

## From Greening to Sustainable Forest Management in the Republic of Korea

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# *OUTLINE*

- 1. Greening : Forest Restoration in Korea*
- 2. After the Successful Restoration*

# I. Greening : Forest Restoration in Korea

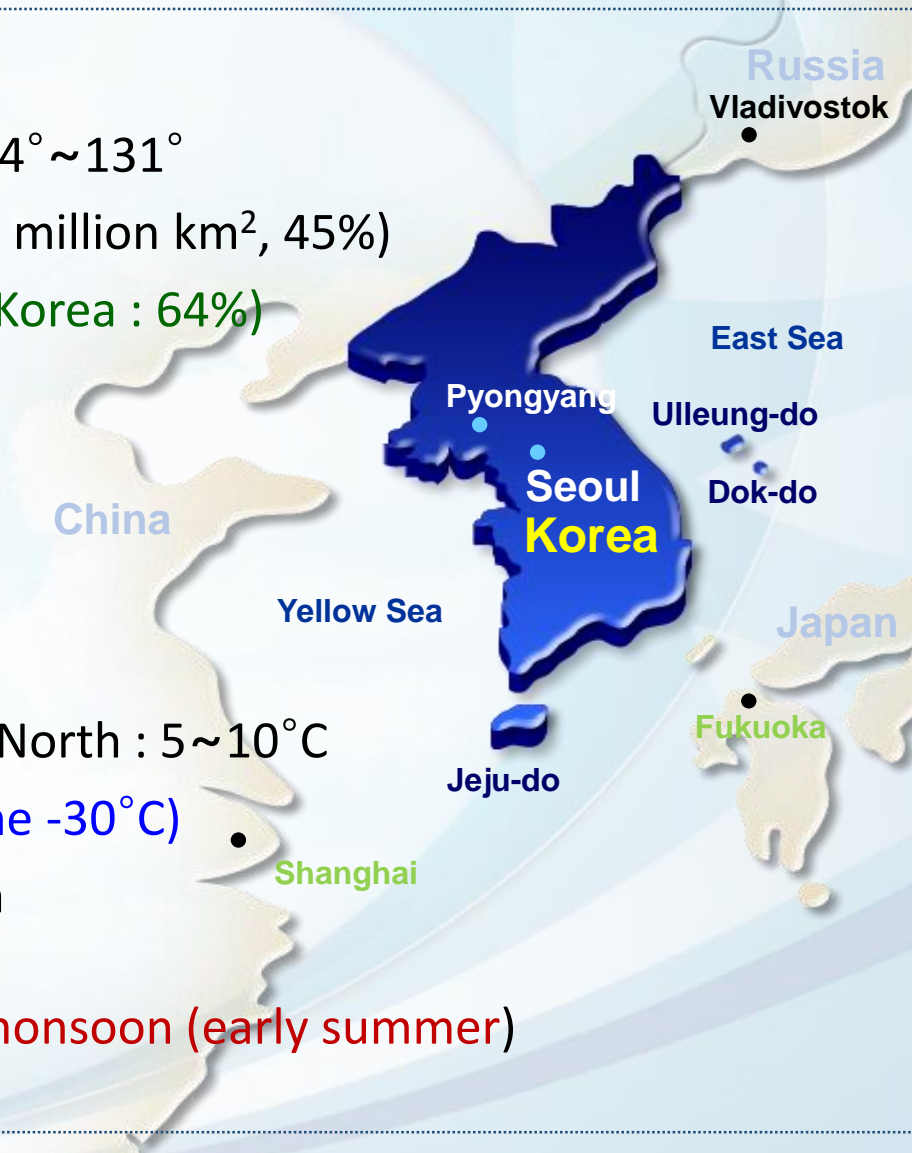
# 01. Korean Peninsula

## ❖ Geography

- Latitude : N 33° ~ 43°, Longitude : E 124° ~ 131°
- Land : 2.2 million km<sup>2</sup> (South Korea : 1 million km<sup>2</sup>, 45%)
- Forest : 70% of total land area (South Korea : 64%)
- 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)



## 02. State of Forests until 1960s

### Japanese colonial stage (1910 ~ 1945)



- Overexploitation of timber
- Little plantation

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



- Devastation of whole forestland
- Use of fuelwood

▶ Forest stock : 6m<sup>3</sup> (1953), 12m<sup>3</sup> (1960)

# 03. Trials of Forest Restoration

## | 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 2<sup>nd</sup> 10-year private forest reforestation plan
- 1958 10-year upstream soil conservation plan
- 1959 5-year fuelwood forest establishment plan

