HIGHLIGHTS AND TAKEAWAYS

ENVISIONING THE FUTURE

Fifth Forum on Successful
Project Design and Implementation

22–25 October 2019 — Manila Philippines

Contents

Acronyms

ADB	Asian Development Bank
AFD	French Development Agency
AI	artificial intelligence
AMI	advanced metering infrastructure
AWTIP	Angat Water Transmission Improvement Project
BIM	building information modeling
BRT	bus rapid transit
CEO	chief executive officer
CPM	country programming mission
CPS	country partnership strategy
DBO	design-build-and-operate
DED	detailed engineering design
DMC	developing member country
DMF	Design and Monitoring Framework
EA	executing agency
EGM	Effective Gender Mainstreaming
EIRR	economic internal rate of return
EMP	environmental management plan
EU	European Union
FIDIC	Federation of International Consulting Engineers (French)
FIT	feed-in tariff
F-TRTA	Transaction Technical Assistance Facility
GACAP	Governance and Anti Corruption Action Plan
GAP	gender action plan
GDP	gross domestic product
GEN	Gender Equity
GEWE	Gender Equality and Women Empowerment
GIS	geographic information system
GPRS	general packet radio services
GPS	global positioning system
HHR	health human resources
HHRSDP	Human Resources Sector Development Program
IA	implementing agency
ICT	information and communications technology
IP	indigenous people
IRP	involuntary resettlement plan
IT	information technology
JICA	Japan International Cooperation Agency
LGBT	lesbian, gay, bisexual, and transgender
MEC	Marshalls Energy Company
MISE	Ministry of Infrastructure and Sustainable Energy
MWSS	Manila Water and Sewerage System
NGE	No Gender Elements
NPV	net present value
O&M	operations and maintenance
ODA	official development assistance
OHS	occupational health and safety
OIMI	Outer Island Maritime Infrastructure Project
PBL	policy-based loan
PDR	People's Democratic Republic (Laos)
PFPM	Portfolio Management Division
PHED	Public Health Engineering Department
PIC	Pacific Island countries
PPFD	Procurement, Portfolio and Financial Management Department
PPP	public-private partnership
PRB	Pyanj River Basin
PRC	People's Republic of China
PRF	Project Readiness Financing
PUB	Public Utilities Board
SEFF	Small Expenditure Financing Facility
SGE	Some Gender Elements
SIDS	Small Island Developing States
SREP	Scaling-Up Renewable Energy Program
TA	technical assistance
TBM	tunnel boring machine
TREP	Tonga Renewable Energy Project
TVET	technical vocational education and training
UTS	urban transport system
WASH	water, sanitation and hygiene
WB	World Bank
WRM	water resources management
WTP	water treatment plant

Acknowledgment

This forum was organized by the Portfolio Management Division (PFPM) of the Procurement, Portfolio and Financial Management Department (PPFD). PFPM is grateful for the support of Deborah Stokes, Vice President for Administration and Corporate Management; Risa Zhijia Teng, PPFD Director-General; and the PPFD management team. PFPM extends its sincerest thanks to the participants, speakers, and the team that coordinated the event.

Introduction

1. This forum takes inspiration from the collective desire to build a better Asia-Pacific region, a vision expressed in Strategy 2030.

2. It is part of the continuing effort that started four years ago, in 2015, on project design and implementation. This year's theme, Envisioning the Future, acknowledges the importance of projects as platforms for translating Strategy 2030 into action. Developing member countries and ADB as key stakeholders have a great responsibility to make development reflect strategic priorities. A greater responsibility is to use them to move closer to the vision of a prosperous, inclusive, resilient and sustainable future for all.

3. The discussions in this 5th Forum on Project Design and Implementation helped participants build a deep appreciation of making projects technically feasible, sustainable, and implementation-ready. Day 1 begins with a bird's eye view of the vision and development agenda to help define the rationale for the priorities in the region and each country. This is followed by discussions of how to translate the agenda into sound designs that address sector challenges, complemented by stories from the field that help participants learn from both successes and failures. A field visit on Day 3 is included to understand better how project elements come together in managing the scope and challenges of rehabilitating a water system project that affects a large segment of water users in the Philippines. The last day weaves in the thematic areas of gender, climate, and digital technology for development in the preparation and design phases as well as the implementation of projects.

4. The four days of the forum produced a wealth of lessons that member countries and ADB can use to navigate the varied contexts of continually translating Strategy 2030 and country priorities into projects that bring the most benefit to societies. ADB is pleased to share the highlights of the discussions through this summary, which is part of a broader communication plan to capture and share lessons of experience with developing member countries and ADB staff.

▶ Key Concepts and Messages

5. The forum seeks to generate input from participants, exchange views, share best practices, and analyze the challenges and approaches on the following topics:

6. Project readiness, which pertains to the procurement, financial management, and safeguards requirements that implementing agencies can complete ahead of project approval by the ADB Board. Project readiness minimizes the delays in the early stages of implementation because procurement and design are done upfront. Readiness is a holistic approach that includes the essential transactional tasks, strong project ownership, thorough planning to achieve the desired outcomes, and careful selection of the best possible approaches to attain sustainable project impact.

7. Stakeholder engagement, which pertains to the analysis of a whole range of interests and influence of governments, ADB, beneficiaries, the private sector, civil society, development partners, and other groups. Stakeholder engagement recognizes that these groups have their own long-term visions, national and sector strategies, and medium-term development plans. More importantly, stakeholder engagement refers to the management of stakeholder interests and influence such that they can be leveraged in building better lives for the poor in Asia and the Pacific.

8. Strategy 2030 and the development agenda include targets related to climate change, gender, governance, digital transformation, cofinancing, private sector participation, and other cross-cutting themes.

9. Robust project design that captures the expected impact, outcome, operation, and sustainability of the project. Planning and design can be reverse engineered, that is, starting with how the project is expected to be managed, maintained, and sustained. The elements and processes that support the end goal are integrated in project design at the onset.

I. REIMAGINING THE VISION

A. Welcome Remarks: Impact by Design

Risa Zhijia Teng, Director General of the Procurement, Portfolio and Financial Management Department

10 KEY POINTS

- **The forum seeks to strengthen the capacity of executing and implementing agencies to undertake better project design and implementation performance.**
- **Experience yields important lessons that can sharpen our policies and ways of working on projects.**
- **The interactions and input in this forum enrich our conversations and future directions.**

11 The roadmap to ADB's Strategy 2030 requires the capacity to deliver high quality and high impact projects. While we focus on time, the quality of the implementation and the quality of the outcome are equally important. This forum contributes to building stakeholders' capacity in project design and implementation. The forum is structured so that participants can (i) have a deeper understanding of the link between project design and performance; (ii) analyze sector challenges and develop appropriate strategies to address them; (iii) identify relevant country policies to support the projects.

12 We need to take stock of our experience in projects. Lessons from past initiatives can point countries to strategies and innovations that can inform future initiatives in project design and implementation. This forum invites you to mine lessons from your unique country experiences.

13 Policies and guidelines in ADB continue to evolve. They are shaped by feedback from member countries and those at the frontline of implementation and policy development. The sharing and conversations in this forum can enrich policies to make them more attuned to the varied contexts and challenges faced by countries.

"Our mission is clear and important, and we are constantly searching for ways to be more responsive, efficient, effective, and innovative for our clients."

Risa Zhijia Teng, *Director General of the Procurement, Portfolio and Financial Management Department*

B. Opening Remarks: Meaningful Partnership and Collaboration

Deborah Stokes, Vice President for Administration and Corporate Management

14 KEY POINTS

- **The growing size of ADB's sovereign portfolio ($82.2 B and 666 projects) is a call to action—to seek ways that the projects being funded are delivered in the best way possible.**
- **Strategy 2030 outlines ADB's investment priorities.**
- **Two new ADB products are intended to help member countries cope with the demand for high-quality project design and documentation.**

15 The expanding size of ADB's investments and multiple sector work intensifies the imperative on ADB and developing member countries to ensure that these investments yield the most beneficial outcomes possible. This forum has an important role to play—it is an opportunity to strengthen partnership and collaboration as well as examine the indicators for evaluating the feasibility and readiness of projects before they are rolled out. Participants in this forum can provide feedback on how ADB can support countries deliver operational efficiency and timely results.

"Projects are the cornerstone of ADB's work to promote a prosperous, inclusive, resilient, and sustainable Asia-Pacific region."

Deborah Stokes, *Vice President for Administration and Corporate Management*

16 ADB supports investments in 7 operational areas, as outlined in Strategy 2030:

i. **Addressing poverty and reducing inequality**

ii. **Tackling climate change, building climate change and disaster resilience, and enhancing environmental sustainability**

iii. **Promoting rural development and food security**

iv. **Accelerating progress in gender equality**

v. **Making cities more livable**

vi. **Strengthening governance and institutions**

vii. **Fostering regional cooperation and integration**

17 Of these, three targets are important to highlight. By 2030, ADB aims to increase support for climate change mitigation and adaptation by 75%; and gender equality, also by 75%. By 2024, a third of investments should have been allocated for private sector operations. These priorities and targets will be reflected in ADB's country program strategies.

18 ADB has two facilities to speed up engineering designs and other preparatory work. The first is called Project Readiness Financing or PRF. It is in the form of a loan that can be used by a borrower for preparation and design activities. The other is called Small Expenditure Financing Facility (SEFF), which can be used quickly by countries for small financing needs within the eligible activities of the SEFF. The facility is linked to a bigger sector loan. Both will hopefully reduce startup delays.

19 ADB commits to continuing its efforts to make the process better. We urge you to interact with open minds, actively engage with counterparts, share your experiences, and build fruitful relationships. We look forward to working with you to further strengthen our collaboration as 'one team' fostering sustainable and inclusive development.

C. Sovereign and Nonsovereign Collaboration

FACILITATOR:

Jacob W. Sorensen, Director of the Partner Funds Division, Sustainable Development and Climate Change Department

PANEL SPEAKERS:

Jackie B. Surtani, Director of the Infrastructure Finance Division 2, Private Sector Operations Department

Joven Z. Balbosa, Advisor to the Office of the Director General, Southeast Asia Department

Srinivas Sampath, Chief of the Public-Private Partnership Thematic Group, Office of the Head for Public–Private Partnership

20 KEY POINTS

- **Policy dialogue is a listening and learning opportunity to define strategic directions and forge partnerships.**
- **Public-private partnership (PPP) should be part of a broader economic plan.**
- **ADB has a range of products in support of PPP.**

21 One of the ways we can facilitate sovereign and nonsovereign collaboration is through policy dialogues. In ADB, policy dialogue can happen through a country programming mission (CPM). Government authorities meet with ADB officials and staff at the start of the year to discuss challenges, lessons, and solutions to development challenges. While usually undertaken with a sector focus and often with sovereign representatives, a CPM can be transformed into a conversation around a cluster of concerns or a central theme such as competitiveness. The CPM can expand the conversation to include private sector partners and allow input from multiple sources.

"If done well, policy dialogues provide an opportunity for discussion... Some consultations are often sector-oriented. What if, like the Philippines, we do a clustering approach where we look at, for example, competitiveness. If we open discussions with a broader thematic topic, we would find synergies among agencies."

Joven Z. Balbosa, *Advisor to the Office of the Director General, Southeast Asia Department*

22 PPP is a preferred option if it is a carefully considered strategy. Government needs to provide for a number of services, health, transport, and energy, among others. It can draw from any of these four usual funding sources to finance its projects: tax revenues, official development assistance (ODA), commercial borrowings, and PPP. PPP must be included in economic planning. What are the opportunities? What are the expectations? It is essential to consider how the partnership can bring in respectable profits for both parties. Hence, it requires both the sovereign and nonsovereign parties to talk to each other and plan well.

23 There is a range of both sovereign and nonsovereign financing facilities that supports private sector investments in ADB. In many cases, it is the quality of advice that can really help countries move forward in PPP. That, too, is made available by ADB, along with support for capacity-building, policy development, and other preparatory work.

24 The goals of development projects are to deliver better services and improve people's lives. The question is how to effectively utilize resources composed of not only financing but also technology, knowledge, and partnerships. Leveraging these resources, especially those outside of government, is very important in catalyzing the achievement of development goals.

D. From Project Concept to Approval

FACILITATOR

Bobur Alimov, Advisor in the Strategy, Policy and Partnerships Department and Head of the Special Initiatives Unit

PANEL SPEAKERS:

M. Teresa Kho, Deputy Director-General for East Asia

James Patrick Lynch, Deputy Director-General for the Pacific

Rolando G. Tungpalan, Undersecretary for Investment Programming, National Economic and Development Authority, Philippines

25 KEY POINTS

- **The problems we try to address in our projects require multi-sector interventions.**
- **A differentiated approach to project development is necessary to address unique development challenges in a country or sub-region.**
- **To be successful, the identification and development of projects must be driven by government.**
- **Prioritize projects that fit within the larger thematic roadmap.**
- **Time spent preparing for the project is offset by smoother implementation.**

26 Projects become more complex as countries develop and their economies grow. The Yangtze River Economic Belt of the People's Republic of China is an example. This project addresses issues related to flood control, access to safe water, and ecosystem management through multiple interventions around risk mapping, environmental planning, wastewater treatment, water pollution control, embankments, and flood mitigation. This kind of project requires inputs from many disciplines, which we increasingly see in many projects of this scope. The challenge is to try to find a solution not just to a single problem but to the root causes of the problem.

27 Sub-regions such as the Pacific adopt a differentiated approach in addressing contextual differences across countries that include fragile and vulnerable communities and small economies. Assessments of fragility and vulnerability allow ADB and these countries to analyze the issues they face before project identification. Several factors are also considered in project identification, including scope, institutional arrangements, capacities, climate resilience, and impact. The nature of the issues and projects also make it necessary to coordinate with development partners to rationalize investments, harmonize policies, and coordinate assistance. Countries, particularly in the Pacific, have availed of the Project Readiness Facility for detailed engineering designs. Other differentiated approaches come in the form of lower thresholds for EIRR or economic internal rate of return, tapping nongovernment organizations

"It's in everybody's interest to ensure that projects are shovel-ready, once the financing is ready."

James Patrick Lynch, *Deputy Director-General for the Pacific*

as implementing partners, simplified procurement processes, use of direct contracting, and single-source selection of consultants.

28 There are three development principles that the Philippines subscribes to, and which are key to successful projects. Principle 1 – Strong county ownership. Investments must support the long-term development plan of the country. Principle 2 – Results. Government must have a strong commitment to deliver results. These results are found in the results matrix that is developed after the sectoral programs have been identified and the Investment Program prepared. Principle 3 – Partnerships. The right institutions and partners that will implement the project should have been identified. These institutions must have a good understanding of their roles and accountability for the results.

29 Governments are faced with pressures to prioritize thousands of projects. A list of these projects is not a priority list. The best way to prioritize is to identify which ones fit the larger thematic map, for instance, the transport map. This approach highlights the importance of a viable long-term plan that is then operationalized via an investment program. Plans provide a rational way of selecting investments that are relevant.

30 While there is pressure to be better and faster in the new environment, it is always good to remember that projects that are complex and require innovation need time to conceive. Adequate attention to the preparation and design of projects usually saves time in the end because project teams can mitigate risks and issues early in the design phase.

31 There are rapid changes and complex development challenges today. They create equally complex demands on projects. This reality cannot be ignored, especially because projects are the building blocks of sustainable development. Hence, it is crucial that projects are supported by effective policy coordination, strategy formulation, stakeholder engagement, and institutional arrangements.

E. Connecting the Future to the Present

Vivencio B. Dizon, Presidential Adviser on Flagship Programs and Projects and President and CEO, Bases Conversion and Development Authority, Philippines

32 KEY POINTS

- **Keep people at the center of your vision.**
- **Complex urban development projects need expertise and partners.**
- **Create a city of people and communities, not of buildings.**

33 The challenge in most urban projects is that they often start with plans for spaces and buildings. The Clark City Project reverses that process and starts with a vision of what a livable city should like. At the core of this vision is people. A city should think about how people can live, breathe, walk, play, and work.

34 Clark City is a complex project that requires expert inputs. ADB's support is instrumental in translating the country's vision into what is now Clark City. Multilateral agencies, bilaterals such as the Japan International Cooperation Agency, and other experts provided technical assistance. The bottom line is to ask for support when your project needs it.

35 The Philippines is learning from the Singapore model of mixed-income housing. The government has engaged a Singaporean consultant to help develop the urban design and standards for Clark City. The intent is to build affordable housing so that middle-income populations can co-exist in a city that is connected by efficient mass transport and well-designed public spaces.

"Clark City is inspired by our vision of what a livable city should look like."

Vivencio B. Dizon,
Presidential Adviser on Flagship Programs and Projects and President and CEO, Bases Conversion and Development Authority, Philippines

First life, then spaces, then buildings – the other way around never works.

