FUTURES THINKING IN ASIA AND THE PACIFIC

WHY FORESIGHT MATTERS
FOR POLICY MAKERS

APRIL 2020

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ISBN 978-92-9262-181-0 (print), 978-92-9262-182-7 (electronic)
Publication Stock No. TCS200126-2
DOI: <http://dx.doi.org/10.22617/TCS200126-2>

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Notes:

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All masthead photos are from ADB.

Cover design by Keisuke Taketani.

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FOREWORD

This publication compiles the experiences of the Asian Development Bank (ADB) from implementing the technical assistance project, Demonstrating Future Thinking and Foresight in Developing Member Countries, and running futures and foresight workshops with government experts. The project piloted futures strategic thinking and foresight tools to understand entry points for ADB to support transformational change.

With the rapid development of technology, many of us see technology and innovation as a beacon of hope to solve the increasingly complex development challenges in Asia and the Pacific. ADB's recent publication, *Asia's Journey to Prosperity: Policy, Market, and Technology Over 50 Years*, shows, however, that "only a clear vision for the future, which is often championed by forward-looking leaders and shared across a wide spectrum of social groups," backed by strong institutions, has made a difference in development and led to transformational change.

Visions have to be more than possible futures: they have to be preferred futures. To unleash them, people have to think outside the box and use not just knowledge and evidence but also emotions and creativity.

In the following pages, bytes of knowledge provide the project's context, introduce futures terminology and tools, and show how futures and foresight tools are used in selected countries.

During the preparation of this publication, the global community experienced firsthand why futures thinking with all its tools, such as emerging issues analysis, scenario planning with radical change scenarios, and backcasting, are important. The urgency to use them effectively across countries, agencies, and stakeholders has never been greater for the global community as we face together the challenges of managing the coronavirus pandemic and its impacts.

The pandemic is not a [black swan](#) but a [wicked problem](#) that now needs collective action, fast innovation, and public trust in agencies. The publication demonstrates how people can create actionable visions for futures together.

We thank everybody who contributed to and participated in the project.

Bambang Susantono

Vice-President
Knowledge Management and Sustainable Development
Asian Development Bank

ACKNOWLEDGMENTS

This handbook was compiled by Susann Roth, Principal Knowledge Sharing and Services Specialist at the Asian Development Bank (ADB); Muriel Ordoñez, technical writer and editor, ADB consultant; and Keisuke Taketani, graphic designer, ADB consultant. It was edited by Professor Sohail Inayatullah, UNESCO Chair in Futures Studies. The book is based on the work of the many colleagues who have been involved in ADB's futures thinking and foresight project. ADB is grateful to Mei-Mei Song, former director, Center for Futures Intelligence and Research of Tamkang University; Romano Theunissen, futurist, Tamkang University; Umar Sheraz, blog editor, *Journal of Futures Studies*; Ramola Naik Singru, Senior Urban Development Specialist, ADB; Tiago Ribeiro, Urban Development Specialist; Paolo Spantigati, former Country Director Timor-Leste and now Country Director Armenia; Shane Rosenthal, former Country Director Armenia and now Country Director Georgia; Giovanni Capanelli, Country Director Kazakhstan; Sunniya Durrani-Jamal, Country Director Cambodia; Marzia Mongiorgi, Principal Country Specialist, People's Republic of China (PRC); Kelly Bird, Country Director Philippines; Yolanda Fernandez Lommen, former Country Director Mongolia, now Country Director PRC; Vivek Raman, Senior Operations Coordination Specialist; Sonia Chand Sandhu, Principal Knowledge Sharing and Services Specialist; Jo Aquino, Associate Knowledge Sharing and Services Officer; Mary Jane Carangal-San Jose, Senior Knowledge Sharing and Services Officer; Gohar Mousaelyan, Senior Project Officer; Nessie Rullan, technical assistance coordinator, ADB consultant; and Arndt Husar, Senior Public Management Specialist (Digital Transformation).

BEYOND PREDICTION

From global politics and economics to communications and transportation, education, construction, agriculture, and even fashion, the world is amid fundamental shifts. More and more, systems of knowing and methods of doing are out of date. They are unable to adapt to a dramatically changing world.

