



# Investing in Natural Capital for Green Growth in Lao PDR:

Presentation  
Green Growth Forum 2022

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# So what is capital?

- ▶ First of all, **capital** is the building block of green growth and development
  - ▶ **Capital** is the assets that are used to **produce goods and services**
  - ▶ Forms of capital are:
    - ▶ **Produced capital** (the stock of infrastructure, factories and equipment, etc.)
    - ▶ **Human capital** (the stock of physical labour, skills and knowledge, creativity and ingenuity, etc.)
    - ▶ **Natural capital** (the stock of natural resources that provide goods and services)
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# How do we calculate the value of Natural Capital?

In two steps:

First we calculate the **annual rent** from natural capital (e.g. water used for hydropower electricity production):

the value of a good or service (e.g. electricity)	\$ 100
- cost of produced capital	- 60
- cost of human capital (labour)	- 5
- cost of O&M	<u>- 5</u>
= annual rent from natural capital (water)	\$ 30

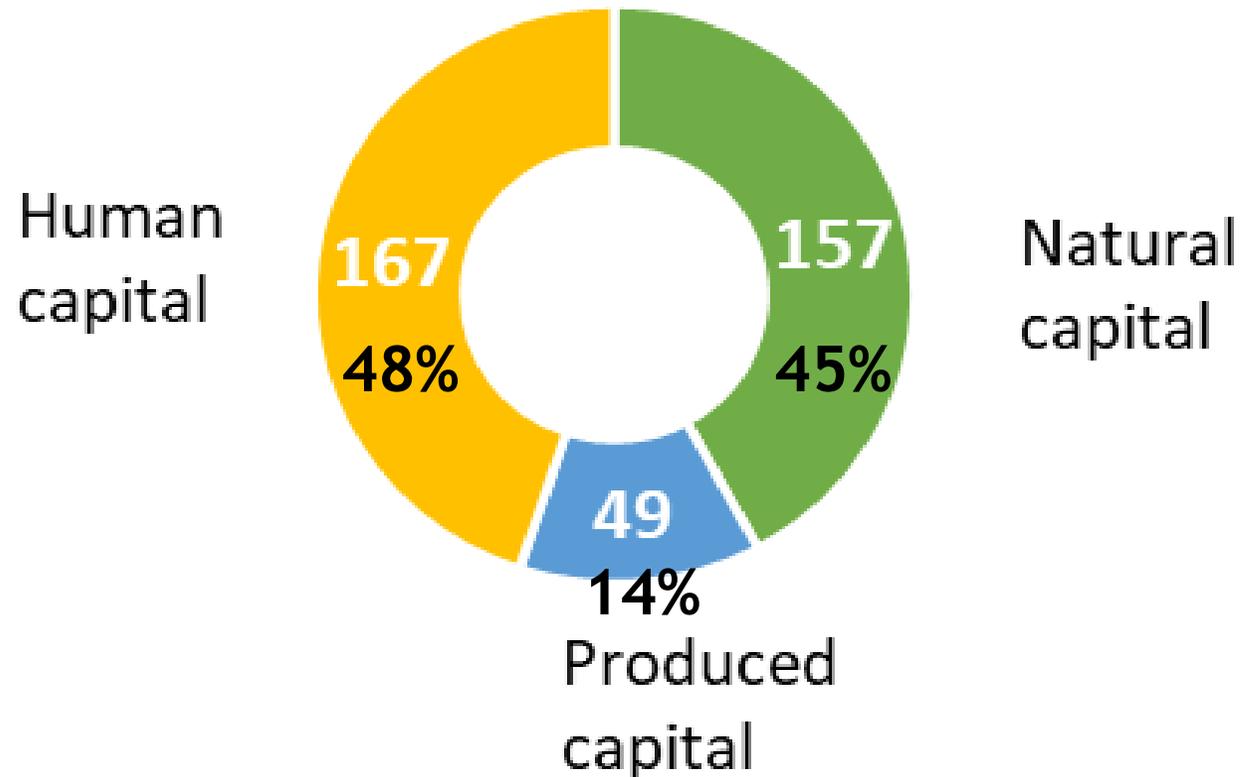
Value of natural capital =  $\sum_{i=0}^{i=n} \$30 / (1 + d)^n = \$ 550$

# What is the value of Natural Capital in Lao PDR?

Total wealth =  
human capital +  
produced capital +  
natural capital +  
net foreign assets  
(Net foreign assets is -7% of total wealth)

Source: Human and produced capital is from World Bank (2021): The Changing Wealth of Nations. Natural capital is from Valuing Lao Landscapes (World Bank, 2021).