JAN GEHL

F. Development Agenda and Project Design

FACILITATOR:

Rehan Kausar, Director of the Portfolio Management Division, Procurement, Portfolio and Financial Management Department

PANEL SPEAKERS:

Akmal Siddiq, Chief of the Rural Development and Food Security (Agriculture) Thematic Group, Sustainable Development and Climate Change Department

Neeta Pokhrel, Unit Head for Project Administration, Urban Development and Water Division, South Asia Department

Walter A.M. Kolkma, Director of the Thematic and Country Division, Independent Evaluation Department

36 KEY POINTS

- **Detailed planning is key.**
- **Do integrated planning but implement in phases.**
- **Project readiness is improving across the board, but there is still room for improvement.**
- **Differences in the way projects are managed eventually boils down to country systems.**
- **Procurement requires a specialized competency.**
- **Project designs may and can change.**
- **There is no hard and fast rule in determining the share of consulting cost against the total project cost.**
- **Be realistic about the objectives, indicators, and timeline you set for projects.**

37 Project readiness is a goal for everyone. It is about cutting the time it takes for projects to get to the first contract awards or disbursement after they get approval. The process usually takes two years. If we want to shorten this process, we must recognize that most projects are complex. The key is to do the assessments and detailed designs carefully, plan the details and critical path, and anticipate what can go wrong from the outset. We should also put in place the staff who will do the work. This team should be ready not on day one but on minus 200 days. Anticipating what is required for a project to start immediately—from feasibility studies, land requirements, safeguards, detailed engineering design, costing, and procurement plans—helps projects hit the ground running. Project readiness is the sum of all these actions.

38 Integrated planning must be done as a matter of due diligence. Projects benefit from a holistic understanding of the link between sectors and themes. Implementation, however, is more efficiently done in phases. This is most true in the case of complex urban projects where the issues cannot be tackled at the same time. Ideally and logically, the sequence

is to build the overall framework first—the master plan—and then do the detailed assessments after. Yet, we are running against time in urban areas that demand immediate solutions to critical issues and where so many parts keep moving that it is almost impossible to predict everything and come up with a perfect design. The best option, therefore, is to start with those elements that are ready and build scope and capacities incrementally.

39 Overall, the trend suggests that the success rate of projects, now averaging at 76%, is improving. This is closer to our desired rate 10 years ago. Projects assessed against the efficiency criterion are, however, evaluated less positively and this is attributed to delays, overruns, underruns, procurement issues, and safeguard issues. Sustainability is another area where projects are assessed less favorably. Thus, while the time from initiation to conceptualization and finally to approval is decreasing (currently at 6-8 months), we still see many issues reflected in the project completion reports (PCRs). Among these are staff quality and turnover, fiduciary problems, and insufficient supervision. These are typical problems that can be addressed in the design phase, a fact that bolsters the need for good risk assessment and proper design.

40 The presence of good country systems is a predictor of success. Countries that imbibe a sense of discipline and political focus in setting up viable systems such as policies and project management ultimately position themselves to be successful. Those with strong political culture are generally able to adopt and implement such systems.

41 Procurement is a complex process. Many projects tend to underestimate the scope of the work involved, and it requires a good understanding of the principles, the market, and the ways one can obtain the best deal from vendors. We should not make the mistake of conveniently assigning someone to this position if he does not have the competence and experience for the job. Being an engineer is not a guarantee that this person would also know procurement.

42 It is possible to change a project design and that is what regular evaluations do—check whether the assumptions are still relevant midway in implementation. Situations change. New challenges emerge that have not been anticipated. This justifies design change and is acceptable.

43 The share of consultancy in the overall cost of projects is not fixed. There is no benchmark. A good rule of thumb is to consider the economy of scale. The higher the cost of the project, the lower the cost of consultancy. Smaller projects tend to have higher consulting costs.

44 Those designing projects should avoid the tendency to set ambitious targets and ambiguous indicators. Timelines should also be reasonable enough so that you have a good chance of achieving your objectives. Projects are evaluated against the objectives. If you set them too high, you will likely do poorly in the evaluation. The lesson is to always be realistic with what you want to accomplish. The other thing that countries should invest in is good impact evaluation. Every country has an interest in results and there should be a plan on how to measure the impact.

45 The development agenda and operational priorities can be integrated in project design and implementation and they can contribute to project readiness. The task can be informed by lessons learned and country experience.

"Plan, plan, plan. Figure out your critical path. Critical path is where you want to put what could be delayed. You have to map it all up."

Neeta Pokhrel, *Unit Head for Project Administration, Urban Development and Water Division, South Asia Department*

G. Fiduciary Standards

FACILITATOR:

Ashraf Mohammed, Deputy Director-General of the Procurement, Portfolio and Financial Management Department

PANEL SPEAKERS:

Jeffrey William Taylor, Director of the Procurement Division 1, Procurement, Portfolio and Financial Management Department

Aman Trana, Director of the Public Financial Management Division, Procurement, Portfolio and Financial Management Department

Bruno Carrasco, Chief of the Governance Thematic Group, Sustainable Development and Climate Change Department

46 KEY POINTS

- **Fiduciary standards are about accountability.**
- **Fiduciary issues are addressed across multiple entry points.**
- **Pay attention to hotspots.**
- **Value for money looks beyond cost, and considers the broader socioeconomic implications of projects.**

47 Early, consistent, and constant engagement with developing member countries is an effective strategy in building fiduciary responsibility and capacity. Fiduciary standards means taking responsibility for the funds that we get from taxpayers and making sure that these are used as intended. There is a very high responsibility that we all need to exercise so that public funds are safeguarded. There are two aspects to this. First, is to make sure that funds are not misused. Hence, we use audits, oversight, monitoring, and recording standards to ensure that the money is accounted for and we are accountable for where the money goes. The other is the responsibility to make sure that our projects are sustainable and do not become a burden to the country. Across the globe, some $3.06 trillion is lost to corruption every year. In many developing countries, institutions are weak, which leads to higher risks in fiduciary issues.

48 There are different ways that we implement our fiduciary standards. One is through the conduct of a governance risk assessment, which is essentially about looking at fiduciary vulnerabilities (e.g., corruption) in a country, sector, or project. The result of the assessment is translated into a GACAP or Governance and Anti Corruption Action Plan to articulate how risks will be managed. The GACAP is regularly monitored and

"The other aspect of our fiduciary responsibility is to ensure that we do not develop projects, or end up with projects, that are a burden to the country."

Aman Trana, *Director of the Public Financial Management Division, Procurement, Portfolio and Financial Management Department*

midterm reviews also look at how the risks are being addressed. The strength of the fiduciary is also linked to institutions. The stronger the institutions, the more accountable countries become. Hence, investments are also needed to build capable institutions.

49 Some conditions or factors are particularly prone to fiduciary problems. They are called hotspots. One of these hotspots would be countries dependent on mineral resources. They are vulnerable because their institutions are also often eroded. Another would be SOEs or state-owned enterprises because it is easy to siphon resources to these entities. Procurement is another hotspot. Among the ways we can deal with them is by exacting accountability and transparency, for instance. through the use of mobile phones and apps, e-procurement, and open government.

50 Value for money looks beyond cost. It considers the quality of the product or service, the anticipated project life, the environmental consequences of using the product or service, and various other factors that are not normally considered if you only evaluate for the cost. A good example is when you have to procure for a power plant and you want to apply value for money for very good reasons. It is a complex investment and it should be evaluated for a range of factors. You might evaluate for fuel efficiency, emission, how much water is stored, the cost of wastewater treatment, and possible impact on the environment. If you plan to build it to last for 20-25 years, then you need to expand your metrics so that you get the offer that will extend the lifetime to the desired period. In contrast, when you are procuring a paper clip, a widely available commodity, the consideration can simply be cost.

51 Capacity in both quantity and quality is always an issue, whether we refer to the adequacy or the competence of staff with fiduciary functions. We all acknowledge that capacity and institutions are key to upholding fiduciary standards. To this we should add that early engagement and the consistent and constant presence of mentors who can handhold the executing agencies and implementing agencies, can significantly improve fiduciary performance. For ADB it is a chance to better understand the limitations and constraints of executing agencies (EAs) and implementing agencies (IAs). Attention allows both sides to spot and troubleshoot problems and manage fiduciary risks from day 1.

H. Safeguarding the Future

CO-FACILITATOR AND PANEL SPEAKER

Bruce K. Dunn, Director of the Safeguards Division, Sustainable Development and Climate Change Department

PANEL SPEAKERS:

Ricardo Carlos Barba, Principal Safeguards Specialist for the Portfolio, Results and Quality Control Unit, South Asia Department

Vergel M. Medina, Senior Social Development Specialist for the Transport and Communications Division, South Asia Department

52 KEY POINTS

- **Safeguards allow us to address the unintended consequences of our projects on people and the environment and consider vulnerable or disadvantaged groups in the population who might be disproportionately affected by our projects.**
- **When something goes wrong in implementation, it is often because we missed something in the safeguards process.**
- **The environmental safeguards policy is about ensuring the environmental soundness and sustainability of our projects.**
- **The overarching objective of the involuntary resettlement policy is to avoid the displacement of people.**
- **The policy for indigenous peoples promotes respect for the rights and dignity of indigenous communities.**
- **We have a responsibility to ensure that people who need to be resettled or compensated have access to opportunities to restore their normal lives and livelihood.**
- **We need to strengthen country systems.**

53 Safeguards policies recognize that even the most well-meaning projects can have an unintended impact on people or the environment. If the engineering of a project is not designed well, the project can displace people or damage the environment. Sometimes there are groups of people such as the elderly, persons with disabilities, women or children, who are more vulnerable than others, who may not benefit fully from projects, or may be put at risk because of the projects. In ADB, there are safeguards policies for the environment, involuntary resettlement, and indigenous peoples. The overriding objective in all the policies is that we want to avoid negative impact as much as possible. We know too that mitigation can be costly.

54 There are common approaches in safeguards policies and processes. For instance, whether its environment, involuntary resettlement, or indigenous peoples, our safeguards process starts with screening for risks and impact. The results feed into management planning, through the Environmental Management Plan (EMP), Involuntary Resettlement Plan (IRP), or Indigenous Peoples' Plan (IPP), where you need to outline the mitigation measures in case there are risks to people and the environment. The plans become the bases for implementation and monitoring. At the core of this cycle is "meaningful consultation", which is an iterative process requiring us to listen

"Safeguards are important for infrastructure projects. These projects can pose severe economic, social and environmental risks if they are not managed properly"

Bruce K. Dunn, *Director of the Safeguards Division, Sustainable Development and Climate Change Department*

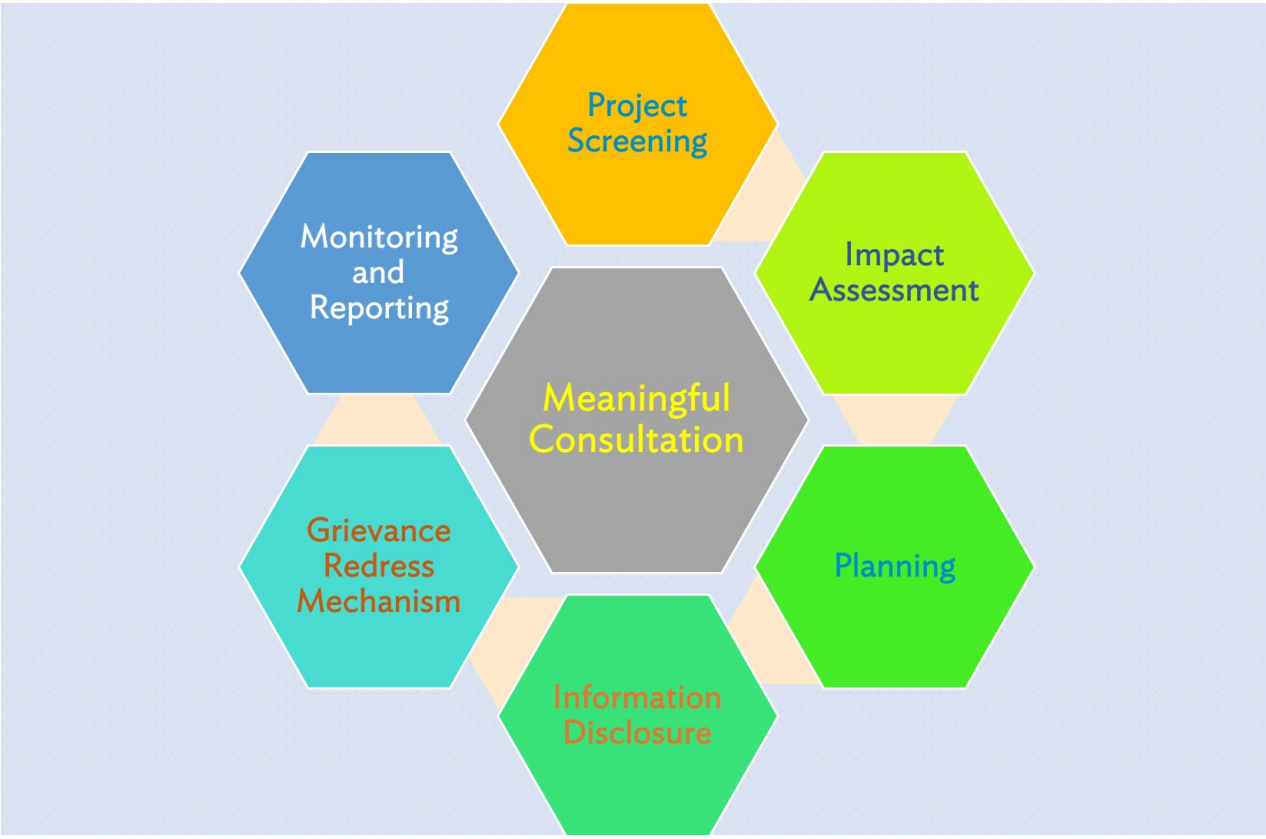
and confer with the people who are bound to be affected by the project. We likewise need to disclose information at the right time and in the right format. The safeguards policies also include a grievance handling mechanism that allows us to receive and respond to complaints. When there is a problem in implementation, it is almost always traceable to gaps in processes and requirements; hence, it is important to follow policies and guidelines.

55 There are technical requirements under the environmental safeguards policy that cover issues on biodiversity conservation, pollution prevention, occupational health and community safety, and conservation of physical resources. Detailed guidance and training on the full range of safeguards policies are available.

56 Projects should avoid displacing people. There are ways this can be done. In cases when it needs to happen, modifications on project design, location, and other mitigation measures should be undertaken. The policy also provides for compensation at replacement-cost of lost assets, relocation assistance, and restoration of livelihood or economic assets. For people without land titles, if they have been living in the area for a long time, we still need to make sure they receive some compensation and assistance for relocation. The policy applies to both full and partial impact (e.g., temporary as well as long term or lifetime displacement). Customary rights are also recognized.

57 The IP safeguards policy recognizes that there are IPs or ethnic minority groups with long and customary associations with land and where their attachment to land and cultural

Common Policy Requirements



institutions might be unique and which need consideration. The principles and approach are similar to environment and involuntary resettlement. There are triggers for IPs and these refer to distinctiveness (presence of groups that are either self-identified or recognized by others with attachment to land, with distinctive social or cultural practices, and distinct languages); and, vulnerability (either as a result of the project or from the mainstream of society). The consent or expression of support from the IPs needs to be secured.

58 Resettlement is always difficult, and we have to be particularly sensitive to the impact of our projects on communities and people. When we have an effective grievance redress system and meaningful consultations, we minimize the stresses associated with displacement. The goal is to allow people to bounce back as quickly as possible and recover from economic losses.

59 If we want to sustain our efforts towards safeguards, we need to look at existing country systems and use them. Some are even more stringent than ADB's. Ultimately, we should work to harmonize with the policies and regulations in DMCs and invest in capacitating our members for effective safeguards implementation.

RESOURCES

- ADB Safeguard Policy Statement https://www.adb.org/documents/safeguard-policy-statement

II. TRANSLATING PROGRAMS TO PROJECTS

A. Procuring Well

Vijay Kumar Akasam, Senior Procurement Specialist for the Procurement Division 2, Procurement, Portfolio and Financial Management Department

60 KEY POINTS

- **The New Procurement Framework (2017) introduces new policies that help borrowers improve the quality of their projects and achieve value for money.**
- **There are manuals, user guides, and guidance notes for specific aspects of procurement that borrowers can use as references.**
- **A major change in the new policy is the reinterpretation of the criterion on cost.**
- **There will always be risks from abuse of discretion, thus the need for risk mitigation.**
- **Strategic procurement incorporates quality measures early in the project cycle.**

61 The New Procurement Framework was approved in 2017 and contains additional sets of policies. These new policies include a major shift from rules-based procurement to one that is principle-based. In addition to the four principles of procurement, namely, fairness, efficiency, economy, and transparency, the framework includes quality and value for money. Quality is making sure that you have structured arrangements to deliver appropriate outputs effectively and efficiently, while value for money is about obtaining the optimal benefits from procurement. The framework allows borrowers to use a weighted average to score compliance with the criteria in the evaluation of bids, a system that used to be applied only to the evaluation of consultants. The other significant change is the fit-for-purpose approach that gives borrowers the flexibility to develop the bidding processes and options best suited to their needs and conditions.

62 In addition to the manual on the procurement of goods and services, there are 24 guidance notes that can be used at different stages of the project and procurement process. When preparing for a project, the relevant guidance notes are those on procurement risk assessment framework, procurement planning, procurement review mechanisms, and alternative procurement arrangements. When designing a procurement plan, the relevant guidance notes are those on framework agreements, open competitive bidding, consulting services, and non-consulting services administered by ADB borrowers. During implementation, it will be useful to refer to the guidance on bidding processes, price adjustment clause, prequalification of bidders, sub-contracting arrangements, and domestic preference in procurement. Consulting services are now a distinct procurement type in the new framework.

"The New Procurement Framework can speed up the delivery of procurement outcomes."

Vijay Kumar Akasam, *Senior Procurement Specialist for the Procurement Division 2, Procurement, Portfolio and Financial Management Department*

63 It should also be noted that borrowers are now required to submit a contract management plan and to monitor activities based on the plan. Other recent guidelines include how to deal with abnormally low bids, participation of state-owned enterprises, procurement in fragile and conflict situations, public-private sector arrangements, and procurement of high-level technologies.