Surrounded by competing priorities, limited resources, and a complex changing environment, governments are searching for new planning tools to meet multiple economic, political, social, and environmental and climate change challenges.

Box 1: Tomorrowland

By reimagining the future, we can drive the change we want to see. We cannot change the past, but everything we do now changes the future.

Most national development strategies start by analyzing the current problems and challenges a country faces, and end with approaches to address them. They are based on experience, which comes from the past and we use it—combined with data—to extrapolate our understanding of the present to improve in the future.

It is a good method to understand gradual change, but it can be a “used future”—we create a strategy for the future from what we know from the past.

But if we look back to the past, we start to see that certain aspects of our lives are rapidly changing. For example, look at how we use our mobile phones today: they are now used as computers, cameras, and networking tools! (Excerpt)

The past is not always a good guide to the future.

Source: [Read the complete blog post by Susann Roth.](#)

Futures thinking (the theory and methods) and foresight (the practical application) are a set of approaches and tools designed to help their users identify emerging issues, negotiate uncertainties, articulate scenarios, develop a common vision of a desired future through wide participation, introduce innovation, and design robust policies and strategies. (The terms and tools most often used in futures thinking and foresight are briefly defined in [Futures Thinking and Foresight: Terms Used.](#))

Futures strategic thinking and foresight tools help users understand trends and [emerging issues](#) and align their visions for a desired future. **Design thinking** can be used to inform road maps to the desired future. Design thinking is a nonlinear, iterative process that seeks to understand users, challenge assumptions, redefine problems, and create innovative solutions to prototype and test. **Systems thinking** is a holistic approach to analysis that focuses on the way a system's constituent parts interrelate and how systems work over time and within the context of larger **systems**: it is the opposite of thinking in silos.

Futures thinking and foresight aim to describe change 20–50 years into the future. In this way, they are different from traditional analytical and planning tools at the disposal of governments, corporations, and individuals. They extend the time horizon. Horizon 1 is the present, the site of often-contested strategic decisions. Horizon 2 is 5–20 years forward, the site of uncertainty, of disruption. Horizon 3 is 20–50 years ahead—the emerging vision. Futures thinking is not only used for describing possible futures; it is also used to develop a vision of the preferred future. Preferred futures are visions for the longer term; they are not an impossibility: they represent a shared vision of those involved.

Futures thinking and foresight intend to mitigate the risks of uncertain futures and create new financial and technological opportunities. The risk of “short-termism” is managed by extending the present. As a Thai foresight expert said at a futures workshop, “foresight promotes the game of the long,” seeking solutions to tomorrow's problems today. Unfortunately, many have neglected global futures challenges in the last decades, now evident in the dramatic environmental damages and climate change consequences that we are facing.

Box 2: [Innovation labs](#)

Many countries have established innovation labs or centers to tackle policy and public sector challenges in novel ways. The proliferation of such labs demonstrates that governments recognize that it is difficult to innovate and drive innovation within existing bureaucratic structures and with public servants' existing mind-sets (risk aversion), skills, and capabilities.

The labs provide government a space to experiment, develop models, and future-proof them to avoid making shortsighted policies or investments. They apply futures and foresight tools to understand and map the changing world; analyze uncertainties; and identify opportunities for development, investment, and policies. The labs often aim to mainstream innovation in governance and promote a culture of entrepreneurship and ownership in government, to encourage public servants to experiment.

Source: Read about innovation labs in [Armenia](#) and [Sri Lanka](#).

Futures thinking and foresight not only use data and analytics from the past but also bring in the views and imagination of a wide range of participants, including government officials and representatives of industry, civil society, and academia. It does not look only at what is possible but at what is desired. In this way, futures thinking and foresight are different from traditional forecasting, which is narrowly focused.

Because they are participatory, futures thinking and foresight strengthen cross-sectoral links, encourage the emergence of integrated solutions, and empower people to create the future they desire.

The process of widening the horizon (beyond simply borrowing existing solutions), exploring emerging issues and trends, and developing them into potential scenarios of alternative futures leads to innovative solutions and resilient policies. Projects and programs are planned with tools and perspectives that are expected to be relevant in the future.

