

2023 EcoSummit Conference

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# Developing a Comprehensive Regional ESG Scoring System - The Case of South Korea -

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# **Background of Developing P-ESG(Public-ESG) Indicators**

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# Global Mega Risk and Great Transformation

## ■ Global mega risk

- Humans face global mega risks with a growing fear of pandemic outbreaks, economic crises, unemployment, social and international conflicts, and fearful threats caused by AI
- In response to mega-risks, humans strive to find a better future, and this will be achieved through great transitions

## ■ Human's responses

- International community: UN's adoption of SDGs, Paris Agreement
- National governments: NDC target, 2050 Carbon Neutrality, Inclusive policies
- Companies: ESG application

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# Impetus for P-ESG (Public sector ESG) Assessment

## ■ Social demands

- Cities and regions are crucial players having a significant impact on climate change and sustainability across the world. Thus, measuring their impacts becomes an important challenge.
- ESG is a useful tool for assessing contributions of governments and firms to climate change and sustainability, as well as for promoting positive actions through mutual comparison and education
- However, ESG assessment for city and region has rarely been discussed, and this could be a significant barrier to great transition.

## ■ Kyung Hee University (KHU)'s Initiatives

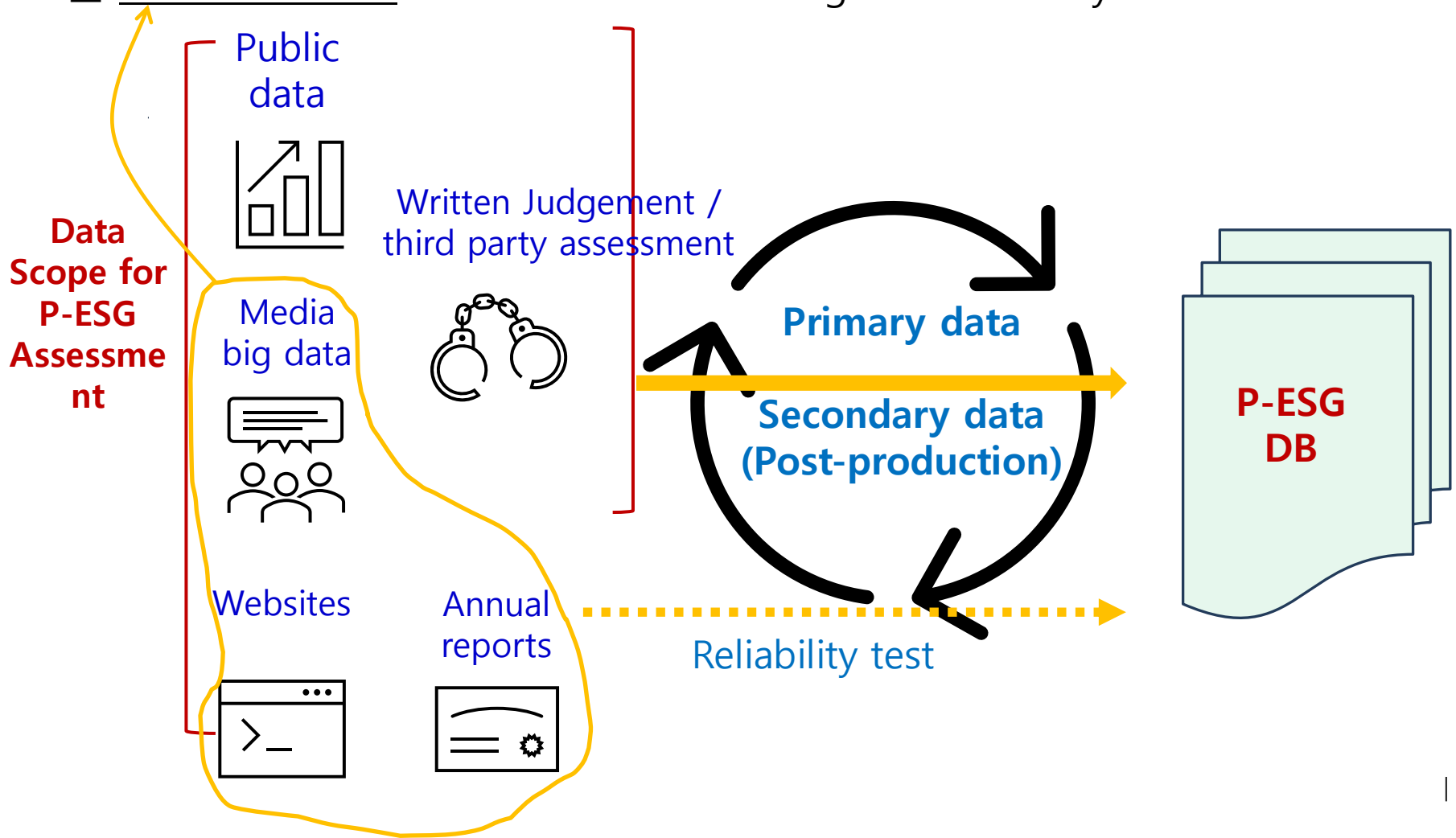
- Recently launched an ESG Committee
- Developed the P-ESG framework to evaluate the ESG performance of cities and regions in South Korea.
- Plans to expand our reach to ASEAN metropolitan cities.

