



2024 APN Conference
Advancing Sustainable and Resilient PPPs in a Dynamic Landscape

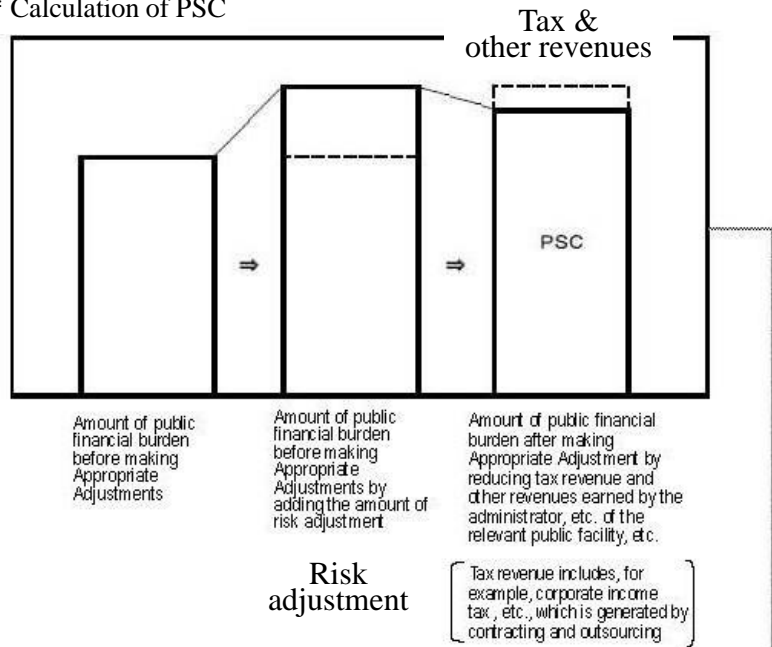
SESSION 2
Quality Infrastructure Investment in PPPs: Towards Sustainability and Resilience

How to make PPP projects more Sustainable, Resilient, and Inclusive

Tuesday October 22nd, 2024
11:00 – 12:30

Keiichi KITAZUME
Professor, Department of Civil, Environmental and Applied Systems Engineering
Kansai University

* Calculation of PSC

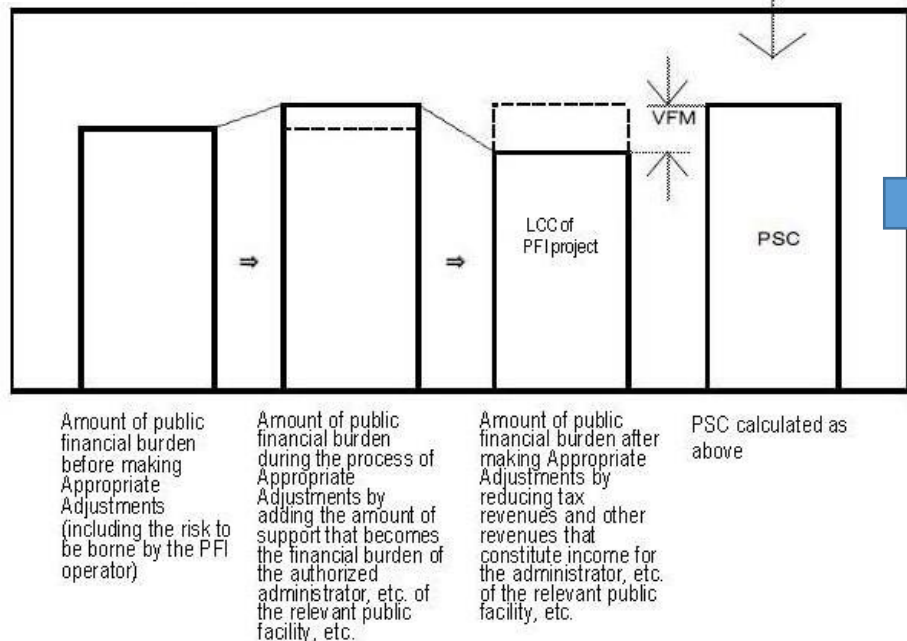


VFM (Value for Money)

The term, Value For Money, generally refers to the concept of "Offering the highest value for a service money can buy."

When comparing two businesses with the same resolve, the one that provides the highest value for a service in terms of money, it is said that the business "there is the VFM" compared to the other, which is said not to be offering the optimum value for a service compared to the other, and therefore, that business is said to have provided a service "there is no VFM."

