration

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| With Laws and Plans |

Partial success, Slow progress

- 1945 Liberation from Japanese occupation
- 1946 Arbor day designation (April 5; early spring)
- 1950 Korean War broke out (~ 1953)
- 1951 Temporary Forest Protection Act
- 1952 3-year reforestation plan
- 1953 5-year erosion control plan
- 1954 2nd 10-year private forest reforestation plan
- 1958 10-year upstream soil conservation plan
- 1959 5-year fuelwood forest establishment plan

Planting by President Lee SM (1948~1960)

❖ **Lack of** government's will, budget, & diminutive public participation

What a Miracle !

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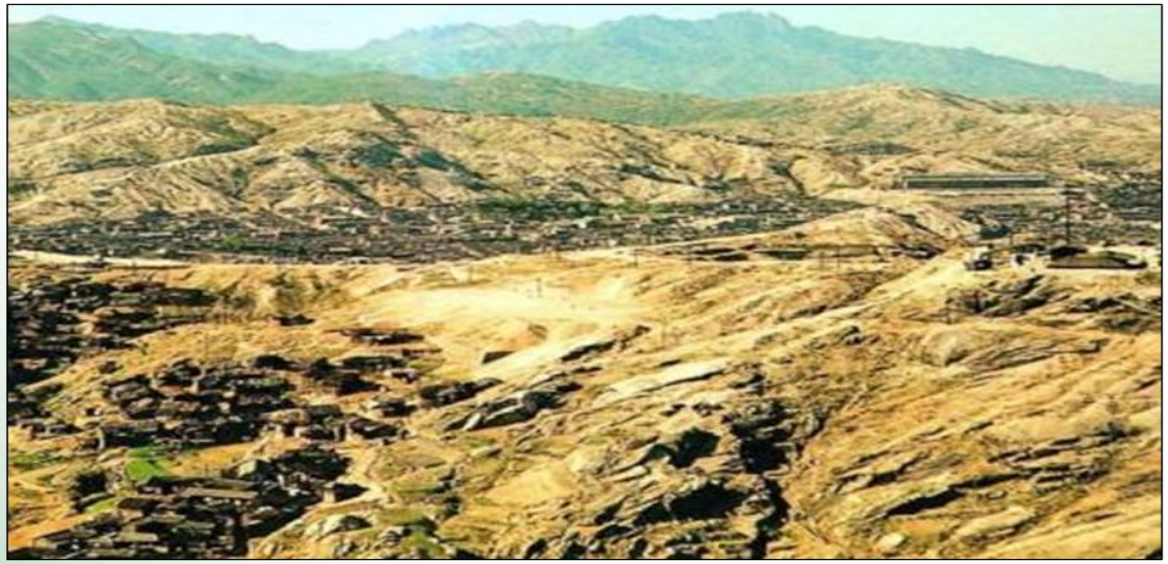
After Korean War (1953)



- GNI per capita : US $67 (475 times)
- Population : 26 million (~ 2 times)
- Forest Stock : 6 ㎥/ha (28 times)

Present (2020)

- GNI per capita : US$ 31,800
- Population : 51.8 million
- Forest Stock : 165 ㎥/ha

❖ How ?

Factors of Successful Greening

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| Multiple Factors |

Significant Changes in Policy - Leadership

- Reorganization of Forestry administration (1967, 1973)
  - Establish Korea Forest Service from bureau level to Administration
  - Move from Min. of Agriculture to Min. of Home Affairs (local government)
- Empowerment for cooperative participation with '**Saemaul Movement**'

Social Environment – Economic growth & Readiness

- Successful result of 'Resettlement policy' to prohibit the 'slash & burn farming'
- Changes in fuel from wood to coal (petroleum fuel)
- **Strategic Plan** & Practical Implementation
  - Under the support from scientific knowledge (with foreign countries' aid)
  - Field survey, Erosion control, righteous planting, monitoring

❖ **Strong Leadership, Social Condition, Systematic approach**

Fundamentals of Forest Restoration Policy

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| Science & Technology is the Basis |

- Forest greening projects should be developed by systematic policies including scientific and technological approaches.
- The technologies covering the processes preceded forestry policies.
- The 5 key technologies for successful forest greening (during 1960s)
  (i) Forest survey & inventory : understanding the situation
  (ii) Tree improvement : for long-term investment, selection of suitable trees
  (iii) Seeds & Nurseries : high-quality seedlings
  (iv) Tree planting & tending : not for a tree, but for making forests
  (v) Forest pest control : endless nurturing (until now)
- Some technologies contributed greatly to forest restoration coupled with cooperation with the private sector (extension, use of developed technique)

❖ **From fundamentals, but prior to the practical policy !**

By comprehensive (holistic) approach

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| With considering geo-climatic condition |