## **2. P-ESG Development Process**

### **1) DB Construction and Indicator Design**

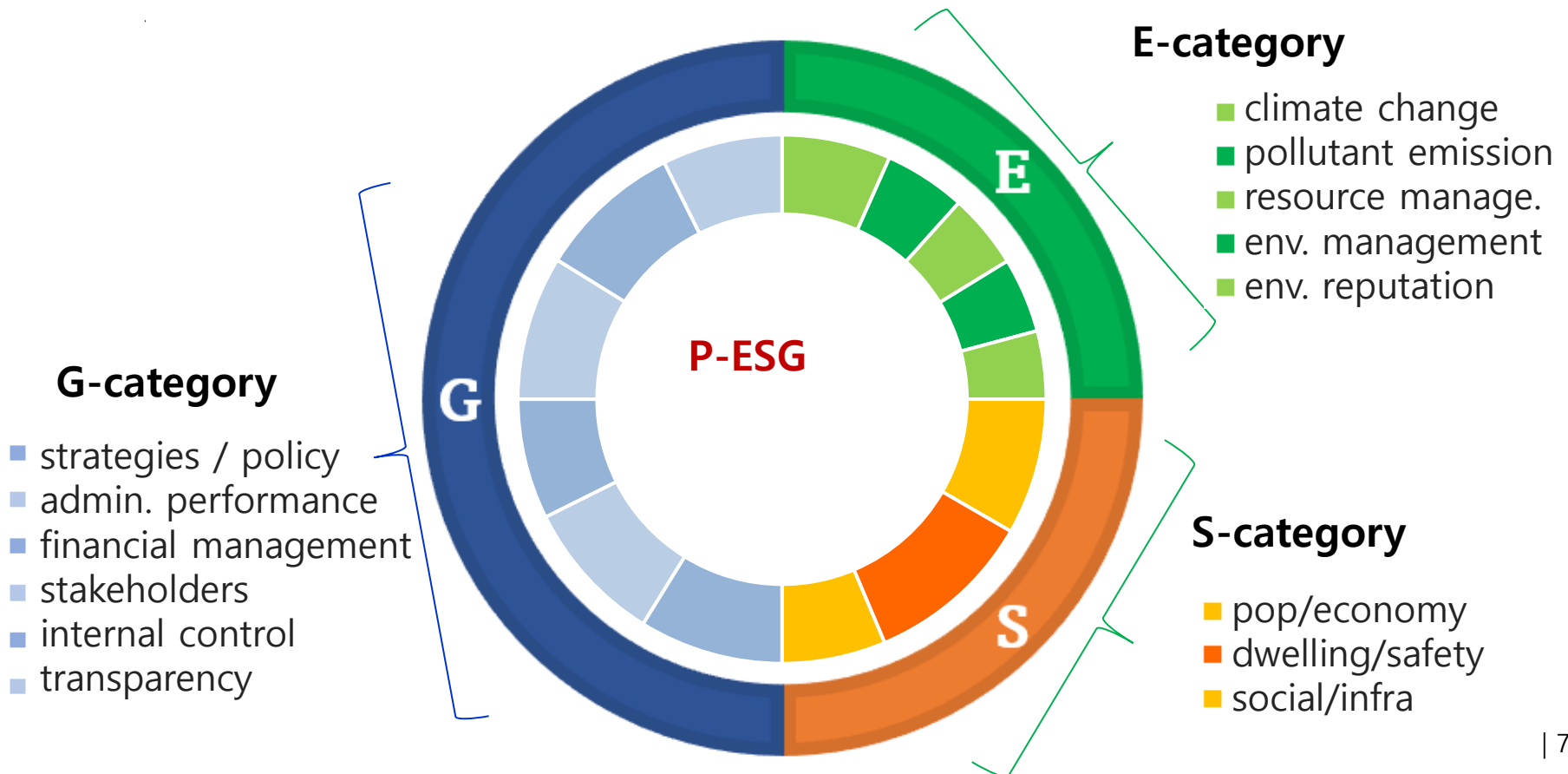
# Data Base (DB) for P-ESG Assessment

- A DB was established with more than 90 cross-sectional time-series data (public data + 3<sup>rd</sup>-party assessment data) → Primary & Secondary data.
- Other resources will be used after testing their reliability



# Categories and Indicators

- Each pillar consists of the following indicators with sub-categories
  - E-pillar: 32 assessment indicators with 5 sub-categories
  - S-pillar: 28 assessment indicators with 3 sub-categories
  - G-pillar: 30 assessment indicators with 6 sub-categories



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# Weight Adjustment (1)

## ■ Expert Surveys

- 52 experts (national and international)
- Response rate: 92.3% (48 out of 52)
- Determine validity of the assessment indicators