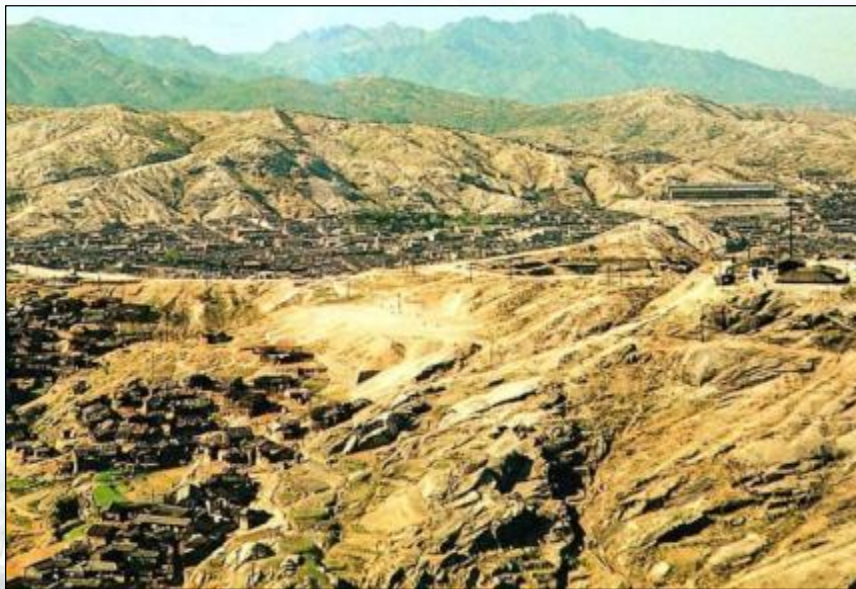


Planting by President Lee SM  
(1948~1960)

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

# 04. What a Miracle !

## After Korean War (1953)



- ❖ GNI per capita : US \$67 (420 times)
- ❖ Population : 26 million (~ 2 times)
- ❖ Forest Stock : 6 m<sup>3</sup>/ha ( 25 times)

## Present (2014)



- ❖ GNI per capita : US\$ 28,000
- ❖ Population : 50 million
- ❖ Forest Stock : 150 m<sup>3</sup>/ha

❖ How ?

# 05. Factors of Successful Greening

## | 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

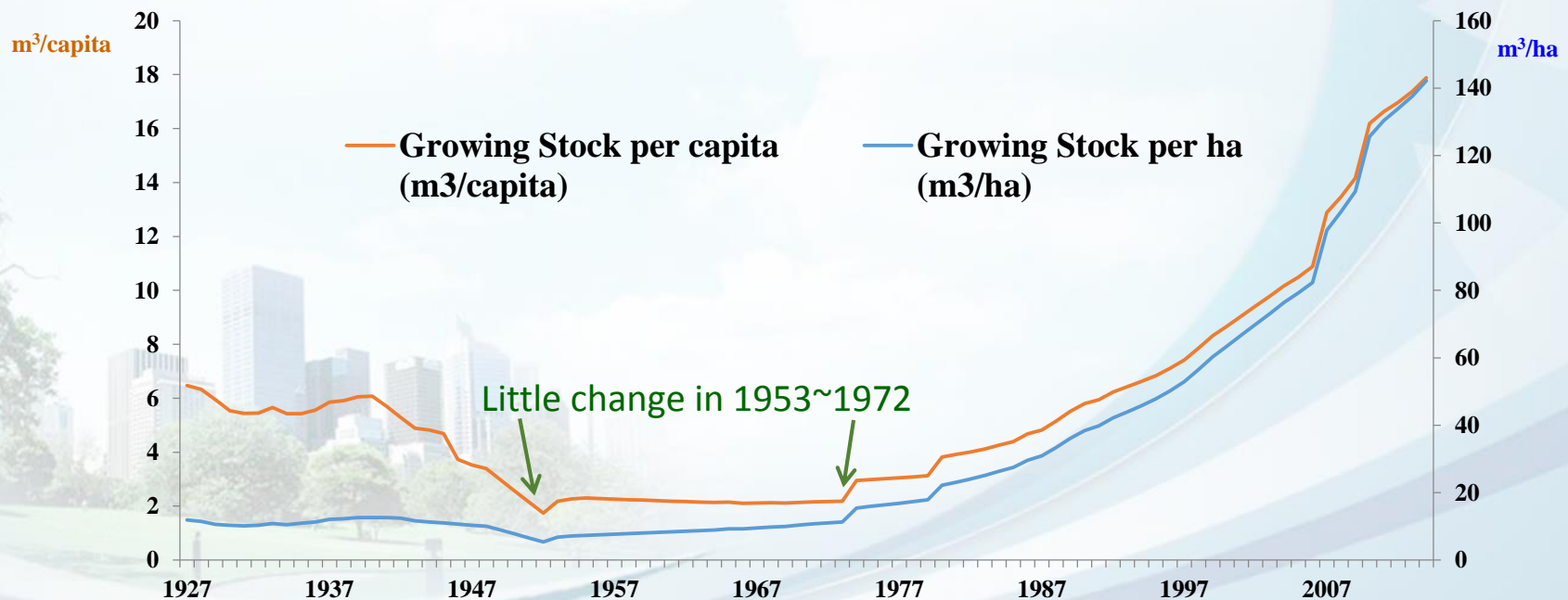
- Successful result of 'Resettlement policy' to prohibit the 'slash & burn farming'
- Changes in fuel from wood to charcoal & petroleum fuel
- **Strategic Plan** & Practical Implementation
  - ❖ Under the support from scientific knowledge (with foreign countries' aid)
  - ❖ Field survey, Erosion control,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