* Calculation of LCC of PFI project and VFM



$$VFM = PSC - PFI-LCC$$

- The reduction in fiscal expenditure is shown as the actual VFM.
- The value of public services is not included.

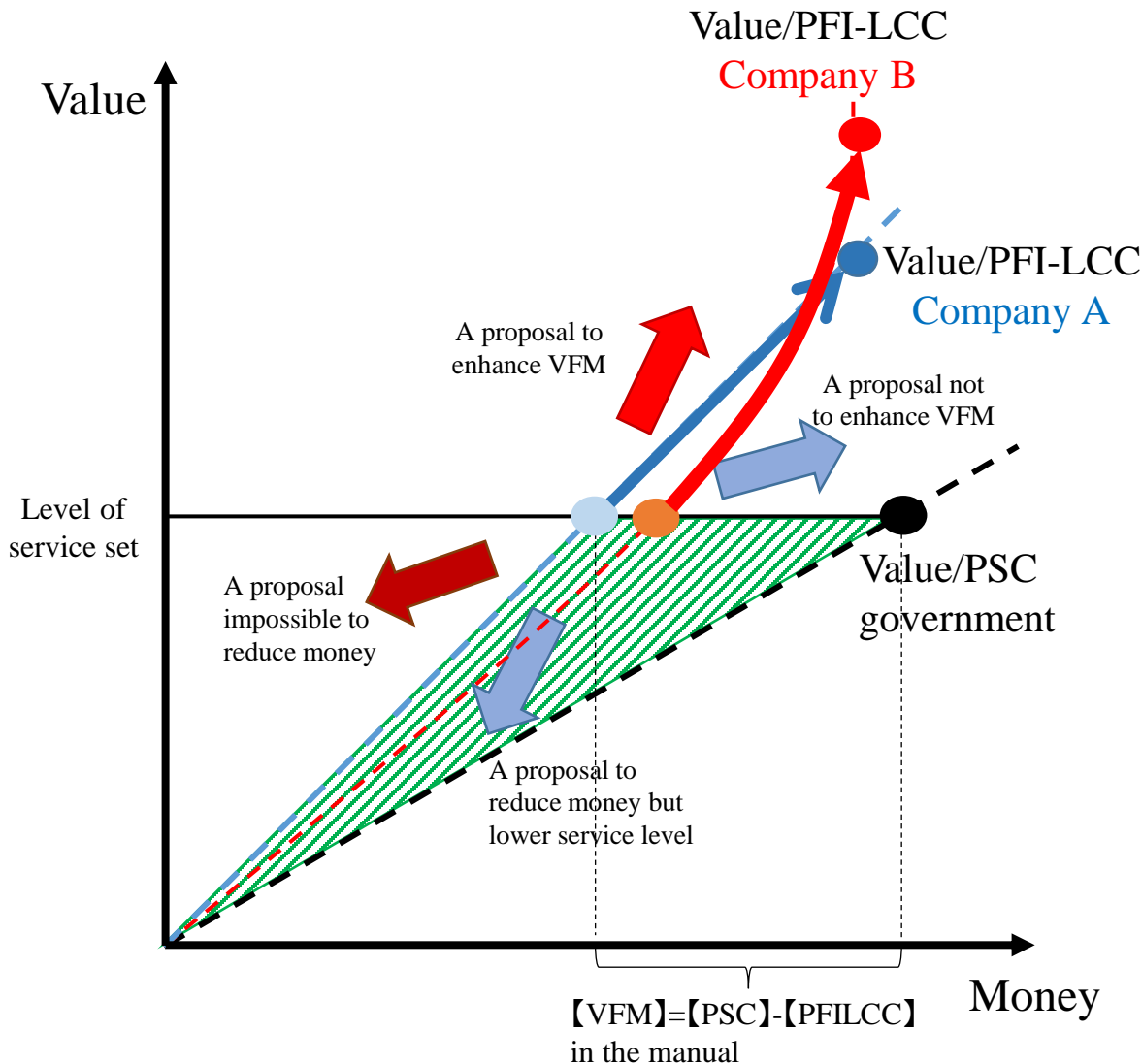
Source: Cabinet Office of Japan "The Guidelines on Value for Money (the VFM)" (2001)

VFM without setting the same level of public service

- When evaluating without setting the same level of public service, even if the PSC and the LCC of PFI project are equal, and if **the improvement in the level of public service** can be expected in the PFI project, then **there is the VFM** on the side of the PFI project.
- Also, even though the LCC of PFI project may exceed the PSC, and if the PFI project can be expected to improve the level of public services more than the difference, then there is the VFM on the side of the PFI project.
- However, in this case, the assumption is that the expected improvement in **the level of public services can be quantified** by some method on the same scale as the PSC or LCC of the PFI project.