- Weight assignment for sub-categories and indicators using the survey results

## ■ E,S,G Pillar's weight calculation

- MSCI(2022) assigns ESG government rating as E:S:G=25:25:50
  - \* Most of indicators: World Bank Development Indicators
  - \* Weight for an indicator within a sub-category: does not vary (equal weight)
- Our survey results are E:S:G= 30.5:32.1:37.4
  - \* Weight for an indicator within a sub-category: varies (← survey)

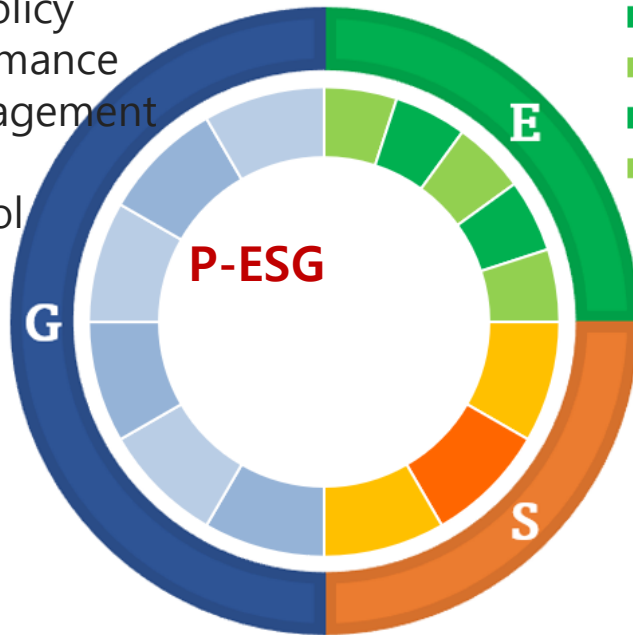


# Weight Adjustment (2)

- Assignment of equal weights for each categories of ESG (left)
- Assignment of different weights derived from the survey (right):  
 E(higher weights in climate change, pollutant emission), S(all are equal),  
 G(higher weights in Strategies and Policies, Financial Management, Transparency)

## G-category

- strategies / policy
- admin. performance
- financial management
- stakeholders
- internal control
- transparency