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

## 06. In fact ~ History of Forest Restoration (FR)

### | Continuous Failure, Kept a plateau in Forest Stock |

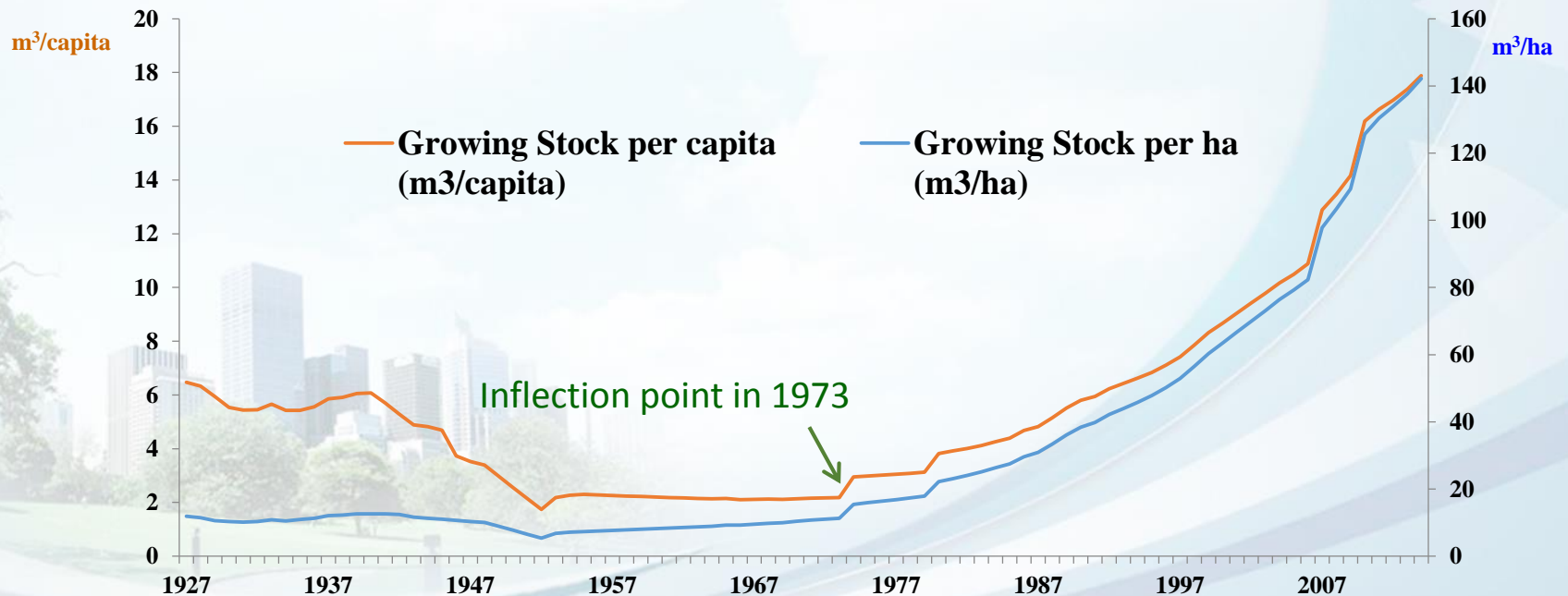
- Considerable devastation to the Forests in Korea until early 1950s
  - ❖ During Japanese occupation (1910-1945), Korean War (1950-1953)
  - ❖ Due to poor condition (1953-1970s): for fuelwood, for cropland
- Remained stagnant until 1972, despite of considerable efforts to rehabilitate