64 The foremost consideration in evaluating bids used to be the cost. The bidder that offered the lowest cost usually got the contract. Now, we differentiate between offers of different qualities so that the lowest price is not necessarily the winning bidder. The framework now includes provisions on bid security, subcontractors for specialists, treatment of abnormally low bids, blacklisting under country laws, respectful work environment clause, consulting services (the previous requirement of number of firms is removed, experts in the firm from DMCs may come from non-DMCs), and simplified technical proposal.

65 With greater flexibility to respond to borrower requirements come risks. For instance, allowing the addition of qualification criteria based on DMC requirements may result in the manipulation of requirements in favor of certain contractors. For this reason, we need to tighten our procurement risk management. One of the ways to mitigate this is to ask the borrower to clearly explain the qualification evaluation criteria, to include and explain life-cycle cost in as much detail as possible. If this cannot be done, then the explanation for the weighted scoring needs to be included. It is likewise expected that the independent audits can serve as deterrents to irregular practices.

66 Strategic procurement, a feature of the procurement policy, provides a structured approach to procurement and helps you to look at various aspects of your environment and the nature of work or services you need before you even begin to choose your procurement options. There are recommended tools for analyzing your operating environment (what is internal to the organization, e.g., staff capacity); the bargaining power of the buyer and the supplier in the market (e.g., economic conditions, which suppliers are available, the supply chain); and the risk management (e.g., what are the risks and how you address them and monitor compliance to the risk mitigation plan). Going through these steps facilitates the selection of your procurement options. Use these criteria to evaluate your options: suitability, feasibility, and acceptability.

Procurement Principles with Expected Outcomes

Principle		Outcomes
	**Fairness**	Equal opportunity; equitable distribution; and credible mechanisms for addressing procurement-related complaints.
	**Economy**	Using price, quality, and any nonprice attributes to deliver viable projects.
	**Efficiency**	Ensures procurement processes are proportional to value and risks.
	**Transparency**	Deliver relevant procurement information publicly in a consistent and timely manner; appropriate reporting; and confidentiality.
	**Quality**	Structured arrangements delivering appropriate outputs in an effective manner to achieve project outcomes and objectives.
	**Value for Money**	Obtain optimal benefits through effective, efficient, and economic use of resources.

B. Sustainable Financial Management

Srinivasan Janardanam, Principal Financial Management Specialist for the Public Financial Management Division, Procurement, Portfolio and Financial Management Department

67 KEY POINTS

- **We are all trustees of the funds we manage.**
- **Due diligence can be exercised at various stages of the project cycle.**
- **The financial capacity of the enterprise or organization that will manage the project needs to remain strong even after phase out.**

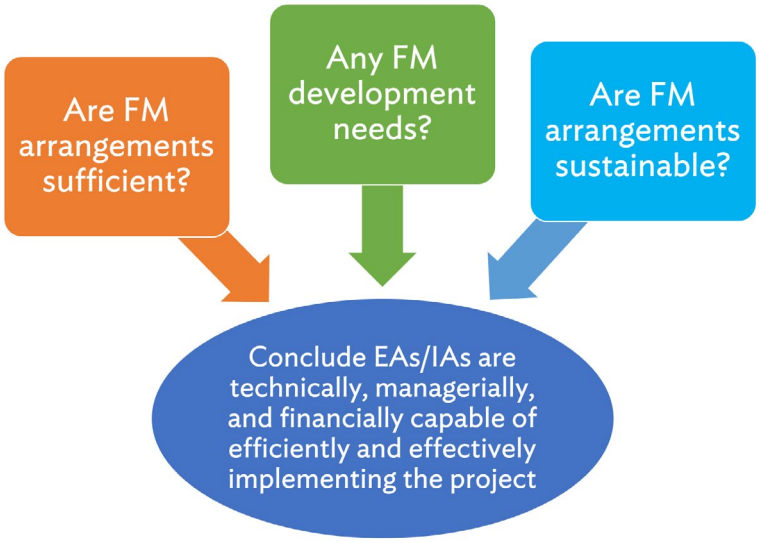
68 Findings from reviews reveal that currently, 68% of our projects are sustainable. Our desired rate is 80% or higher. This points to the need to continue working to improve financial sustainability. A key barrier to sustainability is the lack of adequate operation and maintenance (O&M) financing. It is not the inability to pay the debt that is the issue but the inability to sustain O&M and deliver the services continually.

69 Financial management is a core pillar for good governance. We all have an obligation to ensure that loan funds are used only for the purpose intended. Borrowers should not only meet loan obligations but show evidence that they are managing the resources well and are able to produce reports and audits on how the funds are used.

70 Due diligence means paying careful attention to the possible risks in financial management. This begins during the preparation stage where you design the country partnership strategy (CPS). The CPS contains the strategies of a DMC to deliver development results. At this stage, ADB looks into the overall public financial management arrangement and capacities of the DMC and its sector agencies. This financial assessment is the basis for action or negotiation with the government on how to strengthen financial management policies and systems.

71 During project design and processing, both ADB and the DMC will ensure that the design includes measures to protect the resources of the project and that the project will not be a drain to the country's finances. Ultimately, we aim to be able to recover the investment costs and operate and maintain the project in a sustainable manner, ideally from project revenues. During the implementation stage, we need to undertake

Objective of FMA

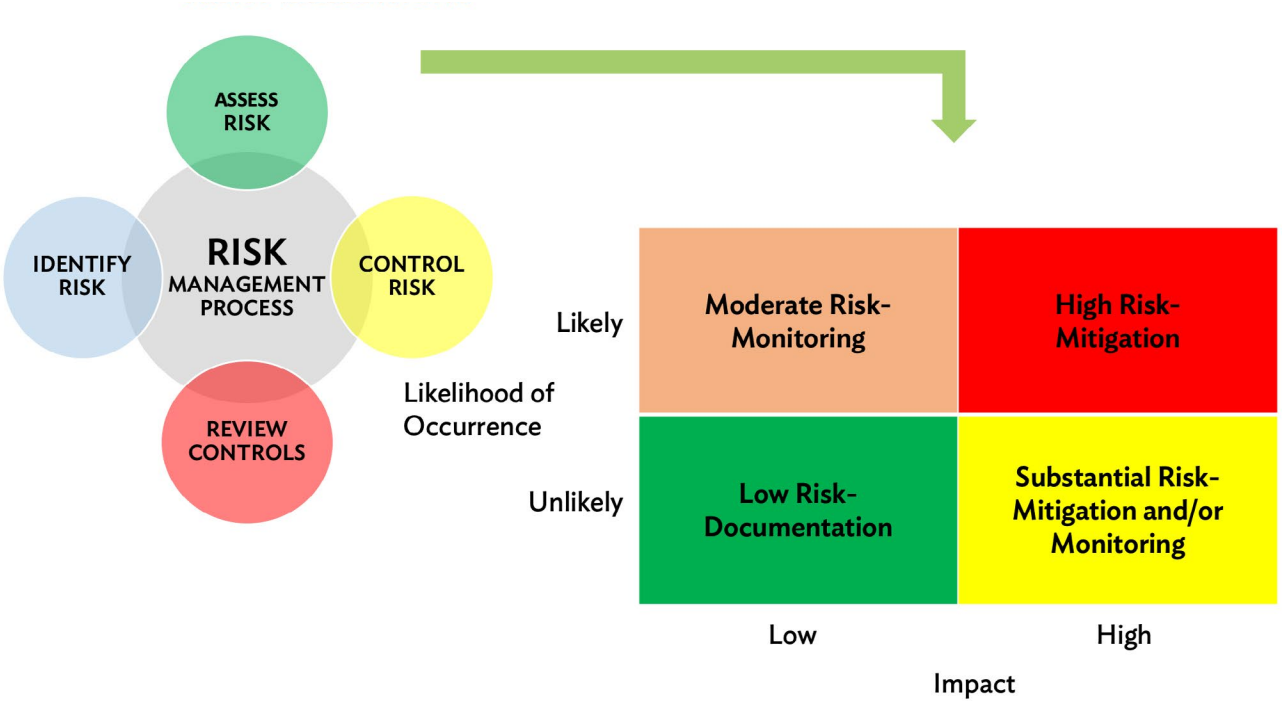


> **"The overall principle we are driving at is that ADB projects are using public funds and it is very important for us to ensure that the projects that we invest in are sustainable and deliver the results for the next 25 to 40 years."**
>
> ***Srinivasan Janardanam,*** *Principal Financial Management Specialist for the Public Financial Management Division, Procurement, Portfolio and Financial Management Department*

financial reporting and auditing, review the validity of initial cost estimates, institute and implement a complaint system to check issues against the financial covenant, and perform a continuing financial action plan review. At completion, we require self-evaluation to determine whether the dimensions of good financial management and sustainability are addressed.

72 Financial assessment is a way to identify the chances that the project can be sustained beyond the project implementation period. The sustaining entity needs to be assessed and supported to ensure that its capacity to manage the resources or revenues from the project remains sound after ADB support. This is an important aspect of sustainability. We must ask whether the project can operate after a period of time using revenues from operations, or whether they would need subsidies from government. If the latter is the option, can the government finance it? Projects need to be intrinsically viable after ADB support.

Risk Assessment



C. E-Procurement Lessons & Innovations

Minhong Fan, Senior Procurement Specialist for the Procurement Division 1, Procurement, Portfolio and Financial Management Department

73 LESSONS AND INNOVATIONS

- **E-Procurement can improve governance.**
- **It can improve efficiency.**
- **It can improve transparency and fairness.**
- **It can improve effectiveness, especially value for money.**
- **Innovations should address persistent gaps in the delivery of procurement outcomes.**

IMPROVING GOVERNANCE

74 **China.** In Henan Province, the government installed an anti-corruption e-procurement system that helps the state detect possible collusion between suppliers.

75 **Indonesia.** The government can monitor the progress and status of procurement in real-time from planning until implementation using e-procurement.

76 **Georgia.** E-procurement provides information about the status of contracts and procurement red flags or risks such as cancellation of tenders, illegal disqualifications, high estimated value for bids, winning bids by newly-established firms, contract modifications to suit a particular contractor, and similar cases. It is an effective transparency tool to monitor the risks and take proper action.

IMPROVING EFFICIENCY

77 **India.** The e-procurement of the National Information Center includes a dashboard that processes data about procurement and generates a visual representation of the analysis. The data provides government with quick and useful information about compliance with procurement targets. For instance, the dashboard shows that 92% of bidders completed the requirements within the bid validity time; the average number days from bid publication to submission of financial bids was reduced from 82 to 32 days; the average number of days spent on financial bid evaluation from bid opening was similarly reduced from 26 to 6 days. These efficiencies were made possible because the office automated the system and provided templates for bidding documents that helped make analysis easier.

IMPROVING TRANSPARENCY AND FAIRNESS

78 **Cook Islands.** Cook Islands used e-procurement delivered as SaaS or Software as a Service to increase transparency and fairness in procurement. SaaS is a system that is hosted online. The e-procurement system contains features for organizing tenders and bids and generating quick reports and analyses. It helped Cook Islands simplify its procurement while retaining all the functionalities of regular procurement.

"To promote transparency and efficiency, ADB encourages developing member countries to modernize their procurement systems, including through electronic procurement."

Minhong Fan, *Senior Procurement Specialist for the Procurement Division 1, Procurement, Portfolio and Financial Management Department*

Increase Transparency and Fairness

Cook Islands — SaaS

Our Experience with SaaS

Benefits

- Increased transparency
- Increased interest in opportunity
- Increased supplier base
- Improved efficiency
- Online accessibility
- Shorter time periods

Challenges

- User Awareness & Public Trust
- Something new-takes time to train users and suppliers
- Platform support time zone
- Branding – minimal customization capabilities
- Some lack of control when technical issues occur

79 Small island states can adopt the SaaS model of Cook Islands. Instead of developing its own system, Cook Islands subscribes to an already available e-procurement system that can be used for a fee, which is more cost-efficient than setting up and maintaining its own system. The model enabled Cook Islands to attract a wide number of high-quality suppliers and make the bidding process more transparent and fair. The EA reports increased transparency, wider supplier base, better efficiency, improved accessibility, and reduced procurement time.

LEVERAGING NEW TECHNOLOGY

80 **China.** The country maximized the use of mobile technology by using mobile phones to scan QR codes for automatic identity recognition and to perform online bid opening.

81 Shenzhen, China uses new technology in BIM-based electronic tendering and bidding. China combines BIM or Building Information Modeling with big data + GIS to make technical descriptions and specifications, locations, and designs for goods or services to be procured.

ACHIEVING VALUE FOR MONEY

82 Ukraine. The country developed an open contracting partnership that enabled it to increase its supply base to 45% and reduce the final cost for procurement by as much as 9.5%. Its open contracting partnership scheme makes public all procurement-related documents and transactions, including plans, tenders, bids, evaluations, and contracts. Disclosing this information becomes a deterrent to corruption.

83 **Georgia.** The country's e-procurement system is a response to the public sector demand for a transparent system that would allow it to secure the most value in procurement. The country awards about 4 billion GEL in contracts every year, representing 10% of its GDP, with up to 40% of the state budget going to procurement. After the government adopted e-procurement in 2010, the total savings generated amounted to about 11% or 1.8 billion GEL, representing a substantial portion of its expenditures. The disclosure of procurement to the public improved competition and leveled the playing field. It also resulted in better tenders and high-quality goods and services that respond to the need for value for money.

84 Future innovations are being eyed to improve electronic government procurement systems in DMCs, design more end-to-end software solutions, use procurement information in data analytics and data visualizations, streamline processes, analyze budgets, and use artificial intelligence or AI. Capability building for DMCs will need to be strengthened as well, not only for officers and staff but also for vendors and contractors.

RESOURCES

- ADB E-Procurement: Guidance Note on Procurement https://www.adb.org/documents/eprocurement

Achieve Value for Money

Georgia

Public Sector (Demand):

- Number of decentralized acting contracting authorities: **4446** (Sep 2019)
- Annual amount of public procurement contracts: **4 Billion GEL,** approximately **10%** of GDP, and up to **40%** of State Budget
- Number of open tenders per year: **32,000 – 40,000**
- Estimated value of approximately 75% of announced tenders: **< 100.000 GEL**
- Saving: **11%** of the estimated value, **1.8 Billion GEL** since **2010**

Source: State Procurement Agency

Ukraine: competition and value for money

ProZorro provides a central database of procurement opportunities.

From January 2015 to March 2017 OCP evaluation shows:

- **Average number of bids per tender: ⬆ 15%**
- **Average unique suppliers per procuring entity: ⬆ 45%**
- **Average final cost vs. estimated cost: ⬇ 9.7%**

Higher competition leading to 9.7% reduction in cost offers significant savings against the 45% of national budget spent through procurement.

Source: Open Contracting Partnership

D. Agriculture Lessons & Innovations

FACILITATOR AND PROJECT STORYTELLER:

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PROJECT STORYTELLERS:

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RESOURCE PERSON:

Vijay Kumar Akasam, Senior Procurement Specialist for the Procurement Division 2, Procurement, Portfolio and Financial Management Department

85 LESSONS AND INNOVATIONS

- **Tackle issues that have a significant impact on development.**
- **Aggregate smaller projects to create an integrated solution.**
- **Coordination is key in projects where solutions rest with different stakeholders.**
- **Identify and use common interests to move forward in transboundary type of projects**
- **Politically-sensitive project outcomes require differentiated approaches.**

86 **Mongolia Assistance in Livestock Value Chain Development.** This is a $64.6 million investment project and a $5 million grant. The main objective of the project is to diversify the economy by supporting livestock-based manufacturing. Other project elements include financing; business advisory; technical and safeguards support for the manufacturing sector and the herding sector which receives additional poverty reduction grants and emergency grants; support for an enabling environment, such as testing laboratories, research and development, business association support, and national brand development for natural fiber and brand marketing.

> **"We need to invest strategically in areas where the financial sector does not venture, but where development impact is large, for instance, long-term productivity improvement."**
>
> ***Takeshi Ueda,*** *Principal Natural Resources and Agriculture Economist for the Environment, Natural Resources & Agriculture Division, Southeast Asia Regional Department*

87 DMCs are confronted with an overwhelming number of priority projects. However, resources are limited, and no government can respond to all these needs at the same time. The case of Mongolia is a good illustration of how to put investments to good use by focusing on an industry with huge potential—livestock—but which may not be sustainable unless diversified. The project therefore supports the diversification of the manufacturing sector in meat, cashmere, dairy, and meat production by improving the value chain, investing in research and development, providing grants to manufacturers, and improving inter-ministerial coordination.

88 **PRC Yangtze River Economic Belt Project.** The project consists of complementary interventions, namely, flood control management, water supply management, and ecological conservation in the Longxi River Watershed. The project also includes the improvement of strategic planning for investments under the new Yangtze River Economic Belt Framework. The project supports the twin objectives of economic development and conservation of the upper and middle portions of the river. The assistance comes with support for strategic planning of investments in Yangtze, which accounts for 40% of the national economy. ADB has $2 billion in financing planned between 2018 to 2025, as well as advisory services to the planning agency in prioritizing investments, consultations with provincial governments, programmatic and multi-sectoral approach in investment planning, and selection of appropriate financing modalities suitable for different contexts and needs.