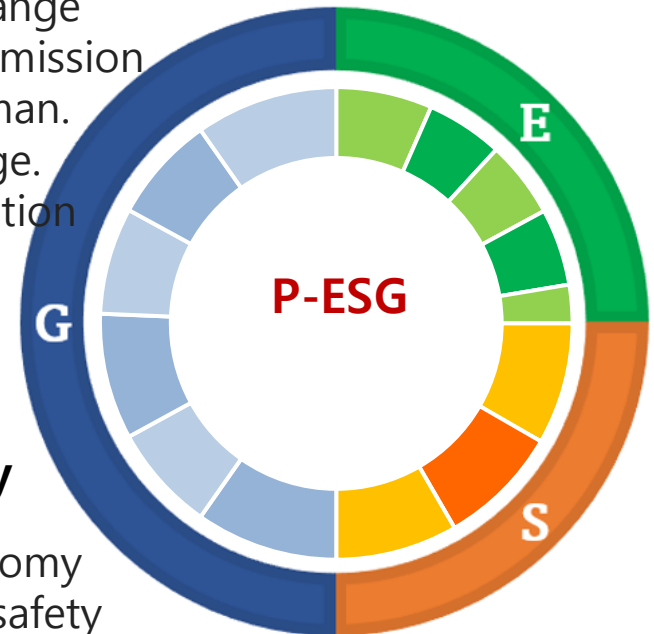


## E-category

- climate change
- pollutant emission
- Resource man.
- env. manage.
- env. reputation

## S-category

- pop/economy
- dwelling/safety
- social/infra



■ E:S:G Pillar weights are 30.5%:32.1%:37.4% (different from MSCI(2022)'s government ESG ratings (25%:25%:50%))

## **2. P-ESG Development Process**

- 1) Design of DB and Indicator Assessment Methods
- 2) Indicator Value Assessment**

# Indicator Value Assessment

## ■ Refinitiv's ESG assessment methods

Raw data	Type	Characteristics
Positive	Qualitative	Raw data
	Quantitative	Boolean data (including non-reported)
Negative	Qualitative	Raw data
	Quantitative	Boolean data (including non-reported)

Ranking	
Positive	Higher → Higher ranking
Negative	Higher → Lower ranking

Ranking-based  
indicator value ( $x_{ij}$ ) calculation

# Sub-category Score calculation

■ e.g. Indicators of "Climate Change" sub-category

Categories	index	Indicators(variables)	Direction	Importance	City 1 (assessment value)	City 2 (assessment value)
E1.Climate Change	E1_1	Greenhouse gas emission per 1 person	negative	2	0.9117	0.7353
E1.Climate Change	E1_2	Greenhouse gas emission per GRDP	negative	2	0.9706	0.7353
E1.Climate Change	E1_3	Increase of rate of greenhouse gas emission per GRDP	negative	3	0.0882	0.7941
E1.Climate Change	E1_4	Amount of absorption of LULCF per 1000 people	negative	2	0.0294	0.6176
E1.Climate Change	E1_5	Net-zero strategy	positive	2	0.8824	0.2941
E1.Climate Change	E1_6	Climate adaptation strategy: budget, committee	positive	1	0	0
E1.Climate Change	E1_7	Just transition: budget, committee	positive	1	0	0
E1.Climate Change	E1_8	Green finance (transition finance/GRDP)	positive	1	0	0
E1.Climate Change	E1_9	Climate finance ratio	positive	2	0.7941	0.0294
E1.Climate Change	E1_10	Household ratio in carbon point program	positive	1	0.8529	0.9118

If the weight of climate change sub-category's is 20%, city 1's climate change sub-category score is  $0.9117 * (2/17) * (20\%) + \dots + 0.8529 * (2) * (1/17) * (20\%)$

→ Final weight for E1\_1 indicator

Not used in 2023 ←

# E.S.G. Pillar Score calculation

## ■ E,S,G Pillar score

- Each pillar's score =  $\sum$  Sub-category score \* weight ( $\leftarrow$  from survey)