- **Keen interest in Economy & Forest**
  - Enactment of Forest Law : Dec. 27, 1961
  - Erosion Control Act : Jan. 15, 1962
  - Establishment of Korea Forest Service in 1967
    (enlarge the organization : bureau ⇒ agency)

Military Coup by General Park (May 16, 1961)

Management of
mountain & water
should be the first step
for national economy

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Military Coup by General Park (May 16, 1961)

- **Eradication of 5 major social ills**
  1. Smuggling
  2. Narcotics
  3. Illegal timber harvesting
  4. Gangster
  5. Quasi-reporter

※ Put 600 people into jail due to illegal logging in 1964

Incidence of large-scale illegal logging

Strategic approach for FLR* (1)

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* Forest & Landscape Restoration

PLAN (P)

Establishment of Plan at the National Level (1973 ~ 1987)

❖ Announcement of the 1st and 2nd 10-year Forest Rehabilitation Plans

❖ A Hard Copy of the 10-year Forest Rehabilitation Plan

- Landscape : A large area defined by common productive characteristics or administrative management including every component such as land, water, wildlife, people and so on

Strategic approach for FLR (2)

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DO (D)

Seed and Seedling Production (for righteous planting; step by step)

: proper tree species in each site (pioneer species & fertilizer trees such as legumes)

※ Poplars, Pines, Black locust, Alders

Strategic approach for FLR (3)

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CHECK (C)

Maintenance and Enforcement

: with 3rd step inspection system for checking survival rate of planted trees

- Cross-Inspector from other County (city), Province & Federal government
- Survival rate (90% in average) was linked into the evaluation of government officials

※ Limit of replanting (impossible to use false trick)

⇒ Sincere efforts (irrigation, fertilizer) & Implementation of science, technology (in addition, preventing corruption)

Strategic approach for FLR (4)

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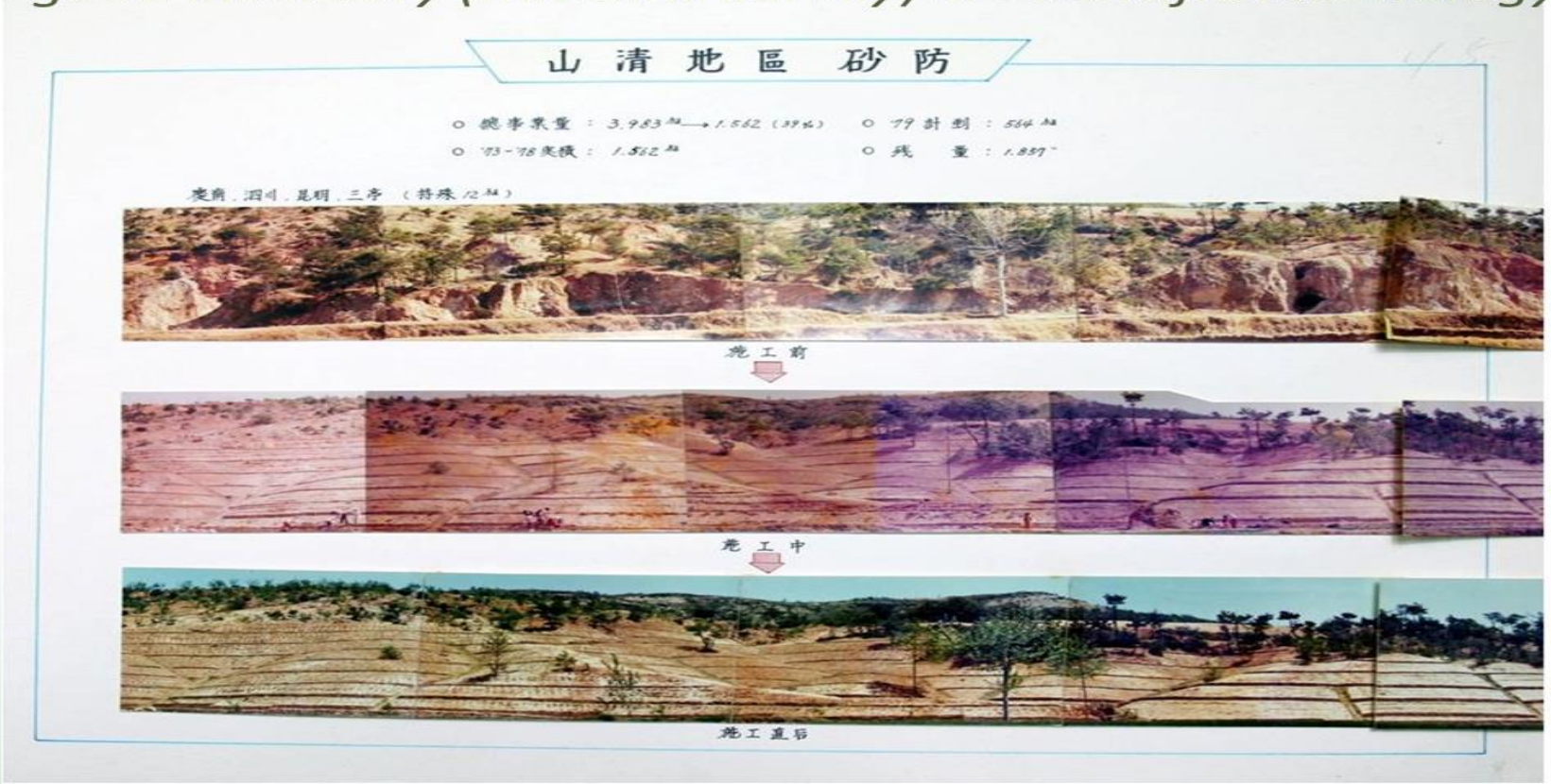
ACT (A) : Not only planting, but also with good care