# 06-1. New Perspectives for the Momentum of FR

## | The inflection point - 1973 ? |

- Sudden change in slope of forest growing stock from 1973
  - ❖ As an outcome of 1<sup>st</sup> 10-year forest greening plan (1973-1978) ?
- At least 5 years prior to get statistics ... then, from 1967
  - ❖ Growing stock is calculated targeting only for trees thicker than 6cm in DBH



## 06-2. Readiness – Fundamentals for FR policy

### | 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 & tendering : 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 !**

# 07. From a holistic approach

## | 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)

- Eradication of 5 major social ills

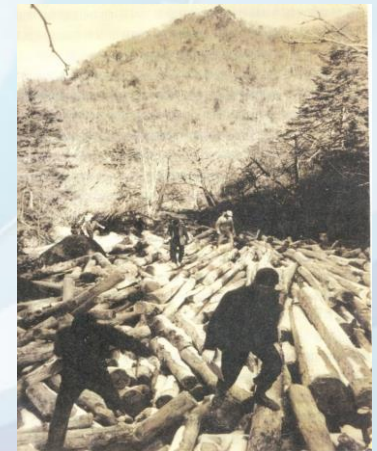
1. Smuggling
2. Narcotics
3. Illegal timber harvesting
4. Gangster
5. Quasi-reporter

治山治水

一九七七年四月五日  
大統領 朴正熙

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

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



Incidence of large-scale illegal logging

# 08. Strategic approach for FLR\* (1)

\* Forest Landscape Restoration

## PLAN (P)

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



❖ Announcement of the 1<sup>st</sup> and 2<sup>nd</sup> 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 (ex. Production region, supply-shed, eco-region, biome, state, municipality)

# 08-1. Strategic approach for FLR (2)

## DO (D)

### Seed and Seedling Production (for righteous planting)

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



## 08-2. Strategic approach for FLR (3)

### CHECK (C)

#### Maintenance and Enforcement

*: with 3<sup>rd</sup> step inspection system for checking survival rate of planted trees*



- ❖ Cross-Inspector from 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

# 08-3. Strategic approach for FLR (4)

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

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

山清地區砂防

○ 總事業量 : 3,983M → 1,562 (39%)    ○ 79計劃 : 564M  
○ 73-78実績 : 1,562M                    ○ 残量 : 1,897M

炭南, 泗川, 昆明, 三亭 (特殊/2M)

❖ Before the project

❖ During the project

❖ After the completion

施工前

施工中

施工直后

## 08-4. Strategic approach for FLR (5)

### ACT (A)

#### Participation, Governance

#### Spiritual campaign : Patriotism

**“If you love your country, plant trees”**

*Park, Chung-hee  
Late President of the Republic of Korea*

# 09. Summary - Way to get Successful Greening

## | 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)
  - ❖ **1<sup>st</sup> (1973~1978) and 2<sup>nd</sup> (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 : 3<sup>rd</sup> step tree inspection system
- Consensus from people : Erosion control **for cropland, fuelwood** plantation
  - ❖ With empowerment for the planting activity : appeal to patriotism



## II. After the Successful Restoration

## | Changes in Forest Management |

### Beyond greening : Paradigm Shift

- 1<sup>st</sup> and 2<sup>nd</sup> 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
- 3<sup>rd</sup> 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**
- 4<sup>th</sup> 10-year plan (1998~2007) **Pursuing Sustainable Forest Management**
  - ❖ **Long-term** forest management with considering public needs
  - ❖ New demands : profit return, ecosystem service, etc.
- 5<sup>th</sup> 10-year plan (2008~2017) **Forest as a key player of Green Economy**
  - ❖ **New needs from public** (practical profit, ecosystem service)