Box 3: ADB, futures thinking and foresight, and developing member countries

A pioneering effort to use futures thinking and foresight, within the Asian Development Bank (ADB), this [project](#) aimed to help improve development planning in selected developing member countries and inform ADB's country partnership strategies with them. The project's objectives include

- help create robust policy solutions that integrate the perspectives of different stakeholders,
- transform the understanding of the future by reframing the problem or issue through deeper causative levels and by constructing the issues through diverse worldviews and stakeholders, and
- plan scenarios to move from the **one future** or planning for **the** future to the acceptance of other possible and preferred futures.

The project aligns with ADB's [Strategy 2030](#), which acknowledges that the development landscape has changed and will change in astonishing ways by 2050. ADB must, therefore, employ futures thinking and foresight to strengthen its country-focused approach and apply innovative approaches in operations.

Futures thinking and foresight present an innovative way to develop long-term development plans together with the developing member countries to guide ADB's country partnership strategies (CPSs) with them. ADB will use the CPS cycle as the main platform to define customized support, promote the use of innovative technologies, inform the knowledge management plan, and deliver integrated solutions by combining expertise across a range of sectors and themes and through a mix of public and private sector operations.

The hoped-for outcome is an environment that encourages better-informed planning and policy decision-making in developing member countries.

[Read more.](#)

FUTURES THINKING AND FORESIGHT: TERMS USED

Alternative futures

The idea that not one future but many different futures may occur or may occur simultaneously.¹

Anticipation

The capability to more robustly understand an emerging event or trend.

Black swan

An improbable and unlikely event identifiable only after it has happened. Black swans seem inevitable but are difficult to see in the present, such as the 9/11 World Trade Center attacks or the success of Harry Potter, and the invention and global reach of the internet.²

Disowned futures

Scenarios where alternative points of view have been unconsciously ignored or overlooked (disowned). Disowned futures—the dialectical opposite—are especially useful in looking at how stakeholders see a particular issue, compelling them to ask why alternative points of view have been left out and why. Including the disowned future leads to more robust and integrated strategies. See [preferred future](#).³

Drivers

Quantitatively measurable factors—issues, phenomena, organizations, or people (individuals or groups)—that create social change and push us toward various futures.

Environmental scanning

The action of looking for drivers and emerging issues. It can be passive or active, continuous or occasional. “Environment” is not limited to the natural or operational environment but is broad and covers many aspects (see [STEEP](#)).

¹ F. Polak and E. T. Boulding. 1973. *The image of the future*. Amsterdam: Elsevier Scientific Publishing Company.

² N. N. Taleb. 2007. *The black swan: The impact of the highly improbable* (Vol. 2). New York: Random House.

³ S. Inayatullah. 2013. Futures studies: theories and methods. *There's a Future: Visions for a Better World*. Madrid: BBVA. pp. 36–66.

<u>Foresight</u>	A discipline related to futures studies that examines emerging threats and opportunities and uses scenarios to make sense of social change. Traditionally, <u>foresight</u> work looks at a time horizon of 5–15 years, with longer-term foresight practices extending to 20 years, in contrast to futures studies, which typically look at time horizons beyond 15 years. Foresight differs from strategic planning, which typically deals with 5-year plans. Foresight is used extensively by the corporate sector.
<u>Futures studies</u>	The study of various and alternative images of the future and the worldviews and values that support them. The use of the plural futures is deliberate to focus on multiple futures.
Futurist	A person who looks at long-term alternative futures and scenarios. While the term has become highly popular, there are very few futurists. Those who make predictions are not considered futurists because they reject alternative futures. Forecasters are also not considered futurists because of their short-term focus. Futurists are multi-disciplinarian and integrate quantitative, qualitative, critical, and action learning approaches to research and action.
Hindsight	The opposite of <u>foresight</u> , hindsight is the ability to look at the past and understand why and what has happened.
Image of the future	A mental view of the future, similar to a vision. All images of the future can be grouped into four categories: continued growth, disciplined, collapsed, and transformed. ⁴
Outlier	Sometimes called a wild card, it is a futures event that is vastly different from other scenarios expressed. Outliers can be wild and outrageous but are often still possible given certain trends and emerging issues. Their primary function is to challenge assumptions and push participants to question and transform. Many scenario techniques include an outlier scenario to include extreme variation.
Prediction	A specific statement that says something will precisely happen in the future. Predictions are rarely used in futures studies nowadays as they take away individual and organizational agency. Predictions tend to assume the universe is closed, that is, the act of prediction does not change the result.