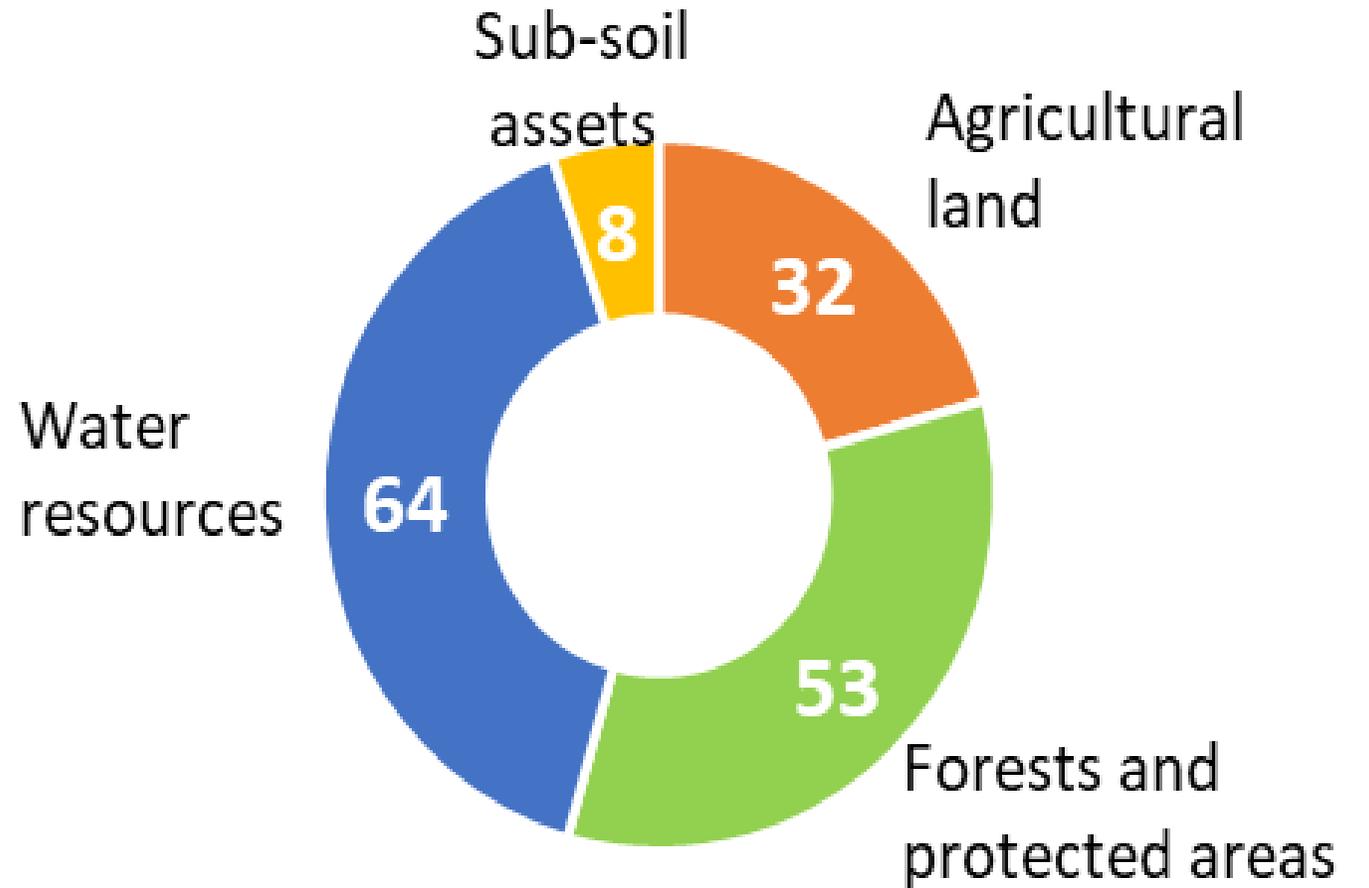
Figure 1a: Value of Capital of Lao PDR (US\$ billion, 2018)