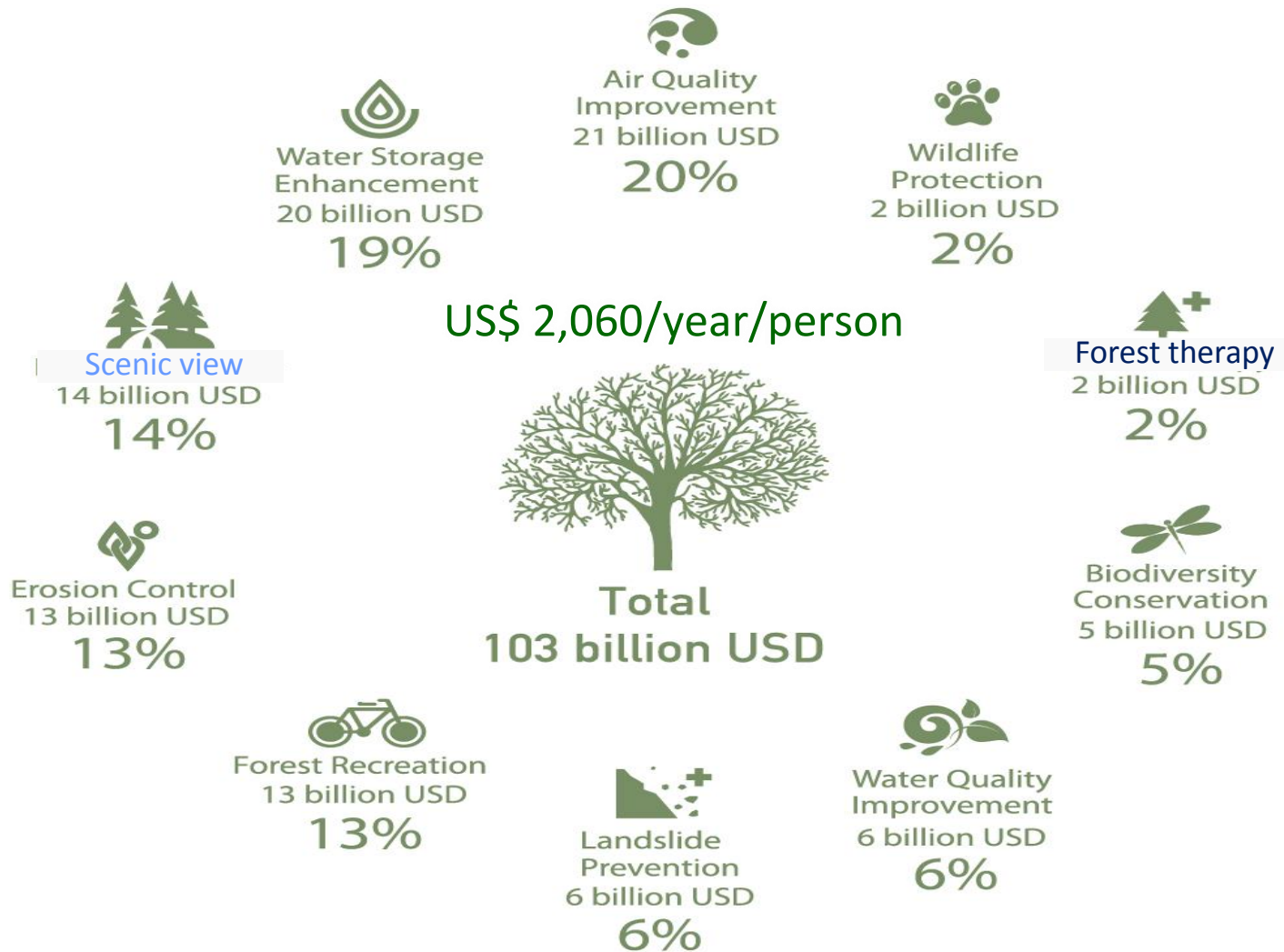
## 02. Importance of Public Relations

### | Identity of Forest Management (FM) ? |

#### Awareness of 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
    - ❖ 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 tendering as nurturing kids**
- ❖ **Forestry as the 1<sup>st</sup> and 2<sup>nd</sup> industry is not attractive to public in Korea**

# 03. Forest Ecosystem Services



### | Sustainable Development Goals (SDGs) |

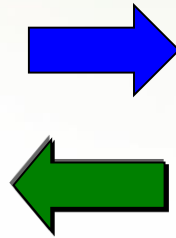
#### Forest for Peace & Happiness

- Sustainable Forest management      ✕ Focused on the Yield of timber
  - ❖ Normalized forest (developed in 18<sup>th</sup> century from Germany)
  - ❖ Harvesting timber as the same amount as the growth of stand
- Sustainable Development in Forestry
  - ❖ Good forest is the starting point for further progress
  - ❖ 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 !**



**SAVE OUR FORESTS**



**Forest is the Source of Life!**