Source: Cabinet Office of Japan “The Guidelines on Value for Money (the VFM)” (2001)

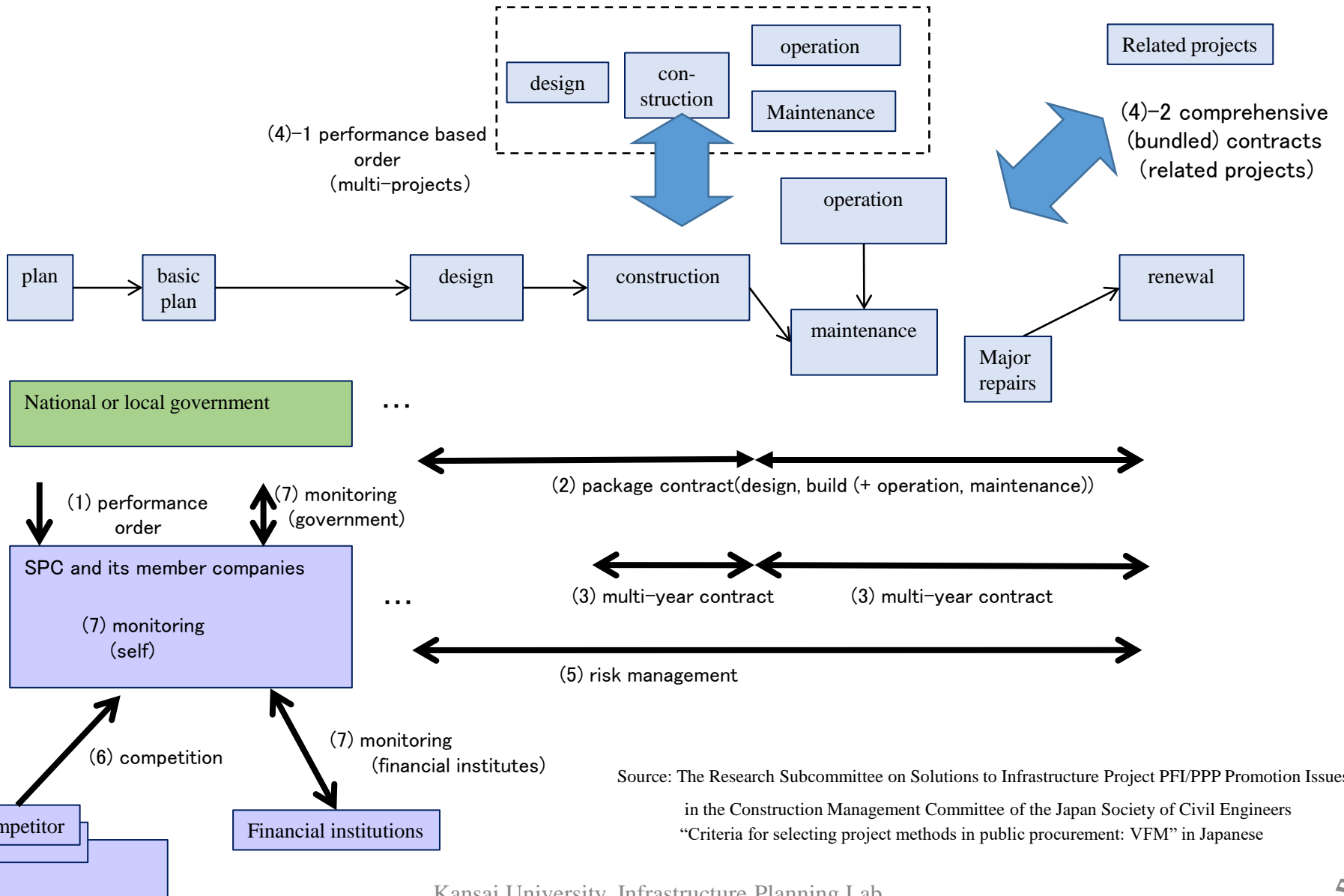
VFM without setting the same level of public service



- Suppose that money and value are measured on the same scale and can be plotted on the same coordinate axis.