E						
Climate change	Pollutant emission	Resource management	Environmental management	Environmental reputation	Total	
24.1%	22.9%	19.4%	20.3%	13.2%	100.0%	
S						
Population/economy		Dwelling/safety		Social/infrastructure	Total	
33.5%		33.1%		33.4%	100.0%	
G						
Strategy/policy	Admin. performance	Financial management	stakeholders	Internal control	Transparency	Total
18.3%	14.9%	18.0%	15.5%	15.2%	18.0%	100.0%

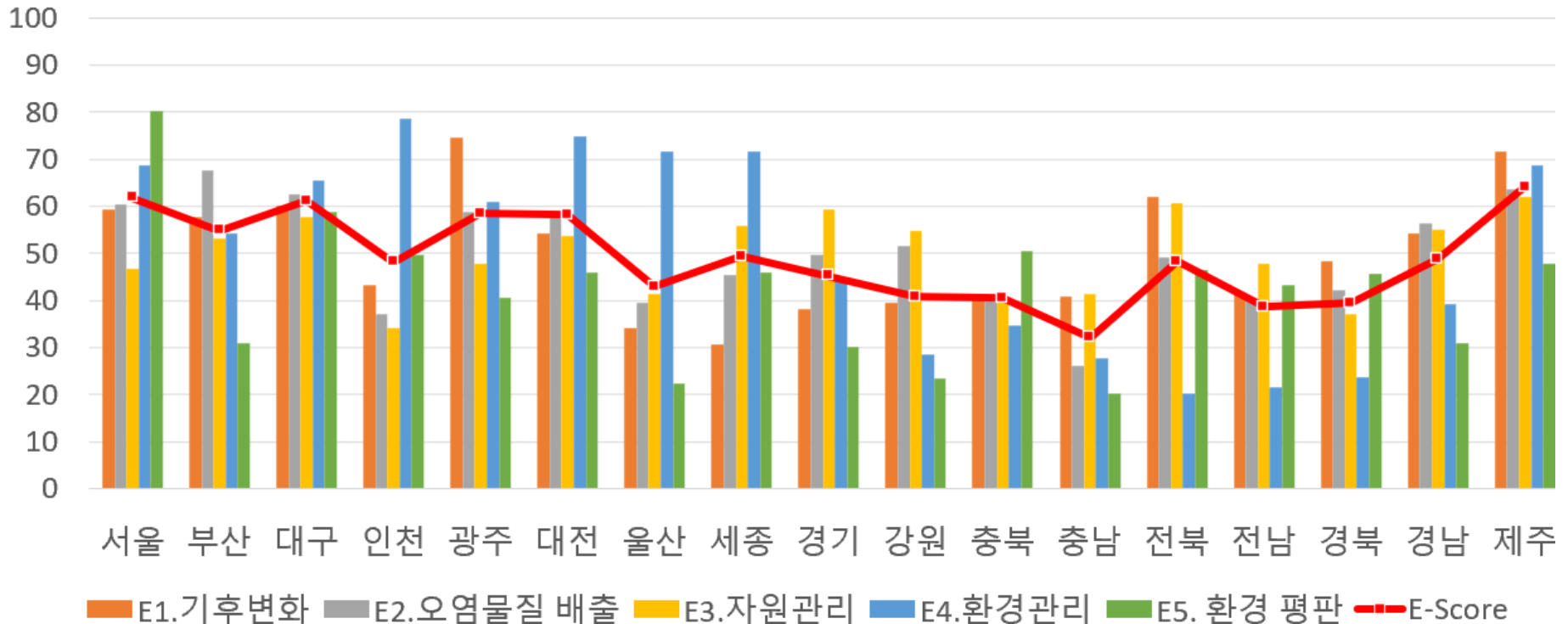
## ■ Total ESG score = $\sum$ Pillar score \* weight ( $\leftarrow$ MSCI's weight for government)

- MSCI's weight for government = E:S:G=25:25:50
- New weights derived from the survey  $\rightarrow$  E:S:G =30.5:32.1:37.4