89 The Yangtze River Economic Belt Project demonstrates how one project can be a consolidating platform to address various issues around the deterioration of the watershed, which supplies water to upstream and downstream populations, as well as to tackle emerging concerns about the appropriate mix of investments in the corridor. The cross-sector analysis of the issues outlined the relationship between economic development and environmental protection (watershed protection), which aided the government in responding to a range of sector-specific issues (water supply, flood control, watershed management, strategic investment planning).

90 **Remote-Sensing Technology in Agriculture.** In Vietnam, Pakistan, and Tajikistan, remote sensing is used to determine how much water is drawn from the river and returned to it. It provides information about the total water available and how this is distributed to users. This technology allows for rapid water monitoring and accounting. The data can be transformed into maps, sheets, and tables that show consumption, thereby giving the countries an idea of the water balance in an area. With this model, water productivity in farms can be monitored. The information can help farmers improve their water productivity and crop production.

91 In Pakistan, a project that operates in a province that has many illegal water installations aims to achieve a more equitable water distribution. It worked to address the illegal connections, a politically sensitive issue due to the large number of stakeholders involved. In the end, it did not succeed in securing the official instrument that would have allowed the EA to move forward. There was not enough time to do this given the complexity of negotiating this political task. A longer time frame or a different approach is needed to achieve the desired result.

92 **Irrigation system.** Vietnam installed piped irrigation systems that are available to farmers on demand and for a fee. The irrigation services areas with frequent droughts to boost the production of corn, pepper, coffee, mangoes, cashew, and other high-value crops. The scheme is more expensive but effective for growing crops. A potential issue is monitoring and collection of fees.

93 Agriculture projects that involve irrigation require coordination with multiple agencies. Authority over policies and implementation often rests with various agencies. In the Philippines, for example, conservation of a watershed is the mandate of one agency, while the irrigation system is the responsibility of another agency. The same situation is true in other countries. Agencies need to work together if projects are to succeed. In Myanmar, the government set up a coordinating office under the Office of the State Counsellor to coordinate all projects financed by official development assistance. The agency becomes a venue to get different agencies to work together.

94 **Transboundary Water Resources Management.** This project integrates the management of a shared water resource—the Syr Darya Basin, which is shared by Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. The basin is the object of competing interests. The project aims to establish and strengthen cross-border cooperation and decision making to take advantage of shared interests in the use of water for energy, agriculture, and households. The project supports the creation of a water management body composed of the four countries.

95 Unless there is a commonality of interests among the countries, unifying them would be difficult. Thus, the starting point and key to be able to move forward is to work with those that have similar interests, for instance, downstream communities that share similar characteristics.

96 **Integrated Water Resource Management Project.** The project addresses issues related to irrigated agriculture and water resources management (WRM) in the Pyanj River Basin (PRB), in the southern part of Tajikistan. The PRB is the largest of the country's five principal basins, namely, Kafernigan, Pyanj, Syr Darya, Vakhsh, and Zerevshan. PRB's WRM affects the country's economy and food security because the basin encompasses a majority of Khatlon province. Khatlon hosts the country's largest population (2.7 million), 55% of whom are the poorest in the country; and has the largest agriculture production (774,000 tons cereal). The PRB includes the most

food insecure zones, the Eastern Pamir Plateau Livestock Zone and the Southern Khatlon Cotton, Vegetable and Wheat Zone. PRB is vulnerable to climate change, with projections pointing to gradual shifts in the river flow's seasonal distribution, and increases in crop water delivery requirements in irrigation systems. For an efficient WRM, increased food security, and reduction of poverty in the PRB, the project adopts a comprehensive approach in implementing appropriate measures to address the situation in the following: (i) overall basin level; (ii) water supplier level; and (iii) water user level. (Retrieved from https://www.adb.org/sites/default/files/project-document/198876/47181-002-pam.pdf)

97 **India's Sustainable Coastal Protection and Management Investment Program.** This aims to address immediate coastal protection needs and coastal instability using environmentally and socially appropriate solutions, and with a focus on softer options such as artificial reefs, beach nourishments, and dune management. The program also aims to protect the coastline from erosion. Doing so enhances the income-generating opportunities of coastal communities. Tranche 2 of the program supports 9 subprojects consisting of 6 coastal protection subprojects designed to address the issues of medium to severe coastal erosion; and 3 community subprojects for areas of low erosion, which helps protect approximately 54 km. of coastline in Karnataka. Activities include: (i) addressing immediate coastal protection needs; (ii) capacity building and institutional development; (iii) modeling and other analytical work to assess the impact of climate change on specific sections of the coast; and (iv) comprehensive nearshore seabed sand resources analysis designed to assess the issues of sand deficits of selected Karnataka beaches. The program continues to support the executing agency in its long-term activities for coastal planning and management, which will continue after the end of the project period.

98 Phase 1 of the project operates in Goa, Karnaka, and Maharashtra. In the coastlines of India, about 400 has. of land; 75,000 has. of crop areas; and around 30,000 residential houses are lost because of coastal erosion. The situation is worsening because of the rapid development of the coastal zones and the disturbance of the ecosystem. Instead of building traditional hard infrastructure such as seawalls, the project uses more sustainable solutions such as artificial reefs that provide a habitat for fish and help regenerate marine life. With the ensuing growth of the fish population, the livelihood of the people is enhanced.

99 Phase 2 of the project supports six coastal protection subprojects that are meant to prevent soil erosion in Karmataka. It has activities for coastal protection, capacity building, institutional development, and some modeling and analytical work. Similar to the first, Phase 2 uses soft interventions. About 54 km. of coastline in Karnataka is to be rehabilitated. The analytical work focuses on resource analysis of sand deficits in beaches. The results feed into the formulation of appropriate measures to protect the shorelines.

E. Education and Health Lessons & Innovations

FACILITATOR:

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PROJECT STORYTELLERS:

Vannalek Leuang, Deputy Director-General of the Technical and Vocational Education Department, Lao PDR

Gerard Servais, Senior Health Specialist of the Human and Social Development Division, Southeast Asia

RESOURCE PERSON:

Yumiko Yamakawa, Education Specialist of the Human and Social Development Division, Southeast Asia

100 LESSONS AND INNOVATIONS

- **TVET projects that seek to promote TVET as an option to address trade skills shortage should be designed to address both the demand and supply-side requirements.**
- **Gender-specific targets, while challenging, help steer EAs and IAs toward closing the gender gap in education.**
- **More individualized forms of monitoring to track student progress can be effective in increasing survival rates among TVET enrollees.**
- **The commitment of government, translated to the issuance of policies and regulations on health reforms and the provision of adequate budget, is critical to achieving the outcomes of the project.**
- **Strengthening the capacity of health professionals and workers is key to improving the quality of healthcare.**
- **Government leads the action toward development.**
- **Innovations are not meant to be "flavors of the month". They must make sense to countries.**

101 **Lao PDR's Strengthening Technical Vocational Education and Training (TVET) Project.** This project aims to address the shortage of technical and vocational skills in Lao PDR by making TVET easily accessible to students and by bridging the gap between TVET and industry requirements. Among its objectives are: (i) increase the number of workers in the workforce that are TVET qualified; (ii) improve TVET enrolment; (iii) improve the quality and relevance of teaching; and (iv) improve TVET institution management. These objectives are delivered through five key outputs: (i) improved quality of TVET; (ii) increased access and more equitable access to TVET; (iii) increased private sector involvement in TVET strategy and delivery; (iv) strengthened governance and management of the TVET system; and (v) effective project management and implementation.

102 TVET projects such as Lao PDR's Strengthening TVET Project are usually designed to promote TVET as an option for high school graduates or dropouts, a less popular career track in many countries. The design of such projects can improve the chances of success later if it addresses not only the supply side (improving acceptance by students) but also the challenges in the demand side (market for graduates, quality of education and training).

103 The Lao PDR experience shows how designing a comprehensive intervention that includes capacity building for TVET personnel, development of competency-based training standards for jobs, construction of TVET universities and dormitories for students, partnerships with private training providers, scholarships or subsidies for poor students coming from vulnerable backgrounds, and organizing massive promotional campaigns in schools and rural areas—can result to concrete gains in increasing TVET enrollment. Enrollment

in TVET within the period 2015-2016 increased from 23,182 in 2014-15 to 30,221 in 2015-16. The enrollment of females likewise increased from 37% to 41% within one school year.

104 Lao PDR set an ambitious target of 50% female enrollees in TVET. This is not an easy target to achieve given that most students of technical and vocational courses are men. The statistics are consistent in non-traditional occupations: women often lag behind men in opportunities and actual presence in the workforce. Thus, while the country was aware of the challenges, it still opted to raise the target to a high 50% knowing that setting a high bar is consistent with the seriousness of the problem of inequality faced by women in the country.

105 The monitoring plan of the Lao PDR project includes regular face-to-face meetings with students and school authorities. The meetings serve as case conferences to help students with their studies and track compliance with agreed remedial actions. This is an effective means to increase survival rates in TVET enrollment.

106 **Vietnam's Health Human Resources Sector Development Program (HHRSDP).** This program supports Vietnam's 2015 health sector reform program to improve the equity and efficiency of the health sector and improve the quality of healthcare at all levels. The government identified priority areas for policy development and investments: (i) strengthening the management of health human resources (HHR); (ii) implementing health workforce registration and health facility licensing; (iii) enhancing the quality of health workforce training; (iv) strengthening the systems for health service quality management; and (v) improving the efficiency of hospital financing. ADB provided a policy-based loan (PBL) to help Vietnam establish the policy and regulatory framework for the reform and complemented this with a project loan and grant to translate the reform agenda to concrete results.

"Recent trends indicate that health and education are stepping into each other. We cannot see the result in one and ignore the other. If we are trying to come up with a good common result, such as a human development index, we need to consider both sectors."

Country Participant

107 In an ambitious program or project such as Vietnam's, government action is critical to move the project forward. The best way to do this is to sit down with government and understand what it needs—the issues and how they can be addressed. In Vietnam, ADB gave a PBL, which is a flexible modality where transfers are made to the Ministry of Finance, and where the government has the discretion to invest the funds in critical reform areas. What needs to be agreed on between ADB and the country is the policy framework; the rest is to be decided by government. The other ingredient that is key to the successful implementation of health projects in Vietnam is the availability of government financing for operations. Many projects are hampered by the lack of financial support from their own government. If stakeholders understand how certain actions trigger subsequent actions and results, then projects should be able to receive the support they need in the desired time and quality.

108 The leadership of government cannot be overemphasized. Externally-imposed standards that are not informed by local needs and capacities will have a counterproductive effect on DMCs. Vietnam provided the vision for what it wants for the health sector. It must be the DMC that should say, for instance, that it prefers a PBL, what it can and cannot do. ADB needs to listen more closely and support government by ensuring that institutional capacity is strengthened. Strong country ownership is critical in sustaining reforms.

109 **Vietnam's Second Health Human Resources Development Project.** This project supports Vietnam's health sector reforms by establishing new campuses in the Hanoi Medical University and the University of Medicine

and Pharmacy at Ho Chi Minh City. The new schools have climate-resilient features. They are intended to increase undergraduate enrolment and improve teaching capacity. The project complements the proposed Local Health Care for Disadvantaged Areas Sector Development Program through innovative models of engaging teaching institutions in community health, including the application of information technology-based learning.

110 One of the lessons from the Vietnam health sector reform is the importance of investing in human resources. The quality of healthcare can be pivotal if it is complemented by capacity building for health professionals and an overall environment that encourages them to stay and serve in the country. As a result of the training of nurses, doctors and health personnel, Vietnam achieved significant results in developing its standards and procedures for patient care (critical pathway), and in attending to the most vulnerable and deserving patients. Vietnam made a deliberate effort to look at areas that need medical professionals the most and deployed workers there. The country developed a distance learning model to make courses available online—all these complement the upgrade of instruction and continuing education for health workers.

111 Some countries are overwhelmed by the long list of development agenda and innovations that can be incorporated in projects—climate proofing, gender, sustainable processes, e-procurement, to name a few. The more fundamental question should be asked: Will the agenda and innovations help the DMC achieve its objective faster and better? The DMC must pursue the development agenda and adopt the innovations because they support the country's development goals, not because they seem fashionable.

F. Energy Lessons & Innovations

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PROJECT STORYTELLER:
James Michael Trainor, Energy Specialist for the Energy Division, Pacific Regional Department

RESOURCE PERSON:
Kevin Moore, Senior Procurement Specialist, Procurement Division 2, Procurement, Portfolio Management and Financial Management

112 KEY POINTS

- **Investments in renewable energy should be encouraged where they are economically viable, but they also must be equitable.**
- **Alternative mechanisms, such as net metering, should be explored in encouraging private sector participation in renewable energy investments**
- **Pay attention to the needs of executing and implementing agencies of client countries.**
- **Consumer behavior change is necessary to maintain service and financial sustainability.**
- **Feed-in-tariff needs to be reviewed for possible adjustments.**
- **Gender-sensitive tariff considers its impact on poor households, especially female-headed households.**

Marshall Islands

113 **Marshall Islands' Majuro Power Network Strengthening Project.** The project installs an advanced metering infrastructure (AMI) to allow Marshalls Energy Company (MEC) to monitor power flows on its distribution network. This enables MEC to reduce its technical and commercial losses, and thereby reduce diesel fuel consumption for power generation and improve revenue collection. Data provided by the AMI also inform decisions on future investments in MEC's power system, including additional network loss reduction and distributed (renewable) generation. The project provides consulting support for a business process reengineering (reform) program at MEC. The program supports MEC's operational and financial sustainability, including financial management, accounting, and tariff formulation. It helps strengthen the sustainability of current and future investments.

114 Including a business process reengineering focus in the project is the first phase of a continuing support for reform in MEC. Succeeding projects with MEC, such as the Energy Security Project of Marshall Islands that was approved in December 2018, should build on the reforms initiated in MEC under the current project. Each successive investment with MEC should include the continuation of support for the reform agenda as *a comprehensive program,* and not a one-off intervention with a narrow focus.

115 The project encountered challenges in timely implementation. Due to the small project size and remote location, responses to the tender for the AMI were very few, and none were satisfactory in the first attempts at procurement. MEC is revising its approach to soliciting vendor interests, and is preparing to re-advertise the AMI package with ADB support.

116 Strategic partnership with MEC requires constant and deep engagement in order to build shared understanding and commitment to goals and strategies for MEC's development.

117 MEC faces a number of issues, including systems losses, tampered meters, and faulty installations. The takeaway from the Majuro MEC experience is that it is important to pay attention to partner needs as ADB develops programs of

engagement. The challenges that MEC faces are not unique, but are common throughout the Pacific and they derive from resource and human capacity constraints. Identifying and understanding these constraints is the first duty of project officers who should cultivate a relationship of trust with clients and help them develop the necessary capacity to run the project effectively.

Kiribati

118 **South Tarawa Renewable Energy Project (STREP).** In synergy with the Kiribati South Tarawa Water Supply Project (STWSP), this project was developed in response to several challenges. Kiribati is extremely vulnerable to climate change impacts such as sea level rise and drought. Kiribati's remote location, poor infrastructure, and land constraints are huge challenges. They are exacerbated by poverty, gender inequality, increasing population, weak institutional capacity and regulatory framework, reliance on development finance and imported diesel fuel, and increasing greenhouse gas emissions. The country also faces a number of institutional problems, such as food and fuel supply disruptions, high electricity cost, competing land uses, health and hygiene issues.

119 The project adopts a holistic approach in addressing multiple challenges by integrating cross-sectoral and thematic factors in the project components. These factors include investments in infrastructure, regulatory framework, comprehensive capacity building, mitigation, climate resiliency and adaptation, supply and demand side interventions and awareness raising. The project design ensures that the need for both water and sustainable energy is met, and the project is sustainable from the technical, financial, safeguards and climate resilience standpoint.

120 The project also addresses gender disparities and incorporates measures to ensure that there are mechanisms to remove barriers that prevent women, the poor and vulnerable sectors access to project benefits. The project implements gender-sensitive tariff reviews and gender-sensitive policies, and it opens opportunities for engagement with women. Land issues are solved through innovative siting that avoids involuntary resettlement and without sacrificing technical feasibility.

121 Another solution to the complex and multi-faceted challenges is phased development based on forecast scenarios and energy investment plans to achieve government targets and keeping within available financing. Interventions can be programmed for a longer term, with a series of smaller manageable projects, using appropriate or state-of-the-art technology, and implemented to achieve the long-term goals. More innovative technology (such as floating solar for electricity and other benefits), energy and network planning software, and training, among others, can be gradually introduced as the system expands and becomes sustainable. STREP is integrated with the STWSP renewable energy component, which offsets the electricity consumption of the reverse osmosis desalination plant under STWSP.

122 **Financing.** The STREP is ADB's first energy project in Kiribati. It is being prepared for financing under the $750 million Pacific Renewable Energy Investment Facility, an innovative modality that streamlines ADB's internal procedures and reduces processing times and transaction costs. The facility provides an aggregate approval limit under which the President is authorized to approve loans and grants. The facility, approved in June 2017, is designed to finance a number of small-value renewable energy projects in the 11 smaller Pacific island countries or PIC-11. The facility supports the PIC-11 in transforming their power sectors from diesel to sustainable renewable energy generation sources; and supports sector reform, private sector development, and capacity building. The facility also leverages cofinancing from other donors, and targets $500 million in cofinancing, leveraged from ADB's $200 million, over 5 years up to 2022.

123 To prepare and design ensuing projects under the facility, two regional transaction technical assistance facility (F-TRTA) were processed. This further streamlined processing and reduced transaction costs because consultants already engaged in either of the two TAs can be engaged on a single-source basis to prepare other ensuing projects under the facility or continue

from project preparation to project implementation. Designing and preparing projects were much faster given the reduced consultant recruitment time.