⁴ J. Dator. 1993. From future workshops to envisioning alternative futures. *Futures Research Quarterly*. 9(3). pp. 108–112.

Preferred future	An ideal future scenario. Preferred futures tend to be made up of participants' desires and assumptions. Preferred futures almost always have a disowned-future counterpart. As participants develop a preferred future image, they consciously and unconsciously disown aspects of society—what they are unable or unwilling to acknowledge. For this reason, preferred futures are easily rejected by those who were not involved in developing the scenario or image. By including the disowned aspects, integrated futures can be developed, creating a more inclusive future. See disowned futures .
Reframing	The process of looking at a situation, problem, or scenario from a different point of view. For example, education policy makers may look at a proposed policy from the view of students, parents, teachers, and administrators.
Scenario	A futures studies methodology that looks at and describes various images of the future. Many different types of scenarios are used in futures studies, all with pros and cons. ⁵ See Tools of futures thinking and foresight .
STEEP	Social, technological, environmental, educational, and political sections of the environment. The order of these sections as used in STEEP is inconsequential and simply placed that way to create an acronym. Many variations of STEEP exist, such as STEEP+V, which adds societal values.
Time horizon	When looking at long-term futures, it is valuable to use a time horizon, which is how far into the future a particular project, workshop, or method goes. For example, if we explore what Asia might look like in 2050, the time horizon would be 2050.
Trend	A trend is an issue that has a track record, has quantitative evidence. Trends can be long or short, depending on the issue in question. All trends start from emerging issues that develop over time into trends. Some of these trends may later develop into full phenomena or issues. ⁶ When 3D printing was being developed, it was considered an emerging issue. As 3D printing became commercially available, it became a trend. Today, as 3D printing is widespread, relatively inexpensive, and with easy access to 3D printing plans, the issue can be considered a fully manifested phenomenon. See Tools of futures thinking and foresight .

⁵ Footnote 3.

⁶ Footnote 1.

Used future

An image of the future pursued even though the environment has changed: 1990s development goals for developing countries, for example, which often pursued images of the future from developed countries. These images included large industrial parks, highways, tall buildings, and other signs of modernization. The pursuit of these goals helped create many of the problems we see today, such as inequality and pollution. The pursuit of these used images of the future creates used future scenarios. In a financial context, what is not working and has not worked in the past is also called a stranded asset.

Wicked problem

A problem that is particularly difficult or impossible to solve. Wicked problems tend to require multiple interdependent solutions that can create other complex problems in another area. Wicked problems are unique, do not allow trial and error, are symptoms of other problems, and only allow for better or worse solutions as opposed to right or wrong solutions. Because they are complex, wicked problems can be explained in numerous ways. Each explanation then creates different possible solutions. The framing of a wicked problem is, therefore, inherently part of any solution.⁷

⁷ C. Tonkinwise. 2015. Design for transitions-from and to what? *Design Philosophy Papers*. 13(1). pp. 85–92.

TOOLS OF FUTURES THINKING AND FORESIGHT

Backcasting

A futures studies tool that helps its users move from the scenario stage to an action plan, executable in the present.

Purpose Backcasting is used to help make a preferred future more plausible. In backcasting, the preferred future is considered as having happened. Participants then remember the steps that occurred. These steps can eventually become possible strategies or action-learning experiments. Backcasting can also be used to ensure a certainty does not come out by discerning what needs to happen to avoid a particular future. Backcasting events can be exogenous or endogenous. It is far more powerful if participants focus on strategic steps they can actually create.⁸

Time 60–90 minutes

Difficulty Moderate

How it works

1. Begin with the end in mind: the desirable future. This tool works after you have done visioning exercise such as scenarios (page 13).
2. Look backwards from the vision to the present.
3. Describe the path, events, policies, and other phenomena that had to be completed to achieve the scenario goal.

Figure 1: Backcasting

Source: Authors.