### **3. 2023 P-ESG scores for 17 local governments (metropolitan cities and provinces)**

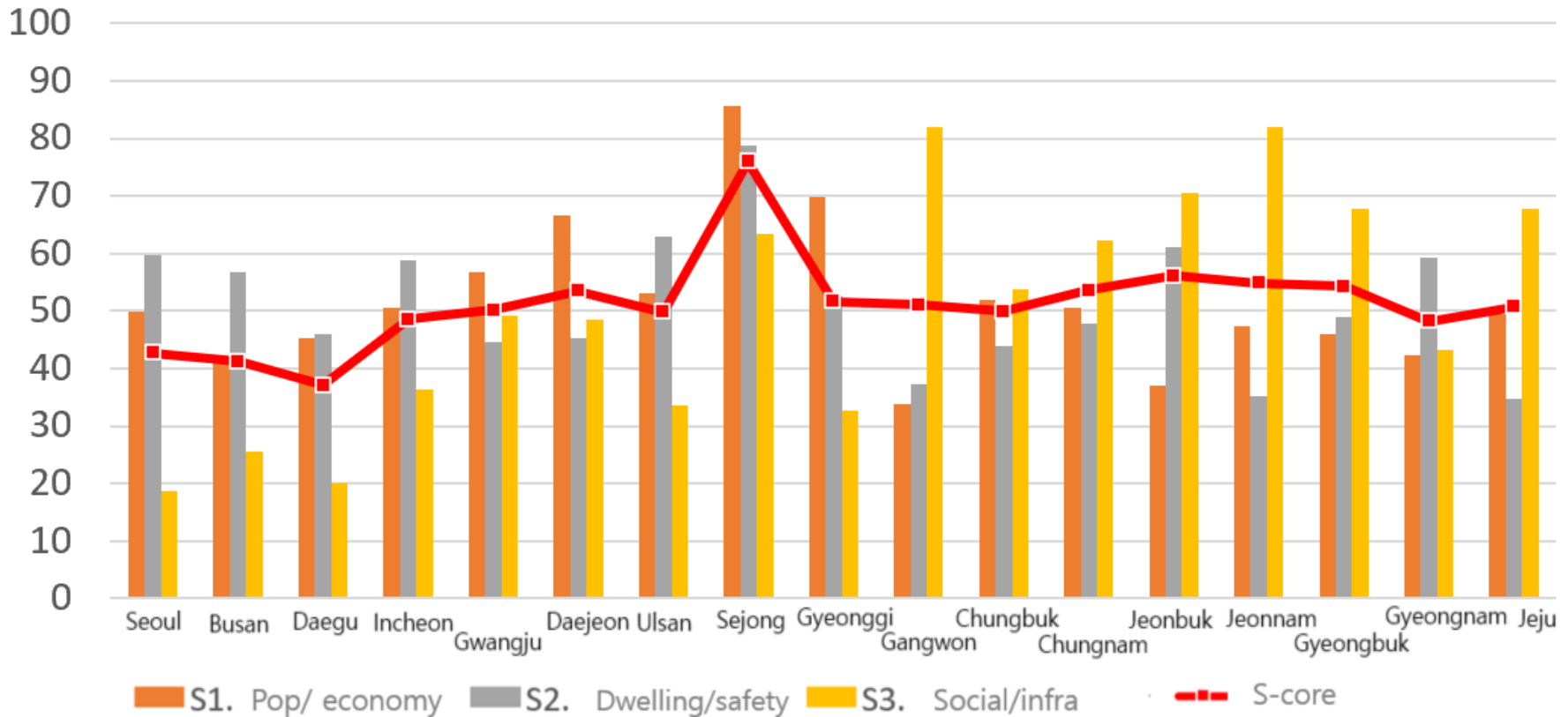
# E.S.G. Pillar Score

- Green Star: Seoul (mega-city), Jeju (province)
- Lowest scored governments: Ulsan (mega-city), Chungnam (province)
- Overall, city' E-scores are relatively higher than that of non-cities, but none is scored high in all the sub-categories.
- Average E-score is 48.98, and standard deviation is 9.14