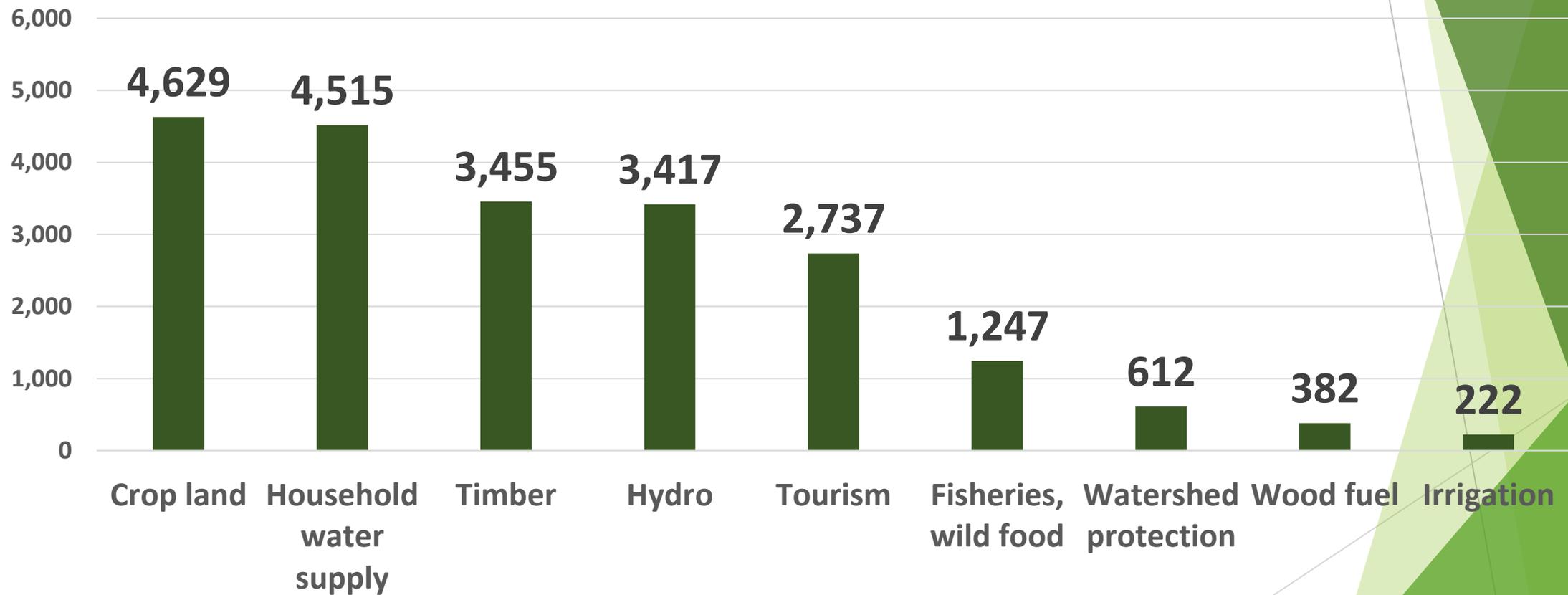
## Value of natural capital in Lao PDR

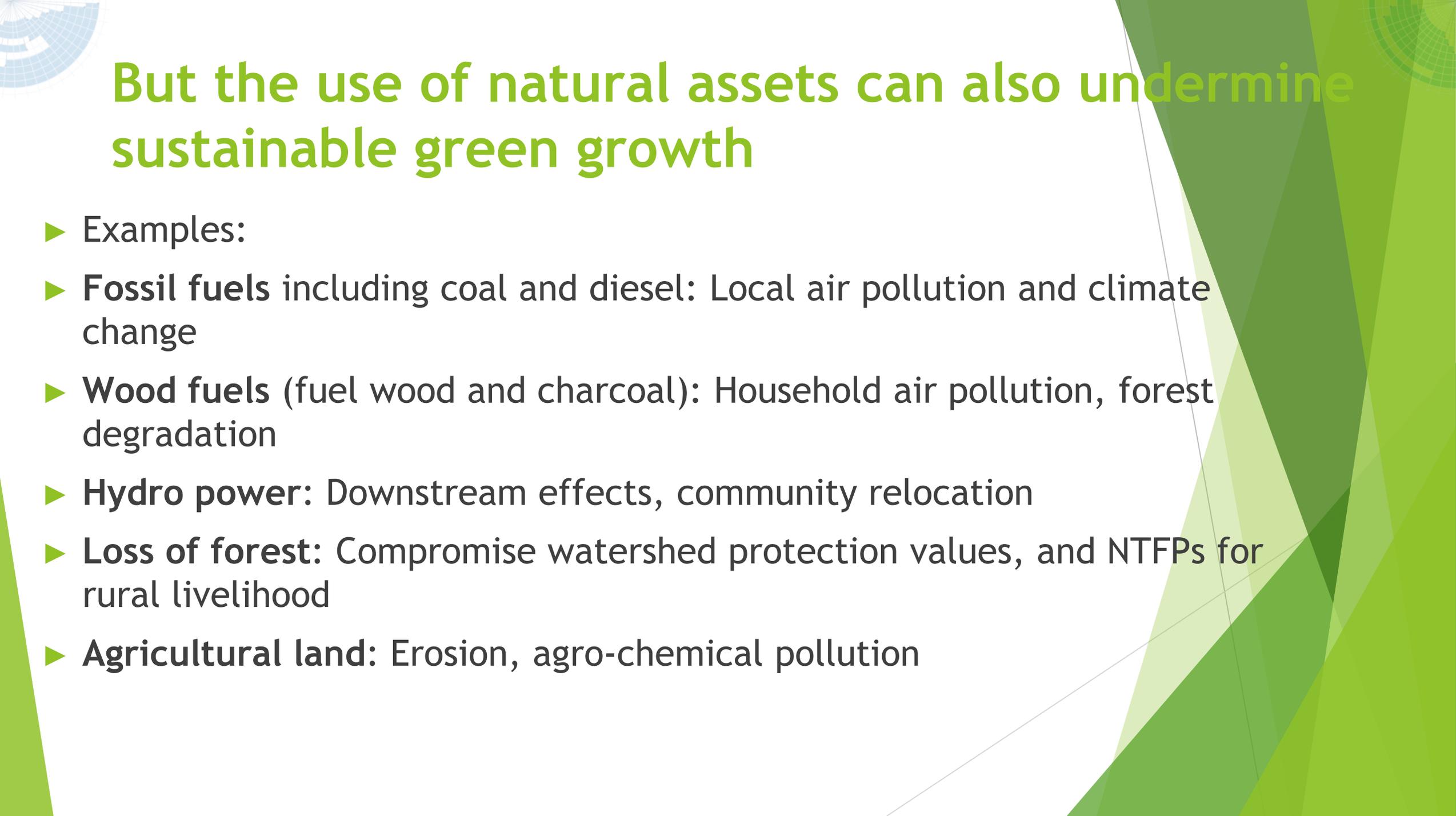


Figure 2: Value of natural capital in Lao PDR  
(US\$ billion, 2018)



# Natural Capital Values (NCV) in Lao PDR (US\$ per Capita, 2018)



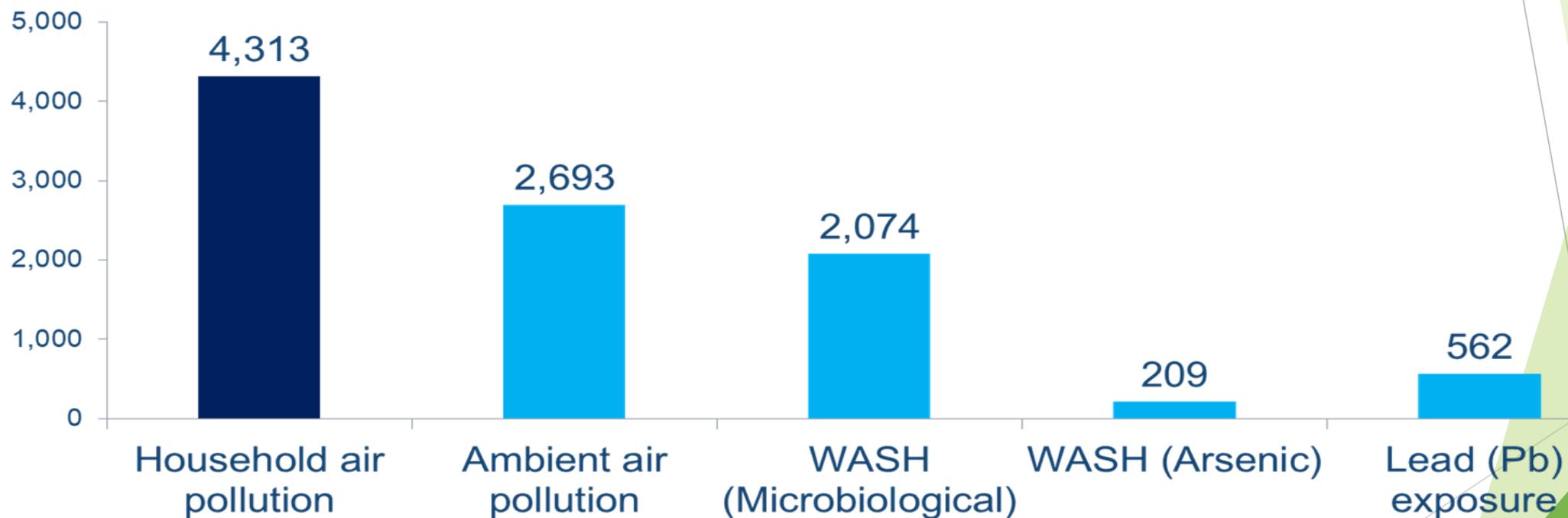


# But the use of natural assets can also undermine sustainable green growth

- ▶ Examples:
- ▶ **Fossil fuels** including coal and diesel: Local air pollution and climate change
- ▶ **Wood fuels** (fuel wood and charcoal): Household air pollution, forest degradation
- ▶ **Hydro power**: Downstream effects, community relocation
- ▶ **Loss of forest**: Compromise watershed protection values, and NTFPs for rural livelihood
- ▶ **Agricultural land**: Erosion, agro-chemical pollution