124 Among the factors that enabled a successful and timely project processing and implementation is early engagement and close coordination with government and cofinanciers. For STREP, the World Bank and ADB helped the government prepare the investment plan. WB and ADB collaborated with the government on the project concept and investment plan, which was then submitted to SREP (Scaling-up Renewable Energy Program in Low Income Countries) to access the $1 million project preparation grant funds and the $3.7 million project grant cofinancing. The STWSP is also cofinanced with funds leveraged by ADB from the Green Climate Fund and WB. This is a model of strong collaboration between donors and government to help them achieve targets faster.

125 The project's cross-sectoral approach helps synchronize project activities, particularly in procurement bidding and evaluation. The energy, urban, and water sectors worked together with the Public Utilities Board and the Ministry of Infrastructure and Sustainable Energy in the due diligence and preparation of project documents and bidding documents. This model can be applied to other projects.

126 Increasing project readiness through advance actions is also key to successful project implementation. With bidding documents prepared and issued prior to grant approval or effectiveness, the contracts can be awarded immediately after grants become effective. Consultants are also engaged early and mobilized as soon as the TAs and the projects are approved.

127 **Tariffs.** As more renewable energy projects are being planned for the Pacific DMCs, countries are becoming aware of the need for a tariff mechanism to encourage private sector investments. Firstly, we need to differentiate between off-take tariffs and consumer tariffs. Feed-in tariffs or FIT is a policy mechanism designed to encourage private sector investments. It is the amount paid by utilities (usually state-owned) through power purchase agreements with independent power producers. Pacific DMCs need to be careful in introducing such policies and will need to explore other alternatives such as net metering. Many countries do not have private sector presence nor the regulatory framework required for the mechanism to work. The FIT also needs to be defined and the methodology for calculating it requires rigorous analysis. Many FITs did not factor the right regression to account for depreciation or degradation of renewable energy assets. Pacific countries must learn from the experience of others. Many countries have in fact moved away from FIT policy. Some governments overcommit and then are unable to pay the tariffs. ADB can assist in assessing alternatives and strengthening the countries' regulatory framework.

128 The project is not looking at supply tariffs but rather consumer tariffs. Restructuring to arrive at gender-sensitive tariff is not solely about women but the poor in general and the vulnerable, such as children. The current subsidy is applied to all consumers and is not tiered. The current tariff system then provides more subsidies to customers who are consuming more since it is computed on a per kilowatt per hour basis. The government ends up subsidizing the rich because they are the ones that have higher consumption. Lower-income households, mostly headed by women, actually have little consumption and receive less. Hence, what we can hopefully accomplish by reviewing the tariff is ease the burden on the poor and especially poor women.

129 **Solar Power.** Net metering is a not a new idea. Households with solar home systems that are connected to the grid have the option to export to the grid any excess generation. The exported power is recorded as a credit, which is then deducted from the household electricity bill. However, the price of the exported power is less than the price of grid electricity. To make the most of this concept, these households must design or size their systems according to consumption and use more of their own power generation by doing energy-consuming work during the day while the sun is out. Changes in consumer behavior is therefore needed. However, the difference in the prices of exported power and grid supply is justified given that there are costs that utility companies have to bear, such as transmission and distribution costs, and ensuring grid stability. There are fixed costs for utilities, maintenance work, and all other recurrent costs. At the end of the day, the rest of the consumer base absorbs the cost. The rich always have the option to install solar panels. We should encourage renewable energy investments where they make sense economically, but the investments also have to be equitable.

G. Transport Lessons & Innovations

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130 LESSONS AND INNOVATIONS

- Addressing the impact of climate change through a project can bring in huge dividends.
- Plan for operation and maintenance right at the beginning.
- Good community engagement can prevent many problems from happening during implementation.
- While some innovations do not happen immediately, project implementation can lead to important insights that can trigger innovative ideas for future projects.
- Where local supplier or contractor capacity is very limited, support the environment for the participation of international contractors to ensure sufficient competition
- Joint project management units can be set up for projects financed by two or more development partners.
- Differentiated approaches can be used in fragile, conflict-affected, or vulnerable countries.
- Transport projects can be designed to address mobility and access as well as environmental sustainability.
- Smart and intuitive transport designs can multiply the benefits for users.
- When transitioning to a new transport system, plan how to deal with current transport owners and operators.
- Secure strong political support and consensus.
- The complex nature of many transport projects calls for tighter environmental safeguards measures.
- Resettlement safeguards challenge us to think of how projects can be implemented with the least impact on people.

> "The nature of projects is evolving in the transport sector. We are getting more challenging and complex projects. Many of them involve ecological impact on land, in terrestrial ecosystems, requiring removal of trees, clearing and opening up of forests and causing the fragmentation of habitats. . . This is a challenging area and we often need to think outside-the-box and beyond the normal ways of implementing mitigation measures for projects."
>
> ***Karma Yangzom,*** *Senior Environment Specialist, South Asia Department*

131 **Tuvalu's Outer Island Maritime Infrastructure Project (OIMI).** This project develops maritime facilities in the outer islands to make sea travel more efficient and safe. It is building a small harbor on the island of Nukulaelae, rehabilitating boat ramps in Nanumaga and Niutao, building capacity to maintain maritime infrastructure, and developing a master plan for future harbor developments. The port facilities are climate-resilient and address Tuvalu's frequent exposure to tropical cyclones. (Source: ADB Project Briefer)

132 At high tide, seawater rises and can submerge harbors. To address the impact of climate change and frequent natural hazards, Tuvalu built its harbors to withstand disasters and become climate-resilient. This innovation costs more but would eventually pay off with sturdier structures and better safety for the island populations.

133 Transport projects such as OIMI ensured that the project design includes a component for strengthening institutional capacity to be able to operate and maintain the harbor. The huge investment poured into building the harbor is such that it would be a waste if it cannot be maintained later.

134 We need to engage with the community because it makes a lot of sense to talk with people and listen to them; they are the primary beneficiaries of the project. In Tuvalu, considerable time was spent on community consultations, even in mediating the dialogues between communities and the contractor. The IA ensured that locals were also hired by the contractor for the project. Locals provided input on the design of OIMI. In the end, Tuvalu saved a lot of time by resolving potential issues with the community from the very beginning.

135 Since the country is isolated and its economy small, Tuvalu had to import most of the construction materials (cement) and equipment, and this increased the overall costs of the project. The conceived solution was to have the concrete manufactured as solid blocks offsite in PNG and then shipped to Tuvalu. This solution can be applied in future projects.

136 Certain projects or economies would be unable to attract contractors with the technical expertise and financial capacity to construct huge projects. Where this is the case, open the bidding to international contractors or allow joint ventures between local and international firms. Build in safeguards on technology transfers and the employment of locals in order to obtain the most benefit for the project and the country.

137 Many countries have set up joint project management units (PMUs) for a more harmonized implementation of projects that are co-financed by two or more development agencies. This is the institutional arrangement for Tuvalu, which has a World Bank and an ADB-financed component. The financial operation can be separate but procurement may be done jointly, as are the applications of other systems and procedures.

138 The Tuvalu OIMI project did not have a very favorable financial assessment in terms of financial or economic returns of the investment, and yet ADB financed in consideration of the exemptions that apply to fragile and vulnerable countries. Tuvalu has high risks from climate change and disasters, but the consequences of not financing the OIMI—which has strong mitigation measures—would have been catastrophic and costly for both the country and the Asia-Pacific region.

139 **Karachi's Bus Rapid Transit (BRT) Red line Project.** This project increases the use of public transport among the people of Karachi, Pakistan through a 26.6-km BRT Red Line corridor and associated facilities. It has restructured the entire width of the Red Line corridor, including the construction of 29 stations and dedicated lanes, bicycle lanes, street parking, and landscaped green areas; improvement of mixed traffic roadway; climate proofing of corridors; and provision of energy-efficient streetlights. One of its innovations is the use of climate change adaptation measures, such as bioswales, post-project emissions monitoring, and feeder e-vehicles. It also has a biogas plant that is part of the plan to transition from basic diesel fuel to compressed natural gas using hybrid bus technology and cattle waste. (Source: ADB Project Briefer)

140 **Peshawar's Bus Rapid Transit (BRT) Corridor Project.** The project, also in Pakistan, contributes to developing a sustainable urban transport system (UTS) in Peshawar through the delivery of a BRT corridor. It has provisions for accessibility of persons with mobility needs. It aims to steer urban growth and public space along the selected corridor through a transit-oriented development strategy that integrates land use, make the city more livable, provide a holistic solution for integrated urban mobility, and create a demonstration effect as no modern mass-transit system exists in the city yet. (Source: ADB Project Briefer)

141 Karachi's BRT Red Line and Peshawar's BRT Corridor both included innovative technologies to reduce reliance on harmful fuel. Peshawar uses diesel plug-in hybrid vehicles that allow the buses to run on 20% battery on their route length, thus reducing harmful emissions. The Karachi hybrid bus runs entirely on compressed natural gas sourced from cattle waste. The alternative energy has many environmental advantages (e.g., the Red Line Project saves almost 245,000 tons of CO_2 emissions per year). In both projects, the transport projects achieved their objective of providing access and better mobility through modern transport facilities and also succeeded in preventing further pollution of the environment.

142 Intelligent transport systems add value to transport projects—an achievement of the Karachi and Peshawar models that dramatically improved the experience and benefits for users. Some examples of the transport projects' innovative features include distance-based collection systems, smart cards, passenger information, and BRT control centers to track buses in real-time; reconstruction and restructuring of bus corridors, rain street pavements, improved drainage, last-mile connectivity through shared bicycle stations and e-pedicabs, elevators, and dedicated areas for women.

143 When shifting to a new mass transit system, it is important to account for the impact on the current system. In Karachi, part of the innovation is to develop the industry restructuring program because there are existing players or bus owners who would be displaced by the project. The government provided a compensation mechanism to current operators in exchange for scrapping their old busses and then providing a one to two year livelihood assistance for them to shift to another business or to be absorbed in the new system. It is always good practice to manage stakeholder interests, particularly those of groups that are negatively affected by the changes.

144 Nearly all major projects have to deal with political realities on the ground. Projects do not exist in a vacuum. It is difficult to move forward without strong political support and consensus. In Peshawar, the chief minister of the provincial government served as the political champion. There is a downside to this, and which everyone should also be able to manage: that is, the tendency to set unrealistic timelines as political officials are also under pressure from their constituencies. Another crucial element is making sure that there is a robust governance structure to operate the system. Transport projects require close construction supervision. A good management strategy must be in place during the implementation period.

145 **Safeguards.** Projects in the transport sector are becoming more complex, largely due to their huge ecological and human impact. There are various ways that the impact can be mitigated:

- Minimize the ecological footprint of projects. Build based on design.
- Schedule construction to avoid disturbing wildlife species (e.g., avoiding the migration season).
- Add simple structures or features to protect animals (e.g., underpasses for elephants).
- Go for nature-based solutions (e.g., bioengineering to prevent landslides or erosion).
- Strictly implement the use of occupational health and safety (OHS) equipment during construction. Penalizing violations can also be an option to compel contractors to follow OHS standards.

- Strictly implement and monitor compensatory afforestation. In Bangladesh, the Ministry of Railways signed an agreement with the Ministry of Forestry requiring the latter to reforest 100 hectares of forest in exchange for the 60 hectares that are cleared for a new railway project. The funds used are provided by the Ministry of Railways.
- Supervision and monitoring can be a challenge, but it is possible to plan the input of consultants who monitor the environmental management plan (EMP). Contractors must be trained, and their performance monitored to ensure that they deliver.
- Resettlement has many attendant issues. Whether it is moving people away from their homes, building a project on their land, or affecting people's livelihood, resettlement is often problematic. Experience point to three levers that increase the chances of better implementation of resettlement safeguards:

i. **Inclusion.** Groups that can potentially lose their assets or their economic activities due to the project must be included in the resettlement plan.

ii. **Consultation.** There must be meaningful consultation with people who are at risk from displacement. Many issues can actually be mitigated when people are consulted and are able to provide concrete suggestions on how a project should be designed or implemented. A feedback mechanism should also be part of meaningful consultation.

iii. **Vulnerable Individuals and Groups.** The safeguards policy emphasizes the importance of protecting vulnerable individuals or sectors that might experience a negative impact from the project. These people are vulnerable because of their status, health, age, gender or cultural identities.

H. Urban and Water Lessons & Innovations

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146 KEY POINTS

- **Design projects that respond to interrelated development needs, for example, sanitation and water supply.**
- **Investing in human resources is as important as investing in infrastructure.**
- **Mobilize resources from multilateral partners for complementary initiatives.**
- **Innovate in institutional arrangements to manage huge projects.**
- **Technology solutions can enhance water service delivery and generate savings for the project.**
- **Do not be afraid to take bold steps in mainstreaming gender.**
- **Know how best to maximize the service of international and local contractors.**
- **Weaknesses in the institutional capacity of countries should not be used as basis for disapproving a request for financing if the weaknesses can be mitigated.**
- **Sustainability assessment helps us understand how a project will fare over time.**
- **Safeguards do not and should not kill the project.**
- **Compensation should be provided before displacement.**

147 **Cambodia's Provincial Water Supply and Sanitation Project.** The project supports the government's target of 100% urban water supply coverage by 2025 as part of its efforts to improve urban sanitation. It expands water supply and sanitation coverage in at least four towns, in the Battambang, Kampong Thom, Pursat, and Svay Rieng provinces.

148 Access to water in Cambodia is skewed in favor of those in urban areas. In Phnom Penh, coverage is already close to 95-100% of households. The huge gap is in the provinces where coverage hovers between 40-50%. As you move down the districts, the coverage is even much less. The Cambodia Provincial Water Supply and Sanitation Project decided to tackle the provincial needs first and then move down to district level. Water supply is tied-in to sanitation, and the revenues from water can sustain sanitation.

149 Existing country systems assign the management of water and sanitation between two ministries. Water is under the Ministry of Handicrafts while sanitation is under Public Works and Transport. One of the most important steps that a project of this type needs to do is to get two separate agencies to collaborate on the project. That is not always easy, but we have made progress.

150 Address the lack of technical capacity in the sector to facilitate implementation. Expertise in water and sanitation is in short supply not only in Cambodia but in the rest of the region. To solve this problem, and because there is no proper water engineering course in the country, Cambodia initiated a Master's Course on Water and Waste Engineering. The first 30 students of this two-year course—30% of whom are female—will graduate in the middle of next year from the Institute of Technology of Cambodia in Phnom Penh. The students receive full scholarships through a grant facility from the EU. In turn, they commit to serve in one of the government agencies and hopefully fill in the gap for qualified staff.

151 Cambodia is a relatively small country and is fully aware that the scope of its development projects requires multiple investments. This requires that the government be strategic in sourcing funds for development. Hence, the government mapped out its priorities and matched them with development partners. This macro approach was used in the water and sanitation project. Discussions were held with the Japan International Cooperation Agency (JICA), French Development Agency (AFD), ADB, and World Bank (WB) to seek their support for an integrated program that maximizes resources and avoid overlaps in development assistance.

152 The demand to respond to the challenges in the water sector can pull EAs in different directions and can be overwhelming. Cambodia assessed the status of the towns and identified those that needed help the most and are most ready to implement. In other words, it focused on the low-hanging fruits. Those that showed readiness to implement started ahead, thus creating a sliding sequence of implementation. This strategy allowed the project to demonstrate success early on. After this, all provinces were able to turn around their financial performance from loss to profit without significant additional investments. They employed management strategies, new technology, and better operation and maintenance. The project is not yet fully sustainable, so the goal now is to improve coverage to 90% and concentrate on three priority towns and help them become financially sustainable and autonomous.

153 Acquiring new land can be costly and problematic in Cambodia. To address this, the EA opted to install a wastewater chemical treatment facility that eliminated the need for land acquisition. It is a good alternative to the traditional lagoon-type, which requires large tracts of land. While installing a mechanical system for the treatment facility was costly, in the end, the benefits of having no issues tied to land acquisition and lower O&M costs proved more favorable for this project.

154 Part of the measures to promote financial sustainability is to target 90% coverage of potential household users. The project adopted the same subsidy system used in Phnom Pehn. Any household can apply for subsidy, and depending on the household income, customers can avail of a subsidy that follows a band scaled in proportion to income (100%, 70%, or 30%). The cost of subsidy can be incorporated in the billing over a period of 18 months. What this does is to empower the

poor to get a connection. The connection is their passport to quality water. Studies show it is the poorest who pay the most for water.

155 Sanitation fees are included in the water billing. The project standardized this system. As water connections increase, so do sanitation services through integrated sewerage connection. If the country system is to be followed, collections from water bills automatically go to the provincial government. However, the loan covenant ensured that revenues from user fees can go directly to the project and used for sanitation O&M.

156 The EA adopted some advance procurement actions and projected that these will facilitate on-time implementation. However, due to limited capacity in the EA and some institutional changes, procurement was delayed for almost a year. The Design-Build-and-Operate (DBO) package did not proceed as planned due to restructuring. Compounding this problem was the recent decision of one city government to cancel the subprojects due to huge investments coming from China. The funds were shifted to another town, and this created additional pressure in that town due to the expanded project scope. The project also dealt with a lack of qualified bidders.