Erosion Control, Fuel-wood Plantation, Reforestation (tending)
: under good inventory (national survey) & scientific technology



- Before the project
- During the project
- After the completion

Strategic approach for FLR (5)

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ACT (A)

Participation, Governance

Spiritual campaign : Patriotism

"If you love your country, plant trees"

Summary – Way to get Successful Greening

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| Strategic approach & Strong leadership |

Plan – Do – Check – Act (PDCA) strategy

- Establishment of plan at the National Level
  - Based on Fundamental Study : *Forest soil & Forest resources Survey*
    ※ under the support of UNDP, FAO, GTZ (GIZ; Germany)
  - ***1st (1973~1978) and 2nd (1979~1987) 10-year Forest Rehabilitation plans***
- Practical choice for righteous planting : considering survival rate, fertility
  - With production of Seed and Seedling : *Seed orchard, Nursery clusters*
  - Black locust, Alder, Pitch pine, Poplar … ***for greening*** (vs. future use)
- **Maintenance** and enforcement : 3rd step tree inspection system
- Consensus from people : Erosion control for cropland, fuelwood plantation
  - With empowerment for the planting activity : appeal to patriotism

II. New Demands in Forestry for the 21st century

Importance of Public Relations

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| Identity of Forest Management (FM) ? |

Lack of awareness for the role of forest & forestry

- Fact : Forest Rehabilitation took a key role for rural development in Korea
  - In a rocky country, FM is the base for preventing flood (for stable farming)
  - Ultimately, FM was one of the key components for economic development
- However, the public says — No forester is needed, anymore !
  - Yes, Planting tree is good !
  - But, Planting forest is not good, because it is almost useless.
  - Trees are growing naturally, it is easy to make our land green.
- Needs to enlarge awareness of the role of forest & forestry
  - Forest still provides us lots of benefit such as ecosystem services
  - Forest needs continuous tending as nurturing kids

❖ **Expect free service since considering forest as natural (free) products**

Relevant Approach

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| Changes in Forest Management |

Beyond greening : Paradigm Shift

- 1st and 2nd 10-year plan (1973~1987) Forest Rehabilitation Projects
  - Not for forest management but just for greening
  - No demand from publics for profit at the greened area
- 3rd 10-year plan (1988~1997) Development of Forest Resources
  - With stable and better condition of forest land
  - Not just for forest covering but for forest resource management
- 4th 10-year plan (1998~2007) Pursuing Sustainable Forest Management
  - Long-term forest management with considering public needs
  - New demands : profit return, ecosystem service, etc.
- 5th 10-year plan (2008~2017) Forest as a key player of Green Economy
- 6th National Forest Plan (2018~2037) Forest as a solution for Social problems

❖ **New needs from public (practical profit, ecosystem service, NbS)**

Change in awareness for the Role of forest

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| Forest provides diverse benefit |

[Land Management]	[Environment Conservation]	[Forest Industry]
Material Production	Ecosystem management	Sustainable Forestry

Supply

- Lumber (wood)
- Food, medicine
- Clean water
- Genetic resource

Control

- Protect natural disaster
- Filtering pollutants (Clean air and water)
- Mitigation of climate change

Cultural Service

- Scenic view
- Recreation, therapy
- Cultural heritage
- Spiritual service

[Fundamental] **Supporting** (soil, biodiversity, gene conservation, *etc.*)

For the whole people

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| Benefits both for the present & the future |