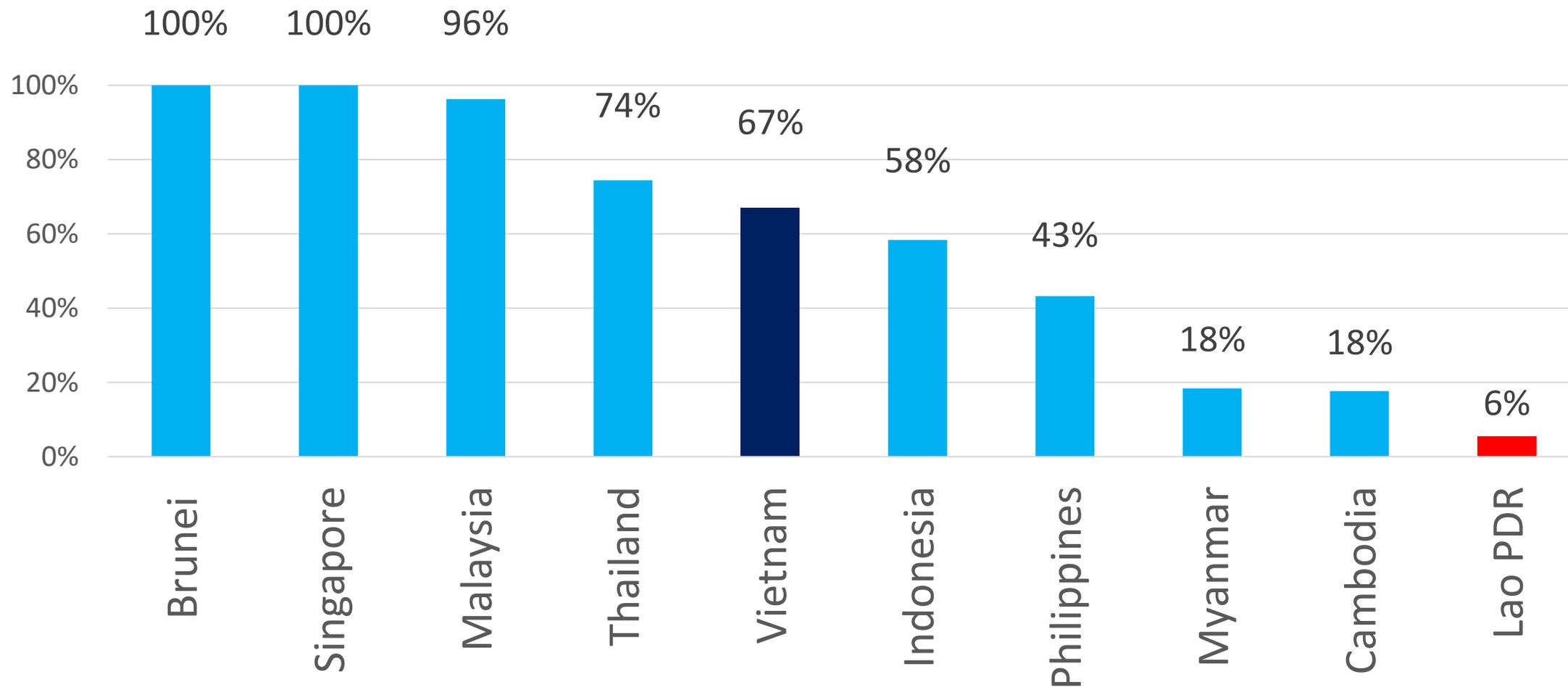
# An example from Lao PDR

Use of wood fuels for cooking (household air pollution):  
Annual deaths



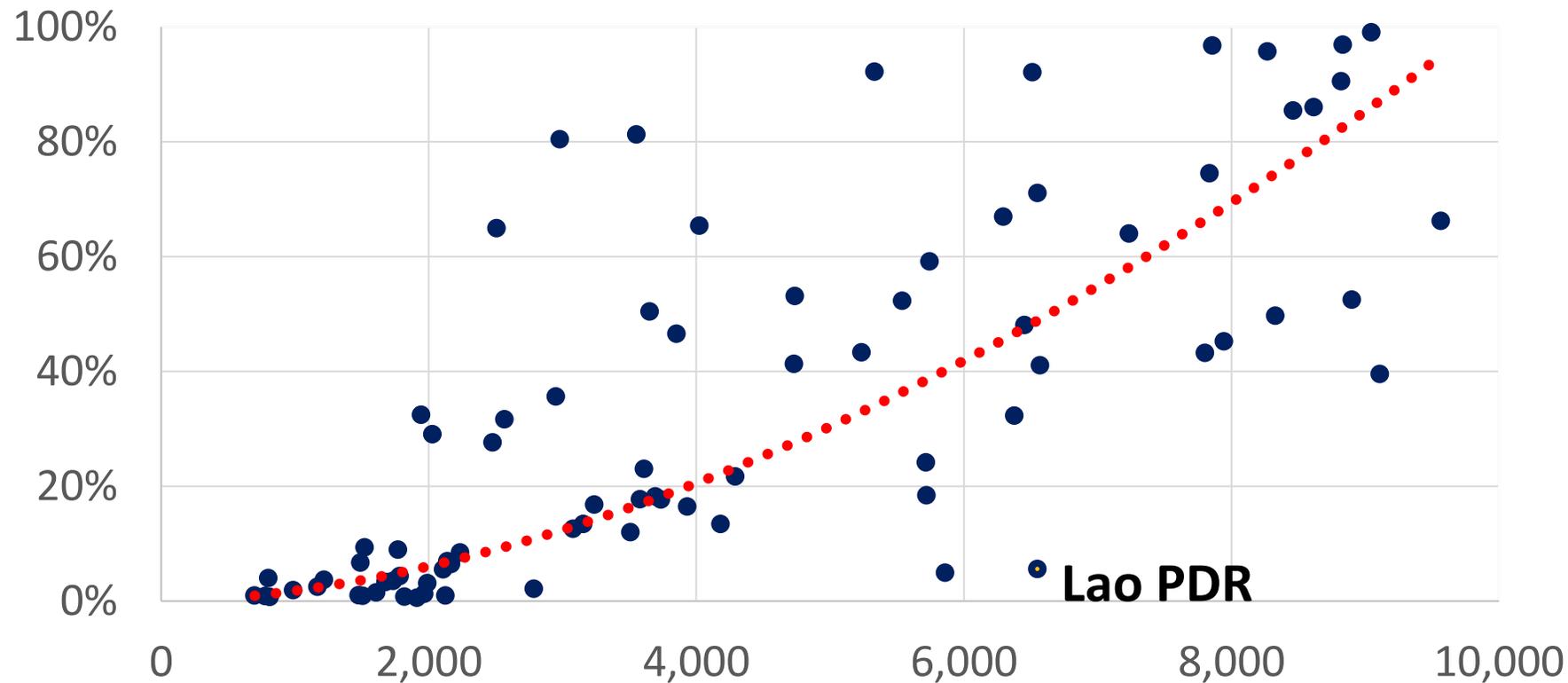
Source: World Bank 2021. Environmental Challenges for Green Growth and Poverty Reduction: A Country Environmental Analysis for the Lao PDR

# Use of Clean Energies for Cooking in ASEAN. 2016 (% of population)



Source: World Bank 2021.