157 The limited market for this kind of expertise is common in smaller countries such as Laos and Cambodia where the capacity of contractors is not sufficient and where the small size of the contract does not attract larger companies. Despite changes in procurement methods (e.g., revising the contract size and then breaking them up into smaller and more manageable contracts), the EA failed to get the desired offers. In the end, the project reverted to the original procurement option of DED or detailed engineering design. A similar delay was also caused by changes in the approval process of the packages under the Ministry of Environment. Obviously, even a well-planned project such as Cambodia's that invested two years in preparation, can run into unexpected problems. It is always important to keep a realistic plan and be prepared for these risks. The key to avoiding these risks is to fully understand the guidelines—safeguards, procurement—as these are where most common bottlenecks are.

158 I**ndia's West Bengal Drinking Water Sector Improvement Project.** The project provides safe and sustainable drinking water following the standards set by the government of India. It affects about 1.65 million people in selected areas in the West Bengal districts of Bankura, North 24 Parganas, and Purba Medinipur. The project covers areas where water has below standard salinity and arsenic and fluoride content. It introduces an innovative and sustainable institutional framework and advanced technology for smart water management to enable efficient service delivery in project districts.

159 While the focus is rural, the project is broad and takes the economy of scale in mind. The system involves bulk supply suited for the large number of beneficiaries (2.5 million people) and the connection goes directly to the homes instead of through tap stands—a first in these states. Because of the scope, the government set up an institutional arrangement that distributes responsibility among the districts, at the same time that the districts are accountable to the public health engineering department and the state entity. Once the pipes are installed, the villagers take over in handling water revenue management, collecting tariffs, and household billing. However, the heavy and more complex work of managing the water treatment plant (WTP) as well as bulk water management is handled by the Public Health Engineering Department (PHED).

160 Smart water management can be applied to water services. In this example from India, the project put sensors in smartphones to monitor water flow and provide feedback to consumers on their consumption. Instead of printing the water bill, people can simply look at their phones. The savings from this innovation amount to 2%.

161 The project also demonstrates how to mainstream gender in project design and implementation. Thirty-three percent of the personnel running the system are women. The project staff claim that hiring women is an effective safeguard against corruption as people hesitate to offer bribes to women. Women are not only part of self-help groups; many of them also perform accounting tasks for their groups. The women can do the job given the opportunity. The lesson here is that we should not be afraid to take bold steps in gender equality.

162 Innovative projects and project readiness go hand in hand. We have to plan and keep planning. Suppose you plan to give a certain percentage of the job to women. Plan how you will do it. Ask for financial resources to build their capacity. Plan how you will build that into the project.

163 We need to make sure the actual processes in the project are as simple and streamlined as possible. In one project, we noticed that there is almost zero disbursement. When we reviewed the approval process for the disbursements, we discovered that the file moves around in 75 different tables. Be sure to map out the process and ensure and eliminate unnecessary layers that could delay the project.

164 We also need to be realistic about what international contractors can do. Many of them will not be as involved in the project as the local contractors who know the country better, where the pipes are, and where materials can be sourced. International contractors can deliver the machines, but it is your local contractors that will build your project.

165 One other lesson that is worth remembering is the value of a good project director. It is important for a project director to have authority. He needs to be able to sign off and make decisions, otherwise everything will just be referred to higher-ups and that will delay the project.

166 **Procurement.** In terms of procurement options, there are three that are usually available to EAs. The first option is the traditional way where the design is done by the employer, construction by a contractor, and O&M by the employer. There is a standard procurement form available for this and the bidding document is based on the Federation of International Consulting Engineers' FIDIC Contracts Guide for multilateral development banks, commonly called the pink book.

167 The second option involves design done by the employer, with construction and O&M done by a contractor. One of the challenges in this option is that it requires more time to implement because there is no contract form readily available. Many make the mistake of using the contract forms for Option 1 without realizing that there are significant modifications that need to be made because the pink book does not include O&M-related component or contract clauses. Some employers also tend to set very high performance targets, and these targets are attributed to contractors, when in fact, the employers were the ones that set them. Whatever the case, we should be realistic with our performance targets.

168 The third option is one where the design and construction are done by the contractor, and the employer performs the O&M. There are contract forms readily available for this in ADB, but EAs also have the option to use the FIDIC yellow book for design-and-build contracts. In the fourth option, the design, construction, and O&M are done by the contractor. Regardless of what you are building, be it in a green field or a brown field site, there is a standard bidding document available within the ADB, and the contract is based on FIDIC's gold book.

169 **Timor-Leste's Dili Urban Water Supply Sector Project.** The project aims to improve the water supply system in the city of Dili by addressing the key underlying causes of poor service, including (i) lack of tertiary pipes; (ii) poor condition of tertiary pipes and service connections; and (iii) inadequate demand management. Their water system has 10 zones and the project wanted to target 3 out of those 10 zones because resources were not sufficient to cover all the zones.

170 During implementation, the focus was on civil works. Very little attention was paid on other aspects of the project, which triggered several financial management issues. The first issue surfaced when the project team realized that the operator lacked the institutional capacity to maintain the system. There were not enough staff. The second issue was the absence of good commercial practice. There was no billing and collection. There was no penalty for non-payment. Therefore, there was no incentive for paying. O&M was also problematic. The project staff were firefighting and virtually moving from one pipe to another to plug the leaks because there was no preventive maintenance and there was no budget for this purpose.

171 The project experienced political and social pressure. Increased pressure from 7 of the zones that were not prioritized forced government to give in and open the valves to serve those zones. This resulted in substandard service to the zones, and the service deteriorated. People further lost the motivation

to pay because of poor service. The project eventually rated poorly on its internal rate of return.

172 **Financial Management.** Weaknesses that are identified during the financial and institutional assessment should not be used as basis to disapprove a project. If the weaknesses can be mitigated and the action plan is clear, then loans can be approved subject to strict safeguards. Quite often, institutional capacity gaps give rise to financial management issues, so ADB insists that capacity and institutional assessment be done rigorously.

173 Sustainability assessment helps us understand how a project can fare over time. Water projects in particular need good sustainability assessment, where we look at both the quantitative and qualitative measures. Quantitative assessment calculates the rate at which your project can generate a positive NPV or internal rate of return. Sustainability also looks at five factors, namely: (i) the long-term water and sanitation strategy of the government or the state; (ii) government commitment: in 1997, the Philippine government passed the Water Crisis Act to address the poor quality of water services. It paved the way for the private sector to come in, resulting in probably some of the best stories on public-private partnerships; (iii) budget allocation; (iv) tariff and regulatory framework; and (v) institutional reforms and change in customer behavior.

174 **Safeguards.** It is a common misconception that stringent safeguards kill projects—that they are unable to obtain approval because of weaknesses in safeguards. This is not correct. When a project triggers a safeguards policy, the next step is to determine what mitigation measures may be used to address the issues. In some cases, the mitigation steps can cost a lot of money and the mitigation measures can be unusually high if analyzed vis-a-vis the project size or projected benefits. When you have a small project that requires costly safeguards actions, the economic analysis will likely be negative. It is really about economy of scale and ultimately how you make the project economically viable. The solution is to package your project to show how the safeguards issues will be addressed and how the actions can produce an impact commensurate to the number of people that will be affected.

175 The safeguards documents follow your final design. With every little variation, the safeguards documents need to be updated. In practice, many adjustments happen between project preparation and implementation. The safeguards requirements prepared at preparation can be drastically different at implementation, because your impact and profiles are different.

176 Compensation needs to be provided even before displacement. The money you pay will be used by affected families to move out. Compensation has to be planned as part of your budget. Some projects forget to put compensation in the budget or miss to reinstate the said budget the following year when it will be needed. When this happens, look at other options: are there elements of the plan that can go without compensation or a government location that would not require compensation?

177 Other than compensation, it is important that when you apply for retroactive financing and do your procurement early, the safeguards should be part of the procurement as well. The EMP should be attached to the contract so that you do not ask the contractor to absorb the cost for safeguards after you have already signed the contract. Grievance redress, meaningful consultation, occupational health and safety, and physical and cultural heritage sites are equally important. These must be consciously incorporated in every stage of project preparation and implementation.

I. Angat Water Transmission Improvement Project

PROJECT BRIEFING:

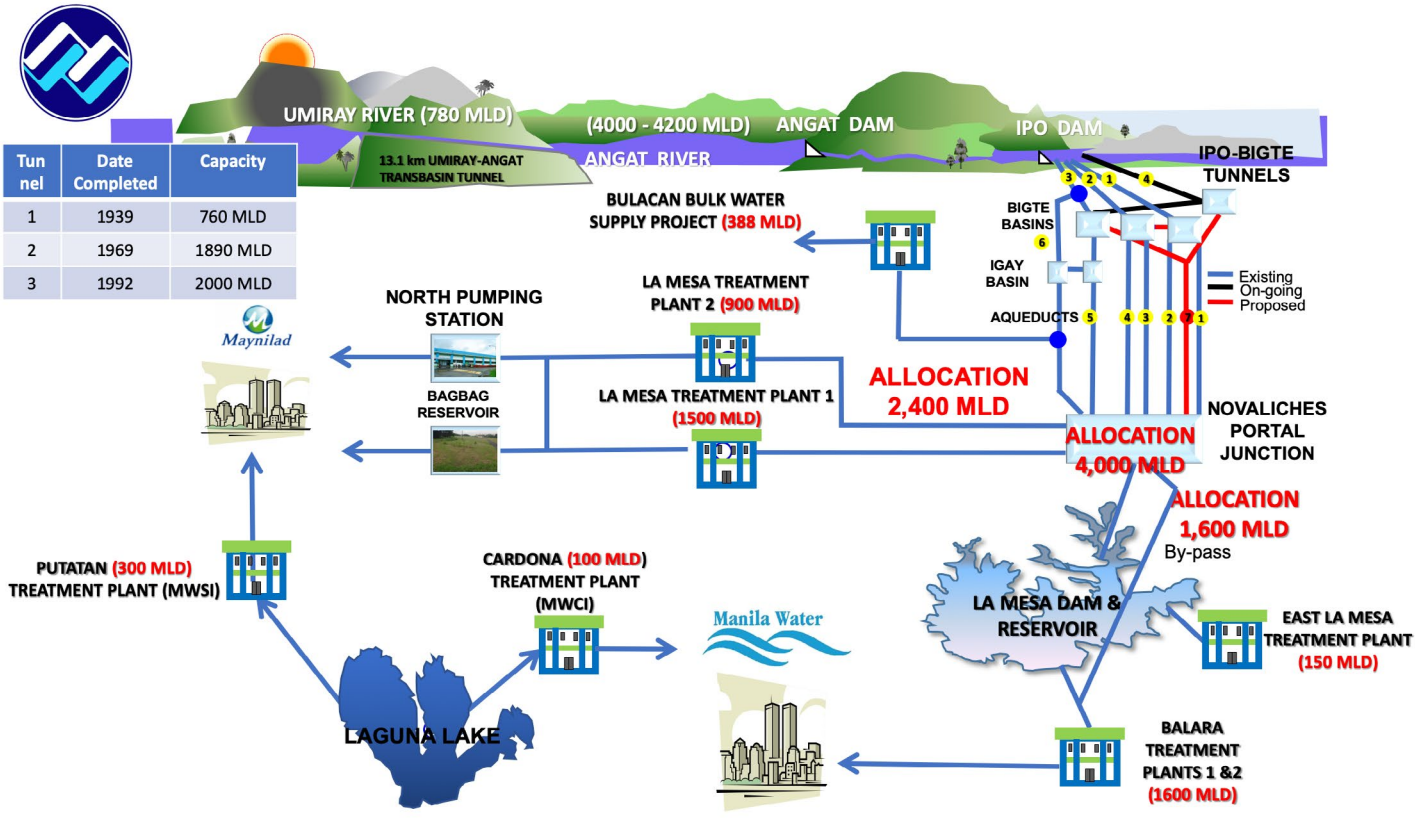
Engr. Jose D. Dorado Jr., Department Manager for the Site Operations Management Department, Metropolitan Waterworks and Sewerage System

178 The Angat Water Transmission Improvement Project (AWTIP) is a project of the Manila Water and Sewerage System (MWSS), a government agency in charge of water concessions in Metro Manila, the Philippines. The project rehabilitates the transmission tunnels from Ipo to Angat Dam to provide stable water supply to residents of the city. Metro Manila draws water from three dams—a networked system called Angat-Ipo and La Mesa water system. The water sourced from Angat in Norzaragay, Bulacan, the major water source for the city, is funneled to the Ipo Dam, transmitted to La Mesa Dam and Portal (including the Balara Treatment Plant) where water is treated before it is distributed to consumers.

179 LEARNING TOUR

Participants observed how this transmission system works in La Mesa Dam, Bicti Basin, and Ipo Dam. Interactions with the project staff helped participants understand how various elements such as engineering design, environmental and social safeguards, water safety and risk and asset management planning come together to make the construction and operation of the water system possible.

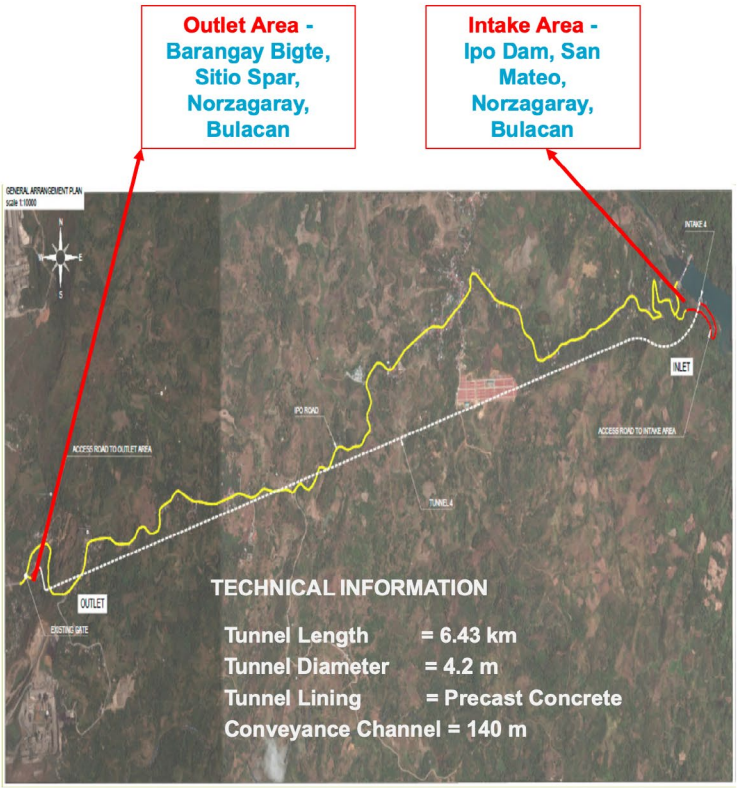
Existing MWSS Water Sources & Conveyance System



180 KEY LEARNINGS FROM THE TOUR

- The water distribution system in Manila is a very old system and the demand for water is increasing. This provides a compelling case to get support for this project. The impact is also very clear and measurable.
- Construction activities in the project overlap with the operations of Maynilad, a water concessionaire that distributes water to residents. Scheduling construction is critical, particularly in a city where any slight disruption could result to adverse public reaction.
- A joint undertaking between local firms and international partners has significant benefits. The partnership facilitates technology transfers and additional capitalization, which is much needed in a large infrastructure such as Angat.
- Projects are an opportunity to introduce innovations. A tunnel boring machine (TBM) is used in place of drilling and blasting to produce a smooth tunnel finish. It uses water only, thus minimizing contamination and disturbance of the surrounding ground. To mitigate the impact on IP communities, the MWSS initiated consultations with stakeholders. It is implementing a mix of interventions that address the social and economic needs of displaced populations. Environmental impact is mitigated and monitored. Reports are submitted on a monthly and quarterly basis.

Project Location



III. MAINSTREAMING DEVELOPMENT PRIORITIES

A. Gender Equality

Keiko Nowacka, Social Development Specialist (Gender and Development) for the Sustainable Development and Climate Change Department

Prabhjot R. Khan, Senior Social Development Officer (Gender) for the India Resident Mission

181 KEY POINTS

- **The focus on gender equality is borne out of the recognition that in our region, gender gaps continue to exist in the political, economic, and socio-cultural spheres.**
- **The path towards gender equality is guided by our gender architecture.**
- **Gender action should not simply be a tick box. We want to instead make meaningful changes toward closing the gender disparity.**
- **There are critical entry points to ensure that gender is effectively considered in project design and implementation.**
- **The executing agency has the primary responsibility to champion the Gender Action Plan.**
- **ADB remains committed to protecting and promoting the rights of all vulnerable groups, including the LGBT community.**
- **Build on existing country frameworks.**

182 ADB continues to work on gender equality not just to support women and women's empowerment. Across the region, gender disparities persist and keep women from obtaining good education, better health services, and opportunities for political and economic advancement. If we want inclusive growth, then we have to work together to ensure that the gender gap is addressed. Gender equality is for everyone, not just for women. A prosperous region gives both men and women the opportunities they deserve.

183 Our path towards gender equality follows the gender architecture. Strategy 2030 has specific policies on gender equality. These are reflected under Operational Priority 2 on accelerating progress in gender equality in five areas: (i) human development; (ii) health and education; (iii) economic empowerment and women's entrepreneurship, including access to decent work; (iv) reduced time poverty; and (v) resilience to external shocks. Climate change, disaster risk reduction, resilience of women to disasters, and women's leadership are prominent themes as well. Our goal is that by 2030, 75% of projects at entry should promote gender equality. For gender-mainstreamed projects, we need to develop a GAP or gender action plan, which is very similar to a DMF or Design and Monitoring Framework and consisting of a set of measurable indicators and activities that we use to track how a DMC meets its gender commitments.