- If the comparison is based only on money, **Company A** is selected because it provides the set level of service at a low cost. However, if the value is evaluated correctly, **Company B** with higher value is selected even if the money is increased.

Sources of VFM



A Project to Improve Air-Conditioning Facilities in Indoor Gymnasiums of Elementary and Junior High Schools

- Gymnasiums of elementary and junior high schools are designated as evacuation centers for citizens in case of natural disasters (earthquakes, typhoons and so on).
- Air-conditioning facilities will be installed for the health of the students during the summer/winter months, and will also be designed and installed to improve conditions during evacuations for citizens.



This will accelerate the construction of a resilient social system.

Case 1: Suita City

Outline of PPP Project

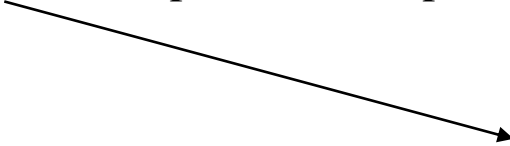
Description: Design, construction, and maintenance of air conditioning facilities for indoor gymnasiums of 36 elementary schools and 18 junior high schools

Contract period: December 2023 - March 2041 (17 years and 3 months)

Contract amount: 4.7 billion yen (31 million \$)

Evaluation method: Comprehensive evaluation method

(150 basic points + 300 qualitative content points + 150 price points)



Evaluation items

High percentage of evaluation items from the resilient perspective (30 + 10 = 40 points (13%))

Contents:

Installation of equipment: Features of emergency power generation equipment, maintenance plan that takes into consideration the characteristics of the school site

- Features of the performance and functions of emergency power generation equipment that take into account the characteristics of the evacuation site.
- Installation location, piping, etc., taking into consideration the characteristics of the school site.

Maintenance: Consideration for ensuring the performance of the air conditioning system and emergency power generation system at the end of the project period

- As a monitoring item, is appropriate maintenance and management planned in normal times so that the emergency power generation system and air conditioning system can operate without delay in case of a disaster?

Case 2: Osaka City

- The Noto Peninsula Earthquake that occurred on January 1, 2024. (The magnitude 7.6, the maximum intensity 7)

It became clear once again that environmental improvement of evacuation centers such as school gymnasiums and health maintenance of evacuees were important issues.



- On February 1, 2024, the mayor announced that the installation of air conditioning units in elementary school gymnasiums are accelerated in Osaka city.
- The Osaka city are aiming to contract with a contractor who will implement this PPP project within 2025 financial year.

Japan is located in the Circum-Pacific Mobile Belt where seismic and volcanic activities occur constantly. Although the country covers only 0.25% of the land area on the planet, the number of earthquakes and active volcanoes is quite high.

(eg. The ratio of earthquakes with magnitude of 6.0 or greater is 18.5% (2004-2013).)



The combination of improved educational facilities and evacuations is an example of how resilient societies can be accelerated.

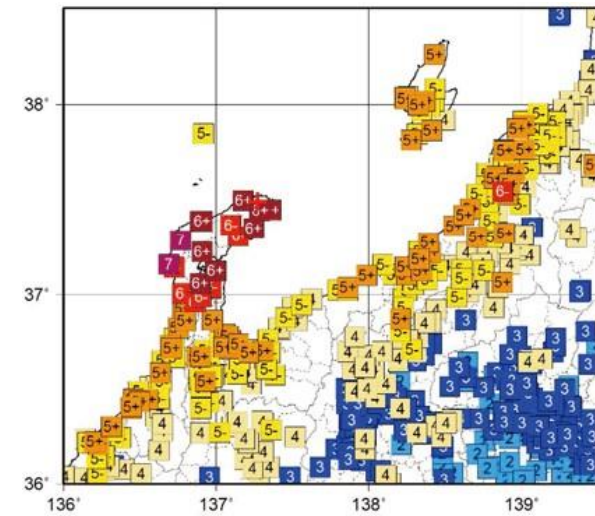


Fig. Seismic intensity distribution
Source: Japan Meteorological Agency

Comprehensive Maintenance and Management Outsourcing in Local Governments with Declining Population

- Many baby boomers have retired from local government in Japan, and the financial situation remains difficult. The number of engineers capable of performing infrastructure maintenance and management tasks is rapidly decreasing, and the number of employees cannot be increased due to financial difficulties.
- The city's economy was also stagnant due to a declining population, so a mechanism was needed to ensure a stable workload for private companies that perform infrastructure maintenance and management.