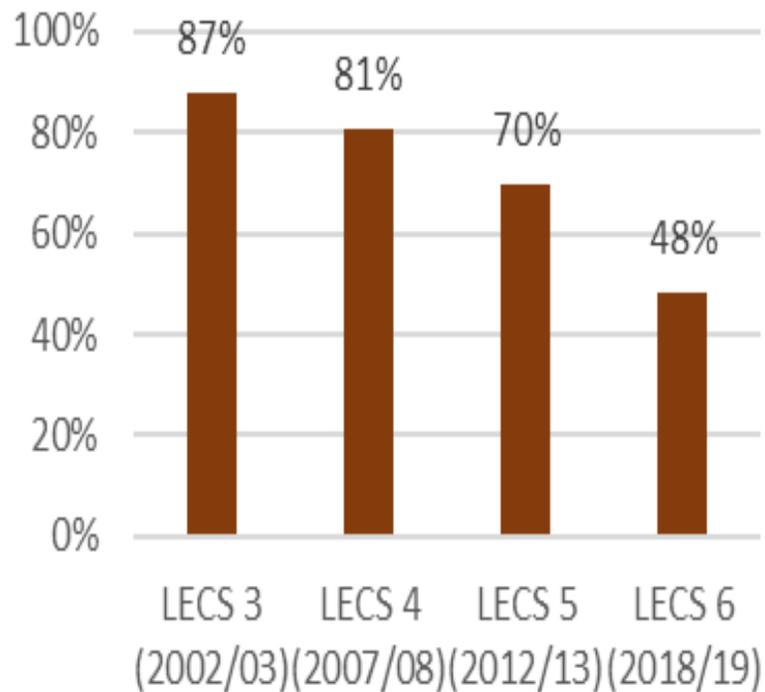
# Population Use of Clean Energies for Cooking in Relation to GDP per Capita (\$ PPP), 2016



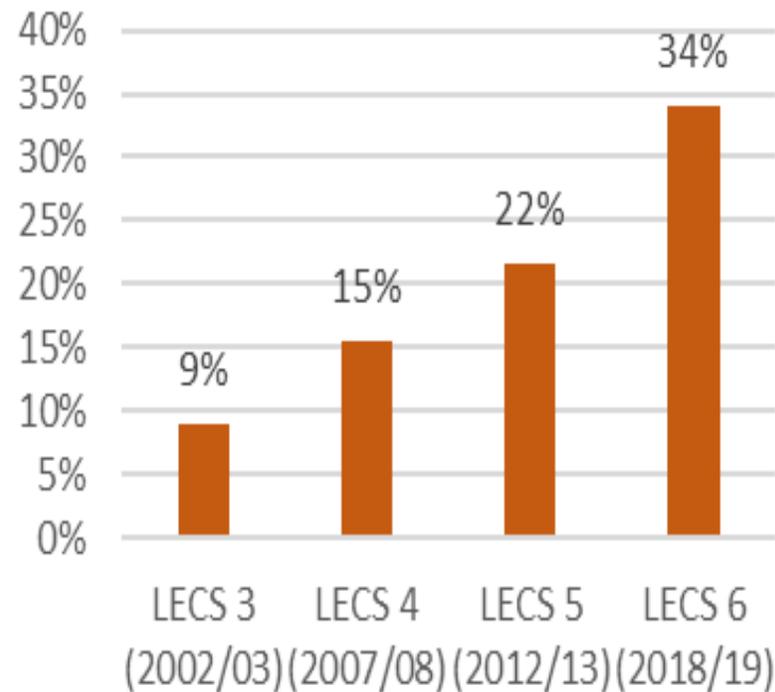
# Use of electricity for cooking is on the rise: An opportunity for promoting clean cooking

Household primary cooking fuel in Khammouane (% of population),  
LECS III-VI (LSB)