Causal layered analysis

Developed by Sohail Inayatullah, this method identifies the causes of various issues from the tangible to the intangible. It is often depicted as an iceberg, with the problem represented by the visible part and the causes by the submerged parts.

Purpose	Causal layered analysis can be applied in a variety of ways, depending on the goal of a project. All these applications have a common premise: when you change the underlying metaphor, deeper and long-lasting transformation can be achieved. ⁹
Time	90–120 minutes
Difficulty	Difficult
How it works	Analyze the problem at four levels: the litany, systemic causes, worldview, and the metaphor or myth. The levels are equally important and occur in that order (Figure 2).

Figure 2: Four levels of causal layered analysis

Source: Authors.

⁹ S. Inayatullah. 1998. Causal layered analysis: Poststructuralism as method. *Futures*. 30(8). pp. 815–829.

Emerging issues

Sometimes called weak signals; phenomena still in their early stages of development. They are not considered to be widespread and are not widely reported.

Purpose	Originally developed by Graham Molitor, emerging issues analysis allows users to map an issues path from emerging to full-blown. The tool is particularly helpful in futures work as it allows users to identify which problems or issues require immediate solutions or longer-term planning. Emerging issues may or may not develop into fully manifested issues or phenomena. ¹⁰
Time	60–90 minutes
Difficulty	Moderate
How it works	<ol style="list-style-type: none">1. Identify issues through environmental scanning.2. Sort issues according to their status, either as emerging issues, trends, or fully manifested problems.3. Place issues on an S-curve: emerging issues at the beginning of the curve, trends in the middle, and problems or issues at the end and at the top of the curve (Figure 3).

Figure 3: S-curve of emerging issues analysis

Source: Authors.

¹⁰ Footnote 3.

Futures triangle

A mapping tool created by Sohail Inayatullah. It visualizes balance between the future, present, and past to explore the path of plausible future.

Purpose	Futures triangle allows users to identify broad movements of push from the present, pull from the future, and weight of history. It can identify the key message toward a desired future such as lightening the weight, capitalizing the wave of push, or making vision compelling. ¹¹
Time	60–90 minutes
Difficulty	Easy
How it works	<ol style="list-style-type: none"> 1. Identify the pull of the future, the preferred future held by an organization or person. This is often a visual image of the future. 2. Identify pushes, forces that push a particular plausible future. These pushes are forces that compel an organization to change or pursue a future. 3. Identify weights, forces that tend to come from history and prevent an organization from changing or pursuing a plausible future. 4. Place in a triangle, with each group placed at a point on the triangle (Figure 4). Explore how each group affects one another.

Figure 4: Futures triangle

Source: Sohail Inayatullah, Sonia Sandhu, and Sunniya Durrani-Jamal.

¹¹ S. Inayatullah. 2008. Six pillars: Futures thinking for transforming. *Foresight*. 10(1). pp. 4–21.

Futures wheel

Developed by Jerome Glenn in the late 1960s, this tool uses creative and logical thinking to develop implications of an emerging issue.

Purpose	The main purpose of this tool is to articulate first and second order implications of a particular issue. It helps anticipate what a particular change might lead to. ¹²
Time	60–90 minutes
Difficulty	Moderate
How it works	<ol style="list-style-type: none">1. Draw an emerging issue identified through emerging issues analysis at the center of the wheel.2. Imagine what may happen if this issue is fully manifested. Draw branches from the center of the circle, forming the first level of the futures wheel.3. Imagine what issues may emerge from these first-level aspects and draw them in as branches coming off each first order circle, forming the second level of the wheel.

Figure 5: Futures wheel

Source: Mei-Mei Song.

¹² J. C. Glenn and T. J. Gordon (eds.). 2009. *Futures research methodology—Version 3-0*. Washington, DC: The Millennium Project. <http://www.millennium-project.org/publications-2/futures-research-methodology-version-3-0/>

Scenarios

Arguably one of the most widespread tools used in futures studies. The numerous scenario methods have one thing in common: they all focus on developing alternative futures.