# E.S.G. Pillar Score

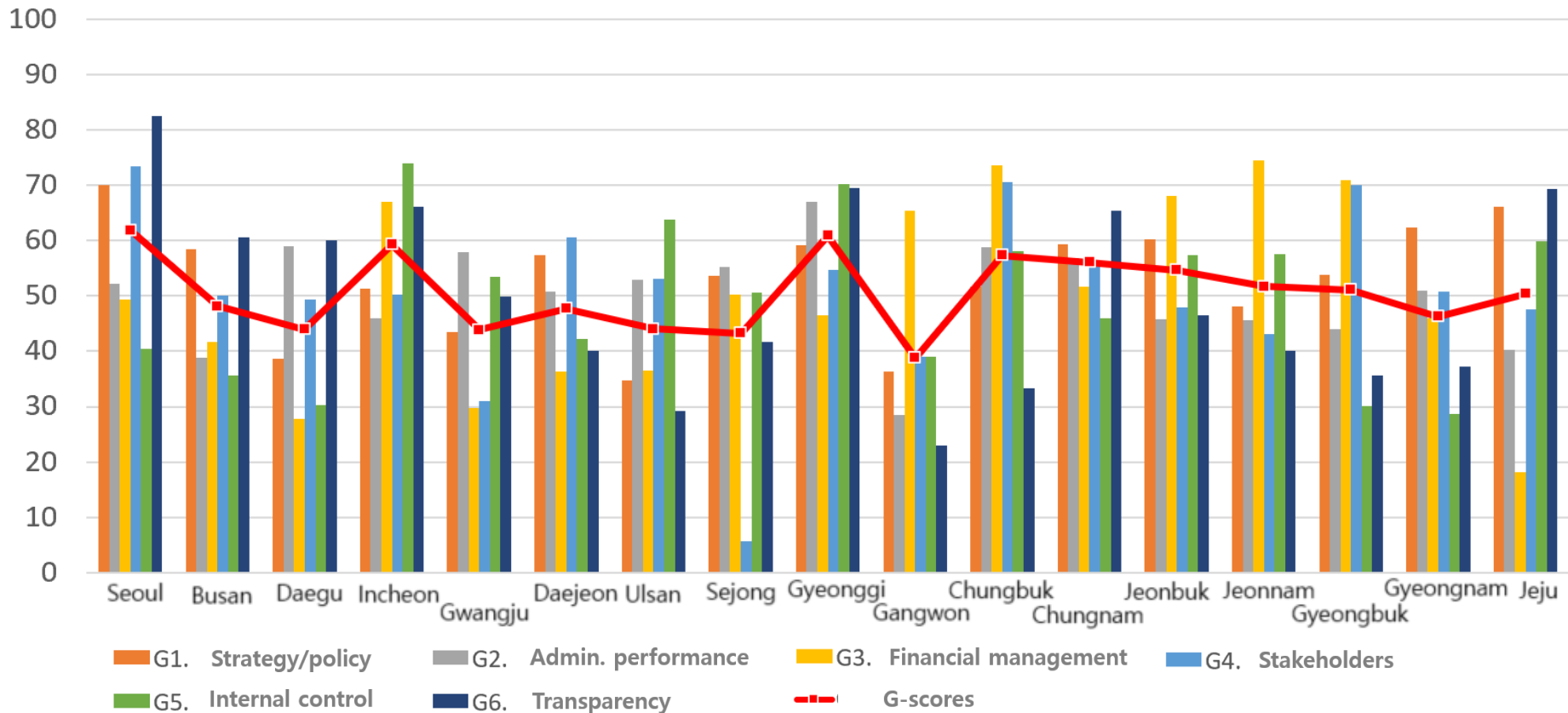
- Social Star: Sejong (mega-city), Jeonbuk (province)
- Lowest scores: Daegu (mega-city), Gyeongnam (province)
- Mega-cities (Seoul, Busan, Daegu, Incheon) have the lowest S-scores
- Average S-score is 51.12 and standard deviation is 7.91





# E.S.G Pillar Score

- Governance Star: Seoul (mega-city), Gyeonggi (province)
- Lowest scores: Daegu (mega-city), Gangwon (province)
- Seoul (mega-city), Incheon (mega-city) and Gyeonggi (province), cities and regions adjacent to Seoul, have G-performances a lot better than others