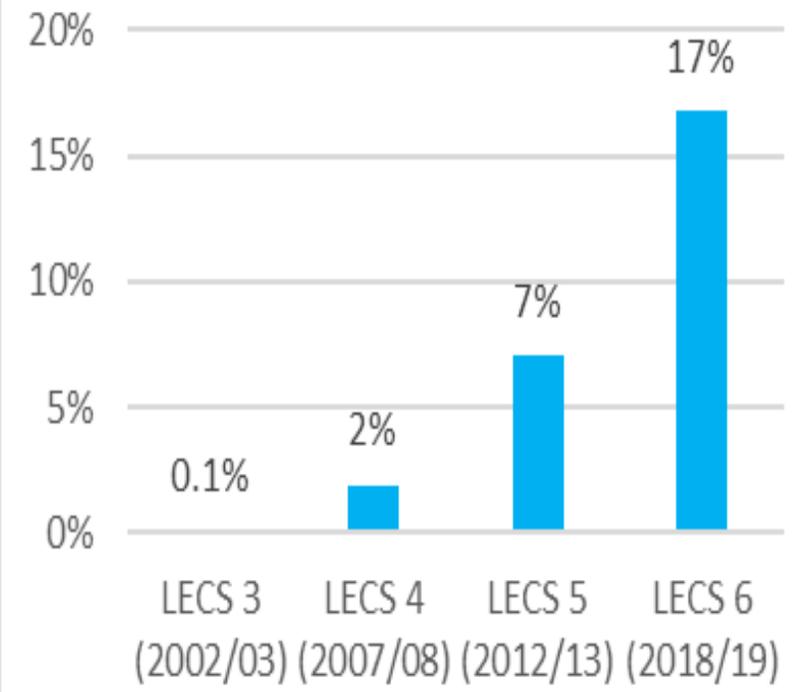
### Wood



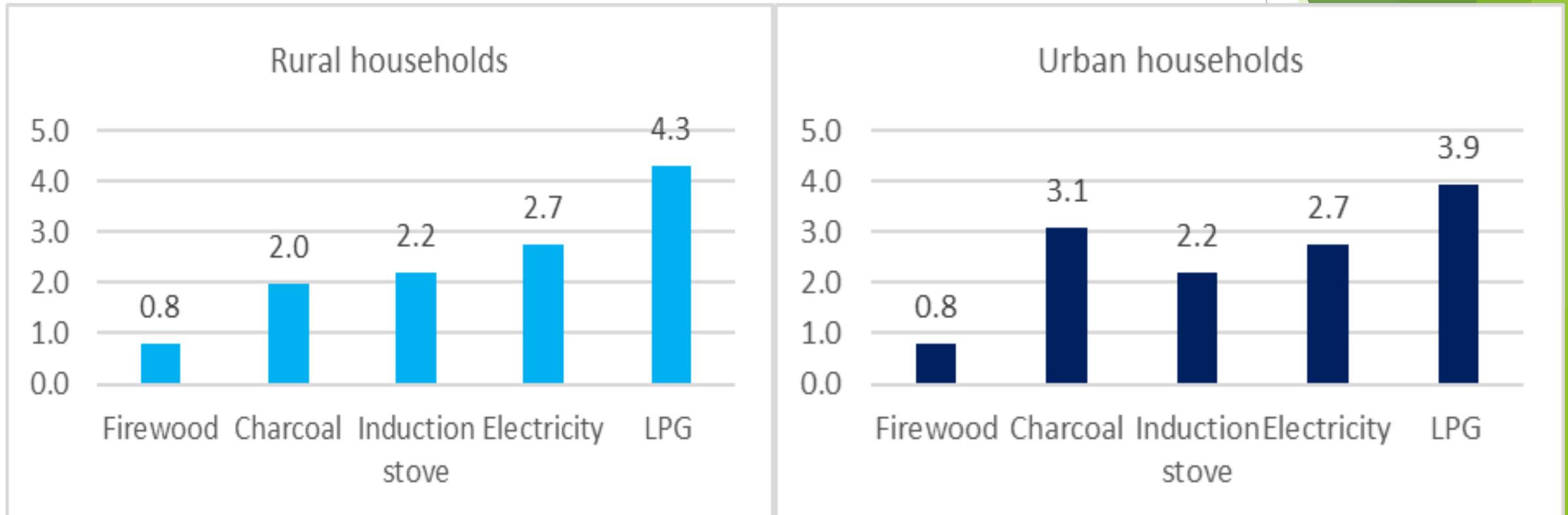
### Charcoal



### Electricity

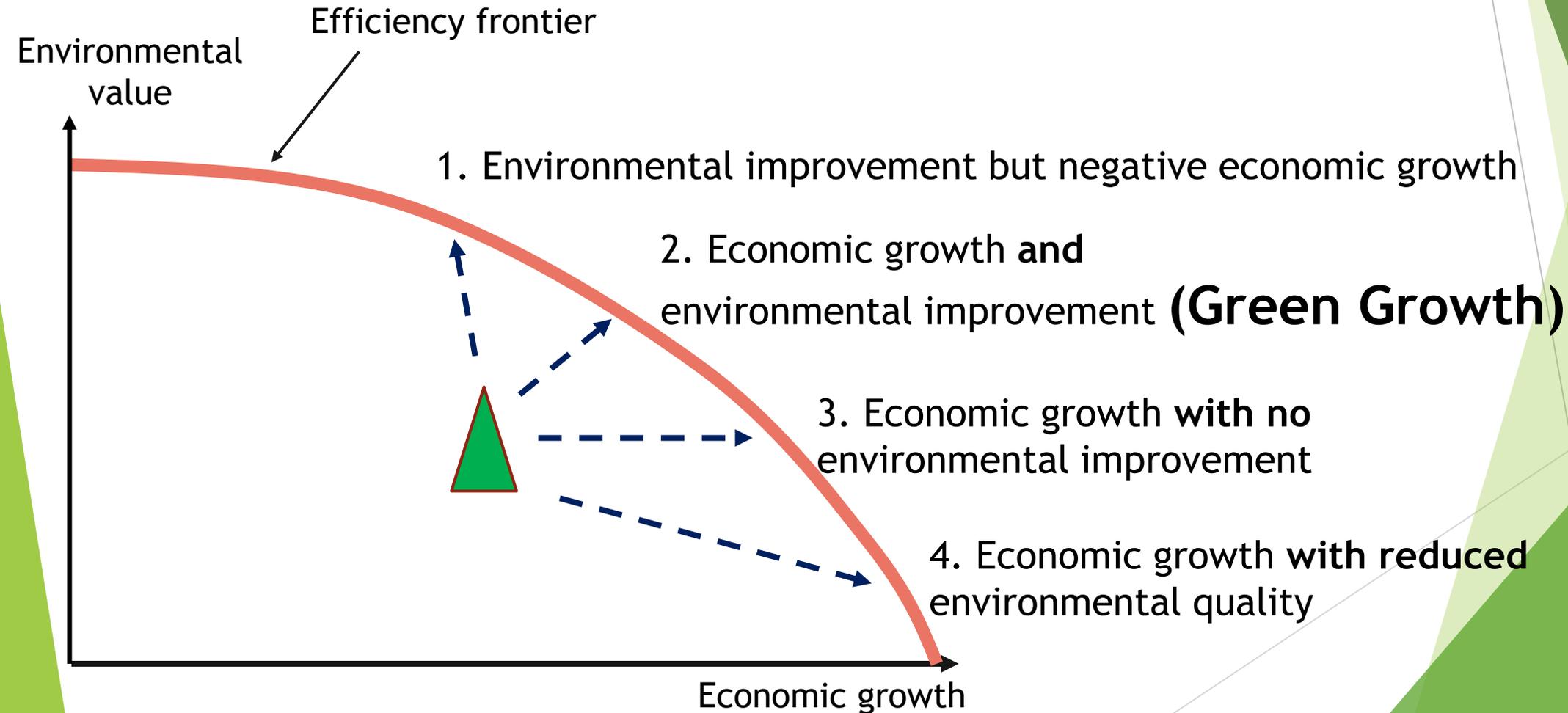