Purpose	The information gathered and frame of mind developed are then harnessed to create vivid alternative scenarios of the future.
Time	90–120 minutes
Difficulty	Moderate
How it works	Typically, four scenarios are developed by changing the variables in each future scenario. The four scenarios that come out of this should be radically different from each other. These four scenarios are given different labels, depending on the method used. The more detailed each scenario, the more useful it is. Various methods of description can be used, such as role playing, pictures, written descriptions, and many others. ¹³

Figure 6: Scenarios

Source: Authors.

¹³ Footnote 3.

HOW FUTURES THINKING AND FORESIGHT SUPPORT DEVELOPMENT

ADB builds on the experience of several governments—notably, of Singapore, Finland, and Thailand—and global organizations (such as the European Commission and the Interpol Centre for Innovation) that have formalized strategic foresight agencies to encourage long-range strategic societal planning. Other government strategic foresight agencies that ADB has learned from include Canada's Policy Horizons and the Malaysian Industry Group for High Technology.

Some developing member countries are showing the way. [Armenia](#) has set up an innovation lab to disrupt traditional policy making. [Sri Lanka's](#) lab, modeled after Armenia's, encourages government officials to innovate.

Armenia: SDG lab—policy making through disruption

Establishment The [lab](#) was established in 2017 as a joint venture of the government and the United Nations Office in Armenia, with support from the United Nations Development Programme, to meet the Sustainable Development Goals by 2030.

Staffing and budget The lab is set up like a start-up, with a lean structure of 14 staff members and a budget of around \$1.5 million for the first years.

Purpose The lab recognizes that the government needs disruptions outside traditional public sector agencies and space to experiment and develop policies that are future oriented and human centered. The lab insures the government from the risks—including failure and loss of large sums—of trying out new policies and approaches on a large scale.

Experiments The lab uses innovation tools and runs experiments to provide evidence-based recommendations to the government. Examples of the lab's experiments follow:

- **Getting people to pay their taxes.** One reason people and businesses do not pay taxes is that they do not know what the government spends the taxes on. The lab, therefore, prepared 13 types of letters and sent them to 39,000 small and medium-sized enterprises. The letters explained where taxes go by percentage. One letter asked where the firm would like 10% of its taxes to be spent and offered to try to make this happen. Another invoked social norms, stating that 90 out of 100 pay their taxes and highlighting that the business should not be an exception. The experiment will indicate which communication approach would work best to make businesses pay their taxes.
- **Connecting education and the job market.** Edu2Work will provide real-time data from analysis of job advertisements, including skills demanded and wages offered, and help bridge the gap between the worlds of education and the employment market. Behavioral interventions based on the results will help direct youth to choose the fields most in demand and guide informational campaigns.
- **Applying data science.** The lab was the first in the world to create a platform providing real-time analysis of tourists' positive and negative experiences, revealing issues in the industry and showing points of intervention for policy makers (<https://www.travelinsights.ai>). The lab continually analyzes social media and websites such as TripAdvisor, Airbnb, booking.com, and Facebook, and sends the information to the Tourism Committee of the Ministry of the Economy for use in marketing campaigns and solving problems.
- **Learning and development.** The lab offers programs to train public servants to apply innovation methods such as foresight and futures thinking, human-centered design thinking, systems thinking, and innovation challenge design. Policy makers use the most advanced public policy tools to experiment and drive change.

Sri Lanka: Citra—private sector mentality in the public sector

Establishment Citra is Sri Lanka's first social innovation lab. It was jointly established in 2017 by the Ministry of Science, Technology and Research, and the United Nations Development Programme, Sri Lanka. Modeled after the lab in Armenia, it brings together partners such as Nesta and Alberta CoLab of Canada to design the overall program approach, train staff, and adapt innovation methods to the Sri Lankan context. The lab is supported by the Government of Denmark, which has experience in setting up public sector innovation labs and mainstreaming innovation capabilities across government.