The sustainability of infrastructure maintenance and management in cities with declining populations is expected through the expertise of the private sector, rather than expecting to reduce project costs.

ONISHI, M., SUZUKI, F., CHONAN, M., TSUBOI, S., MACHIDA, H. and KITAZUME, K.(2023): MOTIVATIONS AND CHALLENGES FOR APPLICATION OF PFI/PPP IN LOCAL GOVERNMENTS (in Japanese)

Case A local city (Sanjo) in Niigata Prefecture

Comprehensive Maintenance and Management Outsourcing

-The city office outsourced some of the tasks related to maintenance and management of roads and parks (receipt of complaints and requests from citizens, patrol of each facility, maintenance of roads such as pavements, ditches, and fences, maintenance of parks, and maintenance of waterways) to a private company.

The Effects on local government and the private companies

- The city office's lack of resources is supplemented, and the private companies are able to secure regular work.



The bundling of projects and the joint efforts of the municipality and the private company increased the sustainability of the city governance and the local economy.

Junior High School Catering Center

- In elementary schools, lunch was provided for all students. In addition, the center-based system, which can be operated efficiently, safely, and securely, has been attracting attention, instead of the system in which school lunches were prepared at individual schools.
- In many junior high schools, lunch was provided only to those who requested it, but the need for all students to eat lunch has increased.



The junior high school catering center was expected to utilize private-sector know-how to construct and operate it on schedule, with strong construction period and location constraints, and to provide nutritionally balanced lunches **to all junior high school students**.

Case Sakai City

Outline of PPP Project

Description: Junior High School Catering Center
the maximum number of lunch is 16,000 per day
Contract period: January 2023 - March 2040 (17 years and 2 months)
Contract amount: 20.6 billion yen (137 million \$)
Evaluation method: Comprehensive evaluation method
(750 qualitative content points + 250 price points)



Evaluation items

High percentage of evaluation items from the points of construction and management knowhow and **ideas of “no one will be left behind”**. 75+30+50+50points (27.3%)

Contents:

Local revitalization: Are specific proposals made for cooperation and collaboration with local contractors and promotion of local employment (including employment of people with disabilities)?

Construction plan: Are specific proposals made for measures to prevent construction schedule delays and safety management for construction workers?

Cooking: Are specific proposals made for allergy-friendly meals (including other items)?

Dietary education: Are proposals to support measures to promote dietary education through the use of ICT.

Proposals for menu preparation methods and improvement measures for menus with many leftovers.

Concluding Remarks

1. Project management using VFM is necessary throughout the project period. In doing so, high attention should be paid to value, not money. Even if money is high, if the value is higher enough, it should be evaluated.
2. Resilient social systems can be effectively constructed by building facilities that are effective during disasters in conjunction with projects that improve public services during usual times.
3. A sustainable system in a financially strained local government can be realized by bundling together projects from multiple sectors and increasing tie partnerships between public and private sector.
4. An evaluation system that emphasizes items that embody the concept of “no one will be left behind”, thereby promoting efforts toward an inclusive society.

discussion

When incorporating ESG factors into PPP project design, costs undoubtedly increase. While this leads to expanded demand and reduced risk, which is positive, adding resilience features can still push up costs. Given that economic viability is crucial for private investors, how can governments incentivize or support private sector participation in such projects?

- Develop methods to quantitatively evaluate the impact of ESG factors
 - * High accuracy in evaluating MONEY, but low accuracy in evaluating VALUE
 - * Considerable progress has been made in developing methods for evaluating the environment (Hedonic, Travel cost, CVM ...)
Resilience is also evaluated by quantitative risk analysis by using risk data. Therefore, accumulation and sharing of risk data that can identify risk distribution is important
- Develop methodologies to identify the complex economic spillover process of ESG factors, since they can be expected to have economic returns in the long run.

QII(Quality Infrastructure Investment)

G20 principles

principle 1: Maximizing the positive impact of infrastructure to achieve sustainable growth and development

Principle 2: Raising Economic Efficiency in View of Life-Cycle Cost

Principle 3: Integrating Environmental Considerations in Infrastructure Investments

Principle 4: Building Resilience against Natural Disasters and Other Risks

Principle 5: Integrating Social Considerations in Infrastructure Investment

Principle 6: Strengthening Infrastructure Governance