# Electricity is cheaper than LPG: Cost of cooking in Khammouane (LAK million per household per year)

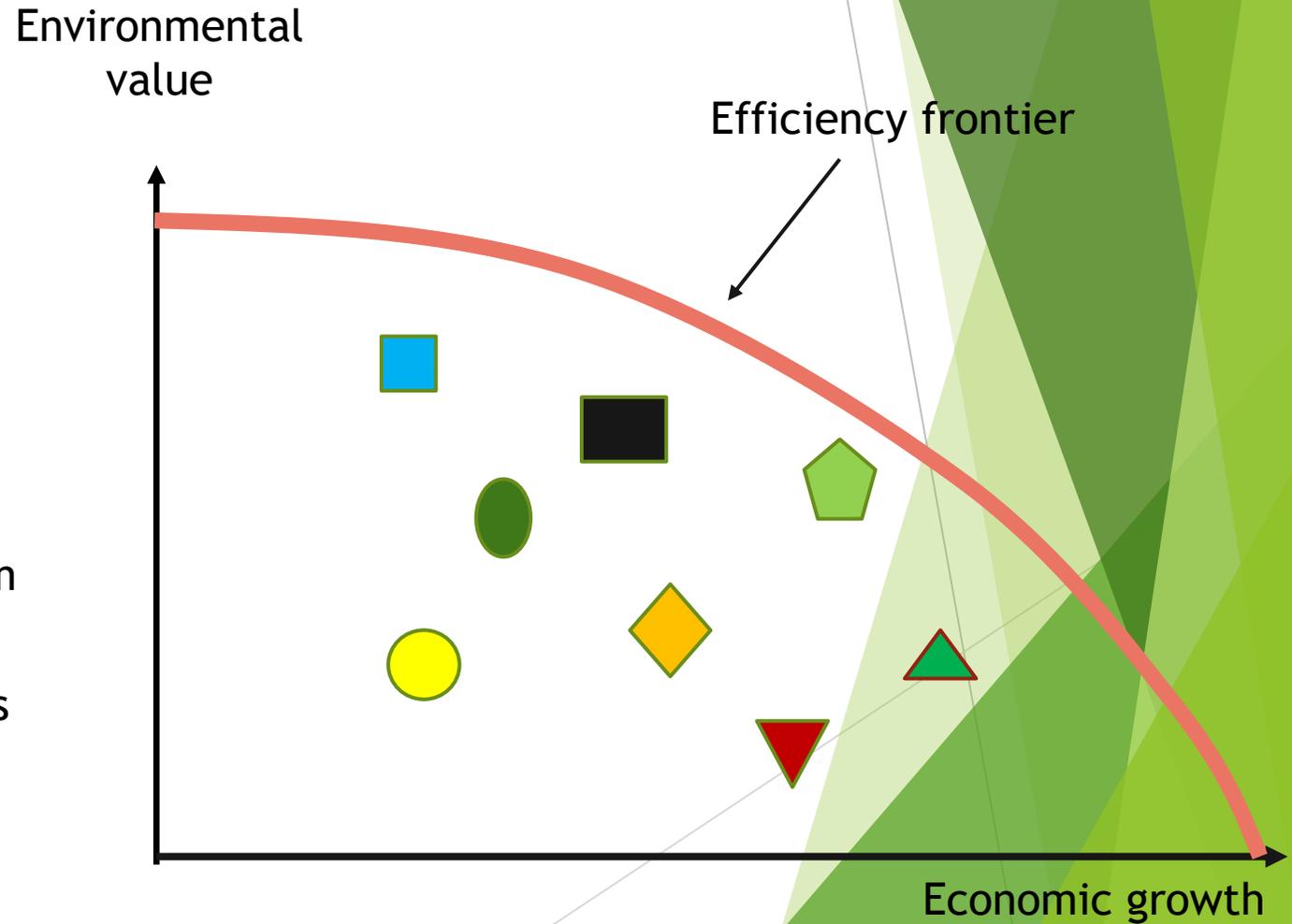
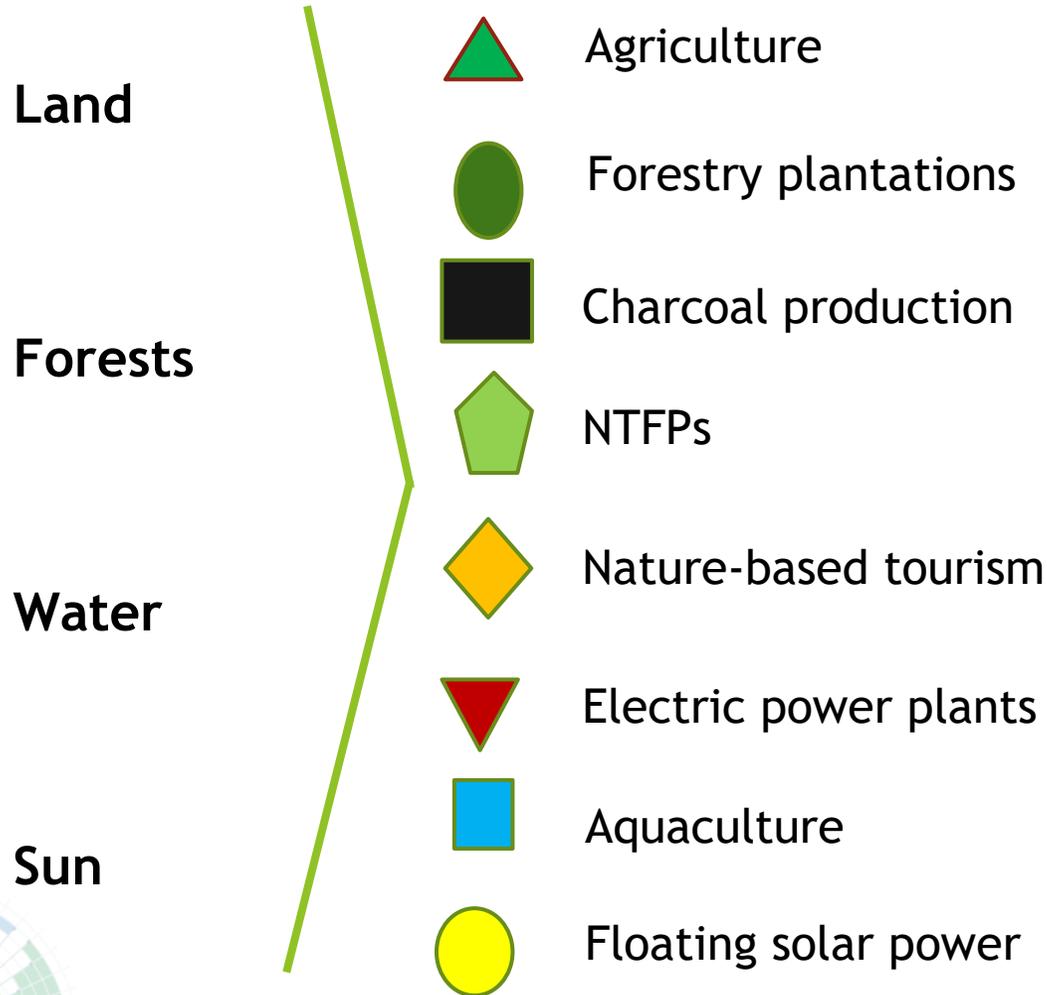