184 Gender actions can be classified into four general categories. The GEN or Gender Equity Theme contains gender

"Gender equality is for everyone, not just for women. If we want inclusive growth, then we have to work together to ensure that the gender gap is addressed."

Keiko Nowacka, *Social Development Specialist (Gender and Development) for the Sustainable Development and Climate Change Department*

Strategy 2030, the Gender OP 2019–2030

Operational Priority 2: "Accelerating progress in Gender Equality"

- Supports a transformative agenda, in line with SDG 5 and other gender SDGs;
- Corporate targets for (i) gender mainstreaming and (ii) inclusion of SGE; and (iii) inclusion of private sector operations target
- Five focus areas:

equality and empowerment outcomes. About 10% of the ADB portfolio are in this category. The EGM or Effective Gender Mainstreaming category, on the other hand, is where most of the Gender Equality and Women Empowerment (GEWE) outputs are. EGM is substantially integrated in the project components and there are gender targets, but the gender outcomes are not explicit. An example would be gender actions to ensure that women are employed in paid work.

185 The next category is SGE or Some Gender Elements, where only one or two outputs reflect gender actions, because gender outputs may not be possible in all components. The last category is called NGE or No Gender Elements. It is actually a misnomer, as there is practically no project that does not in one way or another reflect or cannot reflect specific actions to improve the situation of women. All projects adopt safeguards, whether in the consultation process, the engagement of stakeholders, or design of infrastructure. We are meeting 40% of EGE at entry, but our goal is to raise this to 75% by 2030.

186 At the end of the day, we do not want to prescribe meaningless targets, a tickbox that EAs comply with to demonstrate a project's compliance with gender policies. The actions and indicators have to come from evidence on the ground and what women consider to be concrete actions that can remove development constraints for them. In one city, we designed a transport project with segregated coaches for men and women, because that is what the consultations with women show—that they feel unsafe when they take the public transport.

187 In another project, we installed transparent lifts to discourage harassment of women who say that it is when the doors close and they are away from public view that the harassment usually happens. In yet another example, we offered the option to provide skills training for women. The training became a springboard for the women to get better jobs on trades normally taken by men. Note that it is not simply saying you should hire women. We need to think about how to make that happen by improving the conditions and skills of women, so that they become more employable. In short, we create a pipeline for them.

188 Gender issues are assessed at inception stage, and we do gender assessments to determine what are the likely issues that will be triggered. We then work with the EA to set gender

targets and prepare the GAP. The GAP or Gender Action Plan includes measurable quotas, targets, activities, and design features to address gender equality issues and to facilitate the involvement of women in the project, as well as their access to project resources and tangible benefits. All GEN/EGM loans require GAPs, except policy-based loans and results-based lending. The project completion report is also an important instrument to evaluate whether gender targets are met and capture the challenges, lessons, and innovations.

189 The leadership for the GAP and its ownership rests with the EA. It is the EA's responsibility to provide the necessary institutional support for the GAP. This would include hiring the needed expertise, securing adequate budget for gender activities, and conducting the needed capacity building. At phase out, it is also the EA's responsibility to evaluate what happened to the GAP and how the activities contributed or did not contribute to meeting the target outputs and intended outcomes.

190 Reporting GAP progress has its attendant bottlenecks. Data are sometimes problematic as there is a tendency to focus reporting on quantitative indicators, e.g., how many women attended meetings. We should bear in mind that while that is important, we need to also capture how vulnerable groups, including women, benefited from the project, what are the issues, and how we addressed them. We ask how specific women's concerns were addressed, because if that is part of the GAP, then we need to report that information, too. We also noticed that when a project is winding down, there is a rush to collect data for the project completion report, data that IAs neglected to collect in the beginning. It is important to be clear what data we need to capture from the start and in what format. This way, we eliminate the "cramming" that normally accompanies project closing.

191 While we do not have explicit statement on LGBT, the intention is to make implementation really inclusive. There are safeguards available that seek to protect different groups from discrimination, and such is the approach to special groups that might be marginalized due to their caste, ethnic affiliations, gender preferences, and even their location (e.g., urban versus rural women).

192 Some countries such as the Philippines have a strong gender equality policy framework. Instead of reinventing the wheel, the GAP can be developed based on that framework.

RESOURCES

- Gender Checklists and Toolkits in Sector Work http://www.adb.org/themes/gender/checklists-toolkits
- Gender Equality and Women's Empowerment Operational Plan, 2013-2020 http://www.adb.org/documents/gender-equality-and-womens-empowerment-operational-plan-2013-2020
- Gender Tip Sheets https://www.adb.org/documents/series/gender-tip-sheets
- Guidelines for Gender Mainstreaming Categories of ADB Projects https://www.adb.org/documents/guidelines-gender-mainstreaming-categories-adb-projects
- Operations Manual Section C2 on Gender and Development https://www.adb.org/sites/default/files/institutional-document/31483/om-c2.pdf
- Policy on Gender and Development http://www.adb.org/documents/policy-gender-and-development?ref=themes/gender/publications
- Toolkit on Gender Equality Results and Indicators https://www.adb.org/documents/tool-kit-gender-equality-results-and-indicators

B. Climate Proofing

Noelle O'Brien, Principal Climate Change Specialist, Pacific Regional Department

Charles Andrew Rodgers, Senior Advisor on Climate Change Adaptation in the Climate Change & Disaster Risk Management Division, Sustainable Development and Climate Change Department

Anupma Jain, Senior Urban Development Specialist from the Urban Development, Water Supply & Sanitation Division, Pacific Regional Department

193 KEY POINTS

- **Climate risk analysis allows us to identify and manage climate change issues that will affect our investments in the future.**
- **Climate proofing should begin even before we make the decision to invest at concept stage.**
- **Apply the initial simple rapid assessment tool to determine the level of climate risks.**
- **Proceed to more in-depth climate risk assessments if the initial level of risk is identified as medium or high.**
- **Predicting climate-related risks and hazards can be challenging because we need accurate, science-based data.**
- **Design events such as a 20-year 1-day maximum precipitation need to be adjusted to reflect changing climate risks that are based on an analysis of climate projections.**
- **Objectives of climate analysis include ensuring that we avoid locking people into higher risk in the future, and also avoiding stranded assets.**

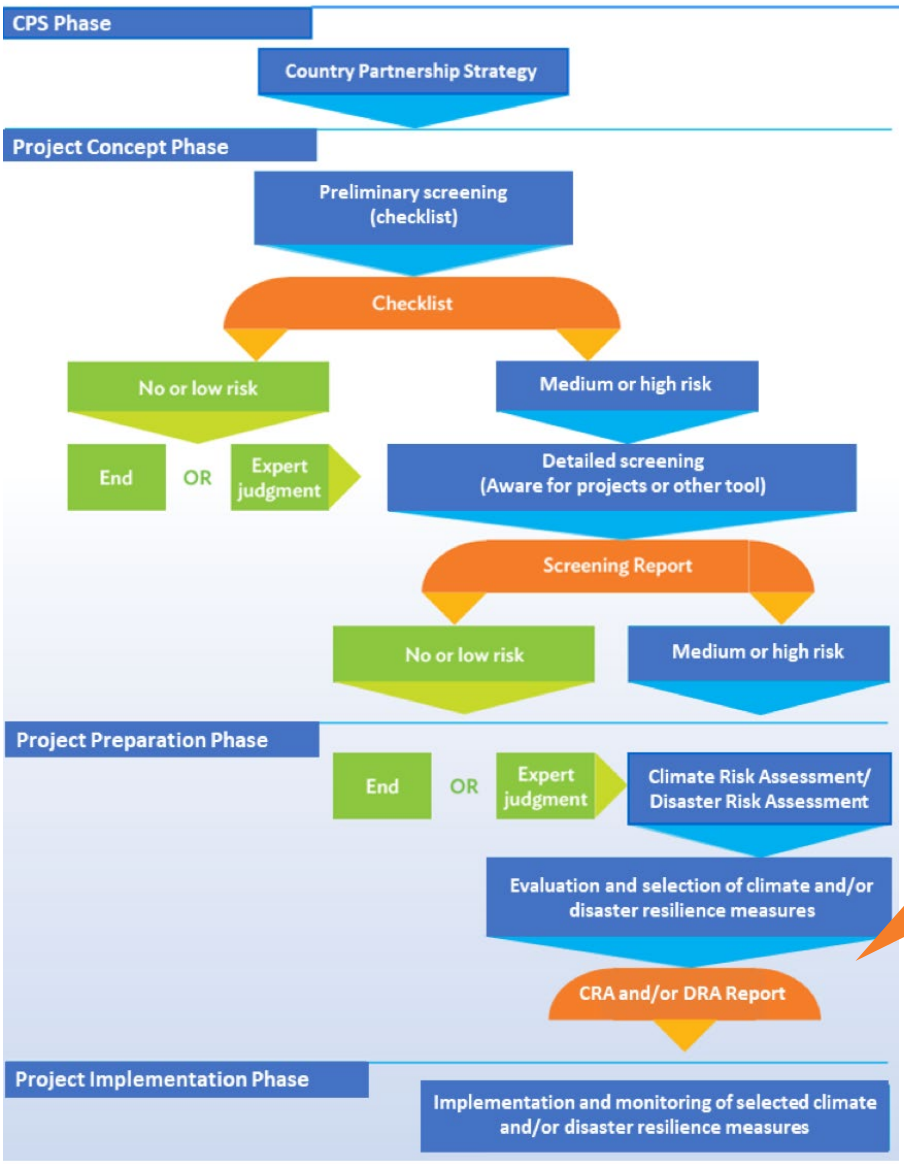
194 The range of projects that we finance invariably exposes our investments to climate and disaster risks. Climate proofing involves asking the question: "How will our investments be affected by future climate change issues?" Whether it is sea level rise, storm surges, and extreme temperatures, there are increasing risks to people and structures. Will our structures withstand possible impact of climate change and, conversely, will our project exacerbate our vulnerability to climate change?

195 All ADB projects are screened for climate risks at project concept stage. An initial screening is carried out by the project teams on the basis of a checklist included in the Rapid Environmental Assessment, a simple tool that gives a score of between 0 (low risk), 1 (medium risk), and 2 (high risk). Projects that score medium or high proceed to the next screening, and an online tool called AWARE may be used for this purpose.

196 AWARE yields a radar diagram that categorizes risks such as temperature increase, precipitation increase/decrease, wind speed change, sea level rise, solar radiation change, water availability, flooding, tropical storms, wildfire, permafrost, sea ice, snow loading, and landslide. There are 16 such risks. If AWARE confirms that the project is at medium or high risk, ADB conducts a detailed climate risk and adaptation assessment (CRA).

> **"Will our investments lock us into future climate change issues? We have to ensure that our investments do not increase the number of people who are exposed to the increasing risks of climate change"**
>
> ***Noelle O'Brien,*** *Principal Climate Change Specialist, Pacific Regional Department*

Climate and/or Disaster Risk Assessment



CRAs required for projects classified as medium or high risk

- Quantifies risks and identifies adaptation options that can be integrated into the project design (climate proofing)
- Estimate the incremental cost of adaptation

Recommendation #4: Start by understanding the climate and/or disaster risks to the project objectives, output and outcomes. Climate scenarios and projections can come later.

Recommendation #5: Consider a joint CRA/DRA if there are substantial geophysical risks to the project.

Recommendation #6: Focus on what matters by identifying priority risks based on how material they are for the project performance and key indicators.

Recommendation #7: Identify low regret adaptation options taking account of timing and uncertainty and emphasizing the economic rationale for adaptation (the costs and benefits).

197 This process is intended to quantify risks and identify appropriate adaptation measures to be included in the project design. Adaptation options, which may include alterations in structure and design, O&M, and capacity building, are identified and evaluated based on technical and economic feasibility. Technical feasibility considers such factors as available skills, equipment, geography, governance, and capacity. The economic analysis compares the potential net benefits of each proposed option, including the option of "do nothing" (wait and see).

198 Adaptation practitioners are seeking new ways to make the process of climate risk assessment and management more cost-efficient, scientifically sound, and more fit-for-purpose. It is important to emphasize that designing infrastructure projects that incorporate climate proofing is an evolving science, and in fact, we have not reached a common international consensus on best practice in many areas. However, we continue to be guided by accepted engineering principles.

199 These principles demand that infrastructure provide low risk of failure, durability, and safety. We recognize that many hazards are climatic in nature, and will change in magnitude as a consequence of climate change. Adapting to the impact of climate change requires credible projections of changes in regional climate, including extreme events. In this process,

we must accept a substantial degree of uncertainty regarding future climate, based both on current limitations in the ability of global climate models to resolve all important climatic processes, and the as yet unknown trajectory of greenhouse gas emissions.

200 One example of the use of output from climate modeling is in a road project in Vietnam. The project "Adjusting Hydrological Inputs to Road Design and Climate Risks Based on Extreme Value Analysis" illustrates a conservative approach to project design under climate uncertainty that makes transparent use of scientific information.

201 For this project, the risks to be mitigated are sea level rise and localized flooding of roadways due to intense rainfall. We used the same engineering design standards currently specified for the country, which stipulates that class 4 and 5 rural roads should be designed using a 1-in-25 year daily maximum rainfall event (4% annual exceedance probability) to guide drainage design. We did not change this standard because it is already well-defined and accepted. But we needed to understand how to interpret the standard, specifically the magnitude of the design event under a changing climate so that road drainage structures (e.g., culverts) provided protection consistent with that standard under current conditions.

202 We also needed to understand whether road alignments were themselves at risk from the slow-onset impact of sea level rise combined with storm surge and other contributions to coastal flooding. Restated, do we climate-proof the coastal roadways where they are currently located, or do we propose changes in the alignment? Using climate models and extreme value statistics, we prepared a table that presents adjustment values (percentage increase relative to historical conditions) for drainage design (rainfall) events of various recurrence intervals (2, 5, 10, 20, and 25 years). The table can be used as a reference not just for this project but in future road projects as well.

National Design Rainfall Adjustment Factors for Various Time Periods, Event Recurrence Intervals

Look-up Table for Heavy Rainfall

National **adjustment factors** (%) for 1-day maximum rainfall amounts in Viet Nam based on CMIP5 RCP8.5. All changes are with respect to 1986-2005, based on the 95th percentile of the ensemble, rounded to the nearest 5%. Return period estimates assume the Gumbel distribution.

Future period	Return period (years)				
	2	5	10	20	25
2016-2035	15	20	25	25	25
2036-2055	35	25	30	30	35
2056-2075	50	45	45	45	45
2076-2095	80	75	75	70	70

203 To assess risks associated with sea level rise, we used a component-based approach. The approach considers sea level rise in combination with coastal flooding, storm surge, wave height, and other considerations. The basic assumption is that while sea level may rise, other contributing factors to coastal flooding may not be affected by climate change to the same degree, but their impact must be considered jointly.

204 By summing the contributions, for instance, on wave height and storm surge, we can generate the low, medium or high estimates of coastal flooding in specific locations without presenting explicit probabilities of exceedance (which cannot be calculated accurately). We need a range of estimates because our decision will be guided by many considerations, including the design lifetime of the project and the costs of protecting versus relocating.

205 In general, we consider three factors in selecting scenarios: (i) the design lifetime of the project; (ii) the degree of lock-in (flexibility to change design aspects in the future); and (iii) level of concern (consequences of failure). In the resulting table, summarizing the component-based analysis, we see that while sea level is rising, it is not necessarily the most important component with respect to the present flooding risk or project lifetime flooding risk (assumed 20 to 25 year). Assessments of both extreme rainfall and coastal flooding are presented in look-up tables, which can be updated every 5 to 10 years as new information becomes available.