Forest that contributes to National happiness through Virtuous circle

- Sustainable Forest Management(SFM)
  - 18C in Germany, Normalized stand : Focused on timber production
  - Sustaining growing stocks by harvesting under the annual growth
- New SFM in 21st Century : Forest for the Green Growth
  - For the production of practical profits for the rural residents
  - For creating jobs : tending activity for nurturing forest by specialist
  - Interest from general people (in addition to traditional foresters)
- Sustainable Development(SD) in forest & forestry
  - **Good forest** is the starting point for the happy future
  - Comprehensive & long-term strategy is the prerequisite for relevant use
  - Not just for the forest products, but for the people in relation to forest

❖ **Not just for foresters !**

With Global society

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| Sustainable Development Goals (SDGs) |

Forest for Peace & Happiness

- Sustainable Forestry
  - Normalized forest not only for timber, but sustainable income
  - To sustain the resilience of mother nature (forest ecosystem)
- Sustainable Development in Forestry
  - Good forest is the starting point for further progress in forestry
  - Comprehensive and long-term plan is a prerequisite of proper use
  - Need to focus on people rather than just on forest & forest products
- To keep/expand the function of forest as the ecosystem service provider
  - Various SDGs targets : 1(livelihood), 2(food), 5(equity), 6(water), 8(job), 13(climate change), 15(terrestrial ecosystem), 17(global partnership)
  - Holistic approach to keep 'homeostasis' of global society

❖ **It is time to think about forestry from new perspective !**

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III. Role of Research & Research Institute

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Acquisition of Korean Greening from Abroad

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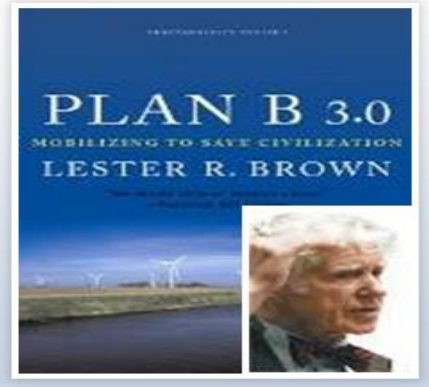
FAO Report (1982)

※ Rural development & reforestation

- Korea is the only one developing country succeeded in greening after world war II

Plan B 2.0 (2006)

- Lester Brown, Global environmental activist
- Posted the Korea's success story of reforestation as a model in developing countries



Vision & Strategies

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VISION

Be a leader for the issues of global forestry

STRATEGIES

Establish international network through knowledge sharing

Merge reforestation technology (RT) in combating desertification, REDD+

Contribute to the international community for Sustainable Development Goals by forestry

Development of new technology and policy in Forest Ecosystem Service

Role of forest research in Greening

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| From failure, by way of understanding & scientific approach |

- Huge amount of planting (from 1945~1960s)
  - But, most planted tree couldn't survive in our geo-climatic conditions
  - Meaningless efforts to make a good forest
- Start from understanding & preparation (during 1960s~1970s)
  - With the aids from UNDP, FAO & Experts from developed countries
  - Survey, Research & Developing suitable technique in our country
    : Tree improvement, seed & seedling propagation, pest control & tending
- Can be applied to combat climate change / desertification
  - Failure is more valuable experience than successful story
  - We could get good achievement from the support of international society
    : Scientific approach with self-reliant & enthusiastic activity

Comprehensive & Scientific approach was the key for successful greening !

Importance of Public Relations & Logic development

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| Acquisition of the value & the role of forestry |

- Planting tree is good, but planting forest is not good !
  - Focused on greening only. No drivers for perspective earnings.
  - Generation of profits, jobs and vision from forest is essential
- Paradigm shift from Traditional Forestry to New Forest Industry
  - Internalization of Ecosystem benefits to Practical profit
  - Acquisition, Willingness to pay, Practical return to forest owners / workers
  - New business : 6th industry "1st X 2nd X 3rd industry"
- **Direct Payment Program for Forest sector**
  - (Law) Come into effect this year with considering forest as a public goods
  - (Prospect) Service payment system for each ecosystem services

※ Need to develop a logic to support the policy

Research & Development for new paradigm !

For the future : Breakaway from Forestry

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| Era of Fusion & Cooperation |

- Cooperation with other sectors
  - Avoid fragmentation : not just for forest, but people and social problems
  - Research topics that reflect social & cultural trend
  - Nexus with rural development, climate change, humanitarian aid, *etc.*
- Self-reform : From Content to Context (capacity)
  - From routine task to non-routine task
  - Not for the past / present but for the unpredictable future
  - Seek cross-cutting issues in relation to forest & forestry
- Local to Global & 'Glocal'
  - International cooperation and networking is essential
  - Learn each other [ex.] Traditional knowledge in developing countries

International Cooperation would be a clue for survival !

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SAVE OUR FORESTS

Forest is the Source of Life!

Building a Green, Healthy and Resilient Future with Forests

2–6 May 2022 | Coex, Seoul, Republic of Korea