- ▶ Electricity price of LAK 898 per kWh; Induction stove efficiency of 75%; Cost of health effects of firewood and charcoal is not included

# How do we maximize the value of Natural Capital for sustainable and socially responsible green growth?



# What is the sustainable and socially responsible green growth potential from Natural Capital?





# The 'Efficiency Frontier' approach has many advantages

- ▶ In principle it allows us to calculate the additional economic production value (or economic growth) and additional environmental value we can achieve from natural assets
  - ▶ It allows us to calculate potential trade-offs between economic production value (or economic growth) and environmental value from a natural asset
  - ▶ It thus allows us to set realistic green growth indicator (GGI) targets that move us onto a targeted point on the 'efficiency frontier'
  - ▶ This provides us a much desired balance of economic growth and environmental sustainability
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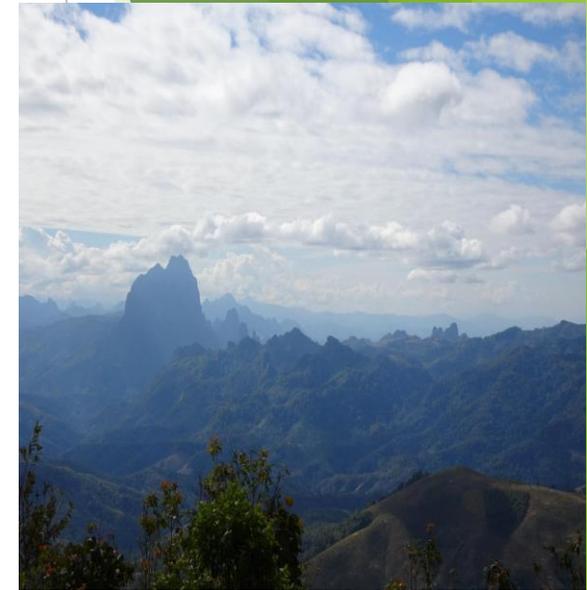


# We can use the ‘Landscape approach’ to enhance Green Growth from Natural Capital

- ▶ The landscape approach:
    - ▶ Recognizes the multitude of natural assets in a geographic area
    - ▶ Provides a clearer picture of potential trade-offs and synergies between different natural assets
    - ▶ Makes it easier to sustainably maximize the natural capital value across all of these assets
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# What are some of the instruments available to achieve green growth from natural capital?

- Apply the ‘Efficiency Frontier’ and ‘Landscape’ approaches to identify opportunities and scope for increasing NCVs and green growth
- Use Strategic Impact Assessments (SEAs) and Environmental and Social Impact Assessments (ESIA) to improve policy decision-making
- Improve decision-making through modernizing information and data systems
- Expand socio-economic surveys to be representative at district level
- Scale-up valuation of natural assets in national statistics (Natural Capital Accounting)
- Continue support for the Lao Statistics Bureau (LSB)



THANK YOU