Provisional Table for Credible Maximum High Water Level Components (all units cm)

Example from Viet Nam

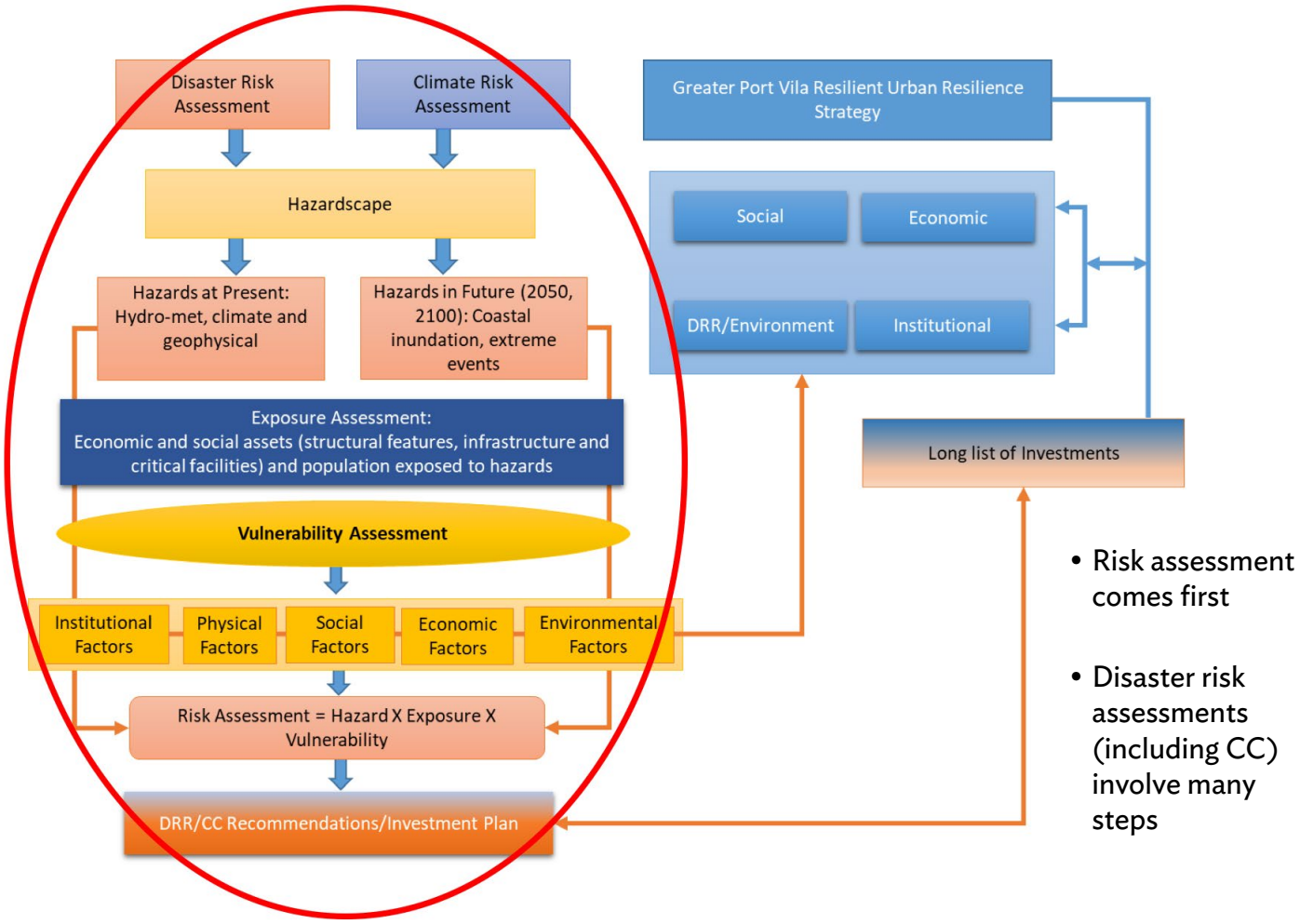
Upper SLR is from the uncertainty range of RCP8.5 from MoNRE (2016). ***Surge*** is the highest storm that might occur for Quang Binh – Thua Thien Hue from MonRE (2016). ***Wave*** is the maximum wave height observed at Da Nang during Typhoon Kaemi by Tran et al. (2004). ***High Tide*** is half the maximum amplitude given for Da Nang in MoNRE (2016). ***Tidal Regime*** adds 20% of *Mean SLR* (rounded up to next cm) to reflect modelled changes in long wave resonance for deeper water from Thuc and Son (2012).

Scenario	2030	2040	2050	2060	2070	2080	2090	2100
Upper SLR	18	26	35	46	57	71	86	102
Surge	420	420	420	420	420	420	420	420
Wave	800	800	800	800	800	800	800	800
High Tide	90	90	90	90	90	90	90	90
Tidal Regime	4	5	7	9	11	14	17	20
Total	**1332**	**1341**	**1352**	**1365**	**1378**	**1395**	**1413**	**1432**

206 To illustrate how climate and disaster risk assessment can be integrated in urban planning and development, we can look at the Vanuatu example. Vanuatu ranks no. 1 in the world in terms of disaster risks. Port Villa, Vanuatu's capital, had an average rate of change in urban population of around 2.6% between 2010–2015. Integrated urban planning has played a significant role in preparing the Port Vila Integrated Urban Improvements Project due to Port Vila's size, economic significance, and the climate and disaster risks it faces. In Greater Port Vila, the population is about 85,000 and density is at 270 people per sq. km. A climate and disaster risk assessment was completed, which looked at how risks increased based on the types of hazards; exposures to these hazards; and the vulnerabilities along five areas: institutional, social, physical, economic, and environmental factors.

207 The completed climate and disaster risk assessment fed into ADB's assistance to the government in preparing an urban development strategy and capital investment plan for Greater Port Vila. The draft strategy relied on government risk data and maps, supported by other partners. It helped the government produce hazard risk maps that aided in identifying areas of risk. The results are useful in determining the nature of interventions needed in the short-term (e.g., early warning systems, disaster

Risk-Informed Approach to Urban Planning & Control



Source: Tonkin & Taylor. (2019). Disaster Risk Assessment / Climate Risk and Vulnerability Assessment. Asian Development Bank

relief, response and rehabilitation facilities and programs) and those needed in the long-term (e.g., management of the direction of urban growth). The draft capital investment plan prioritizes investments based on the potential for greatest urban resilience. Feasibility studies for priority climate-proof investments are underway for a proposed ADB investment project. Vanuatu's experience illustrates the complementarity of climate change and disaster risk reduction with multi-sector long-term urban planning and project development.

208 One of the risks we increasingly see is extreme rainfall, particularly the increased rainfall within a 24 or 48 hour period. Design of existing infrastructure and new infrastructure must be assessed to understand the implications of the increased rainfall on structures. One example is in regard to the height and strength of dam walls where the consequence can be catastrophic to communities that live downstream of the dam. Climate proofing costs money, and hence, it is important that the EA owns the climate proofing measures. It is ultimately the EA's responsibility to own the climate proofing measures based on its understanding and acceptance of the level of risks it can tolerate.

RESOURCES

- Disaster Risk Assessment for Project Preparation: A Practical Guide https://www.adb.org/sites/default/files/institutional-document/388451/drm-project-preparation-practicalguide.pdf

C. Digitizing Development

Thomas E. Abell, Advisor for the Sustainable Development and Climate Change Department and Chief of the Digital Technology for Development

209 KEY POINTS

- **Technology drives economic growth.**
- **Develop a good understanding of hype and anti-hype in technology.**
- **Technology design is markedly different from infrastructure design.**
- **Cloud computing can transform our projects in a way that is fast, less expensive and effective.**
- **Limitations in speed, efficiency, career models, and capacity are factors that often prevent governments from taking full advantage of technology.**

210 There is increasing evidence that technology drives economic growth, yet technology is often not carried forward. Technology is moving at an exponential growth and is redefining the way we live and do business. In ADB, 20% of projects have substantial technology component. It is most prominent in the energy and transport sectors. We see it increasingly used for smart grids, educational management system, and health information systems. The pure technology projects are mostly in ICT, such as undersea cables and satellites. Other sectors and thematic areas are also now upskilling, so we will likely see technology increasingly mainstreamed into our development investments. Amara's Law says we tend to overestimate what will happen in two years but underestimate what will happen in 10 years. This reflects the leap that technology can make and how it is difficult to predict with certainty how it can change. But it also raises the question of how much of that change we are willing to wait to happen or to drive ourselves.

211 Compared with the business sector, the public sector has certain limitations that may prevent it from taking the lead in digital technology. Foremost of these is funds. We do not have access to the same level of funds that our private counterparts normally have. For this reason, we tend to be followers instead of leaders in the field. Some of the things we have to understand is the phenomenon of hype and anti hype. Hype can get us hooked on so-called miracles that appear to be working but are not. These are technologies that attract a lot of bandwagon followers but would not pan out well eventually. Anti hype is the underestimated worth of a technology. A good example is solar power, which defied all projections that it was flat, and yet annual installations of solar panels grow every year. There are firms that can do technical analysis for us if we are interested.

212 Technology projects have a different design process from infrastructure projects. Technology used to follow a waterfall sequence: gather requirements, test and verify, and roll out. Projects of this kind normally have a three-year cycle. "DevOps" revolutionalized this process. It shortened the cycle of project development and implementation by facilitating the collaboration between software development and IT operations. This is part of the Agile approach that uses shorter development cycles and

Amara's Law: "We always overestimate the things that will occur in the next two years and underestimate the things that will occur in the next ten years."

Thomas E. Abell, *Advisor for the Sustainable Development and Climate Change Department and Chief of the Digital Technology for Development*

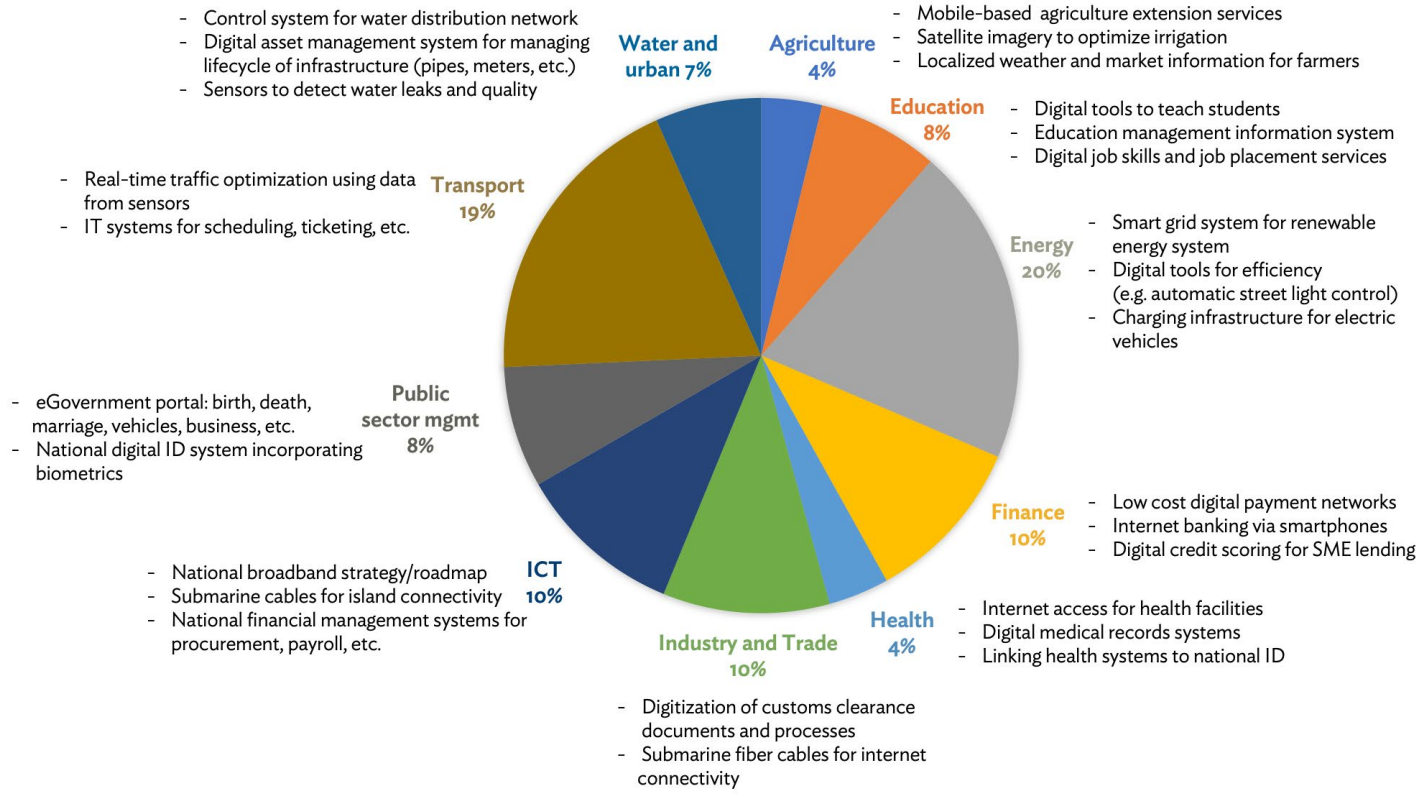
rapid releases of project output. The implication of the DevOps model is that you conceive of projects as something that can have an end-to-end solution and can be released from production quite quickly. DevOps allows you to do iterative development and build upon your project in increments, even if you have not fully perfected the project.

213 Cloud computing will have a huge influence on our projects. Amazon actually dominates the market with a 47% share. Microsoft has 25%. What cloud computing does is provide online services for data storage and computing power. It allows you to store, transfer, and analyze data with a small workforce at a much lower cost. Government systems such as health and transport can be migrated to the cloud. Some issues prevent many countries from latching on to this new technology. First is the privacy issue, because you upload valuable data that can expose you to risks. There is a lot of concern about security breach or from losing control over your data.

214 Governments are often hindered by the limitations of their own career model. The private sector takes risks more readily whereas governments are reluctant. They therefore take longer to develop and implement technology projects. In some cases, they prefer more control over the management of their data when, in fact, outsourcing it to another firm or via cloud computing would have been more efficient and less costly. There is also limited IT expertise within governments, largely because budgets are limited. Public-private partnerships would be a strategic arrangement because of the potential for the private sector to fill some of the gaps.

215 Uber was able to trigger a digital disruption, an anticipated change in the business of ride-sharing that was not available or even possible before its time. The story of Uber illustrates how technology successfully comes together to take advantage of opportunities: idle cars, drivers who want work, customers who are unhappy with taxi service, the availability of smartphones, internet, and GPS. The same thing can happen in agriculture. Farmers have land but they are not growing enough. They have time. If they get hold of smartphones, which they will, eventually, we might be seeing another digital disruption.

Digital Technology Projects per Sector (Loans and Grants) and Example Projects (2010 to 2018)



D. Closing Remarks

Risa Zhijia Teng, Director General of the Procurement, Portfolio and Financial Management Department

216 KEY POINTS

- **The discussions, insights, and recommendations of this forum will help ADB strengthen its policies and systems to deliver better project outcomes.**
- **Both ADB and developing member countries play important roles in making the partnership stronger.**

217 The discussions during the forum are fruitful, vibrant, and constructive. They will be useful to ADB in making policies about projects more attuned to the requirements and realities of developing member countries, even as we strive to fulfill our vision of a prosperous, inclusive, and sustainable Asia-Pacific.

218 New challenges will continue to emerge. ADB commits to stand by developing member countries and provide support through institutional strengthening and helping build the capacities of country partners. The countries, on the other hand, need to do their share in putting in place the policies, institutional structures, and mechanisms for projects that are responsive to development needs.

"I am impressed by your many challenging questions and constructive thoughts. Given the realities of the development landscape, challenges will continue to emerge and your trusted development partner, ADB, stands ready to support you."

Risa Zhijia Teng, *Director General of the Procurement, Portfolio and Financial Management Department*

100+ Practitioners, 37 Countries

I have interactions with other countries like Pakistan and Cambodia, I discuss with them. I like that.

Dewi Artrishanty, Indonesia

The most interesting thing is, I saw how technology is used in this kind of forum. I had a very interactive and productive session.

Vithanage Chinthaka Dasun Jayasekara, Sri Lanka

This forum is really interesting. I met so many people from different countries, doing the same work. This is a good forum to share our experience. And the networking. Also from other countries' experiences, we can also find solutions to our problems.

Zahidha Mahmood, Maldives

The future should look bright, and we hope and we pray that it will be. We need partners in development, especially because there are more challenges now.

Dan Jimenez, Philippines

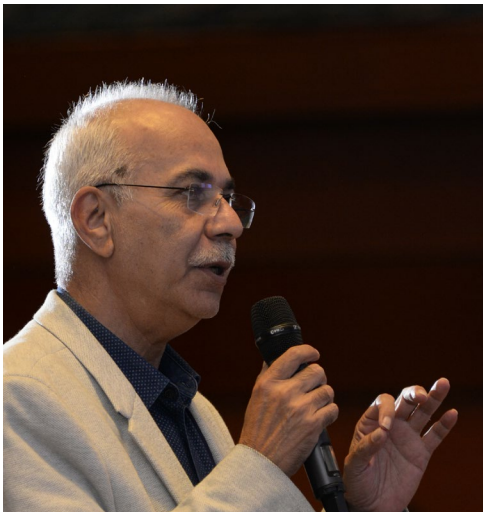
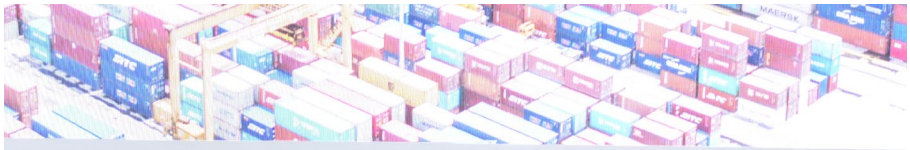
With the projects that we are getting, I want to make sure that we implement them the right way, and make sure that they reach the people that are in need of our support.

Antholino Net, Micronesia

We can implement any activities we want, we can follow the plans, the policies, but dealing with people, that's the most important part of any project implementation.

Momoyo Scotty, Nauru





We got an opportunity to ask questions directly to those who make decisions in ADB. Normally we don't get that chance.
Wellington Warren, Papua New Guinea

In safeguards, we have different approaches based on the location. We deal with our own conditions and our people, so we have a slightly different approach in safeguards.
Kyaw Swar Aung, Myanmar

The sessions are highly relevant to us—from project design to procurement—they're all relevant to what we will be doing, because we are about to start a project with ADB.
Reynaldo Baloloy, Philippines

My vision for my country? Sri Lanka wishes to have more solar energy. My favorite session? Safeguards. Because environment is the key for the future, so we have to safeguard the environment.
Sanath Sisira Kumara Perera Kasthuri Arachchige, Sri Lanka

It is marvelous. This is a very practical situation here, and we are observing it, and this machine particularly, this is a very new invention for us.

Arif Mansoor, Pakistan

As an economist, I am usually in the office. This site visit is beneficial for me, to see the actual happening in the project.

Puncharat Donsrichan, Thailand

A very pleasant and informative experience

Aloviddin Kamolov, Tajikistan

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