# Overall ESG Scores (after the application of ESG weights 30.5:32.1:37.4)

Local government	Score	Ranking	
Seoul	55.72	1	ESG STAR (metro and entire) 😊
Sejong	55.55	2	
Jeju	54.66	3	ESG STAR (province) 😊
[Redacted]	53.16	4	
	53.13	5	
	52.74	6	
	52.41	7	
	50.35	8	
	49.80	9	
	48.73	10	
	48.51	11	
	47.95	12	
	47.95	13	
	47.64	14	
46.97	15		
Ulsan	45.52	16	Need improvement
Gangwon	43.32	17	Need improvement

## 4. Future Plan

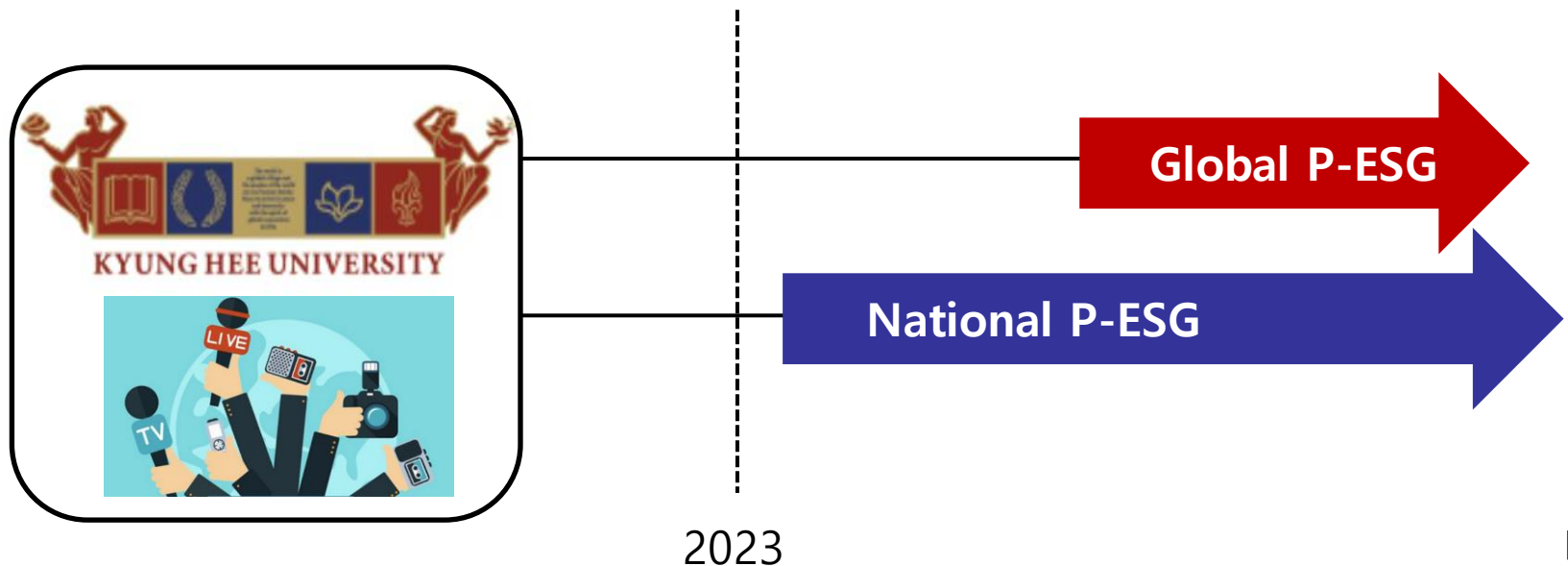
# P-ESG Development Status and Our Future Plan

## ■ Development Status

- Completed the 2023 P-ESG assessment for Korean cities and regions
- Collaborated with a leading media outlets and international institutions to increase public awareness and social impact

## ■ Future Plan

- Continue what we've been doing with our partner, *Jung-Ang Media Group*
- Expand P-ESG assessment to ASEAN mega-cities



**Thank you**

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