Staffing	Experts include data specialists, design and system thinkers, foresight experts, and research analysts. The team has 10 members.
Purpose	Citra's main client is the government. The Citra team works with innovation champions in government and helps them test innovative ideas and approaches, find new solutions, and bring in expertise that is not at hand in government agencies.
Experiments	<p>The lab is working on several projects:</p> <ul style="list-style-type: none">• Dengue prevention program. Staff members from the municipal councils came to Citra to find a way to manage the increasing dengue outbreaks. Citra brought together stakeholders, including from the health sector, and developed an approach that involved communities. Stakeholders and communities contribute to a dengue risk platform, which provides the municipal councils with information about potential mosquito breeding grounds and dengue cases. Community members upload photos of potential breeding grounds in real time, which can be immediately inspected by the local government.• Parliament entry process registration. Parliament administrators asked Citra to help them improve the parliament registration system, which was cumbersome and often delayed visitors' access. Citra developed a real-time registration platform.• Tracker platform to monitor progress of Sustainable Development Goals (SDGs). The government has difficulty monitoring all the SDGs and getting data quickly. Citra piloted an automated tracker system for SDG 3 (on health) and is expanding to nine more SDGs. The platform visualizes the data and progress and allows decision makers to use the data for evidence-based policy and program development. Citra is working closely with the Office of Statistics and Census.
Influence	These projects may seem small, but they influence public sector staff to think differently and to innovate. The private sector mentality of improving services to clients should drive the government. To increase visibility and reach the youth, the lab runs the National Youth Social Innovation Challenge, which held the first National Youth Software Competition in 2017.
Achievements	One of the greatest achievements of Citra is that it has gained the government's trust. One of its biggest projects is to develop government officials' capacity to think differently. It offers innovation capability training and, instead of calling for nominations, it publicly invites applications, then interviews candidates. The program runs for over 3 months, with 5 days of residential training, 3 months of mentorship, and access to a network of innovation champions within government. The program is supported by Nesta and its State of Change program, which also use foresight tools. The feedback from participants has been outstanding.

The private sector is applying futures thinking and foresight by using futures scans. Singapore's innovation labs bring together government support and private capital to solve big problems.

Singapore: Government funds for private start-ups

While Singapore has long experience in public sector innovation, the latest trends veer toward private sector labs concerned with solving big (traditionally public sector) challenges:

- specific technology areas such as artificial intelligence,
- subsectors such as digital banking and financial technologies (fintech), and
- smart cities or smart health.

Singapore has long practiced futures thinking and foresight and uses them to develop and align stakeholders around a common vision for the future. Singapore has an emerging ecosystem that supports innovation, incubation, and acceleration. The latest project is the Innovation Enablers Network, hosted by the Action Community for Entrepreneurship. The network has an entrepreneurship and private sector feel to it, but many of the actors involved depend on government funds being pumped into the ecosystem for start-up and innovation support.

Under the government-supported [AI Singapore](#), Singapore universities are partnering with the private sector in advancing artificial intelligence capabilities. The partnership between ride-hailing, food order, and payment platform app Grab with the National University of Singapore is one such example. In July 2018, the partners announced an initial investment of about \$4.4 million into a joint research lab focused on mobility and livability in the region. In February 2018, Alibaba co-established a research institute with the Nanyang Technological University (NTU) to explore artificial intelligence in health care and city planning. Local telecom company Singtel committed about \$31 million to a corporate lab for artificial intelligence and data science at the NTU in December 2017 to develop apps for public safety, smart urban solutions, transportation, health care, and manufacturing.

Government agencies collaborate closely with vendors in test-bedding frontier technologies. The Ministry of Home Affairs, for example, in partnership with Japan's tech conglomerate NEC, set up a smart command center in 2017, tapping the nationwide network of closed-circuit surveillance cameras and, potentially, drones. NEC has since opened the Advanced Centre for Experimentation research and development lab (the first outside Japan) to develop proofs of concept for customers and partners, including governments and enterprises, in areas such as public safety, transportation, and health care. This investment was soon followed by the launching of the NEC Open Innovation Centre (OIC) in 2018, which enables demo and engagement with biometrics, artificial intelligence, and digital ID technology. The OIC received funding from the Economic Development Board. Similar innovation labs exist in many private sector companies, some directly linked to government projects, and others, such as the Samsung Product Innovation Team or Manulife Lab of Forward Thinking, focused on research, product development, and marketing.

Development agencies such as the [Food and Agriculture Organization of the United Nations](#), [Organisation for Economic Co-operation and Development](#), and [United Nations Development Programme](#), and nonprofit think tanks such as [Rand Corporation](#) apply the tools. The [United Kingdom's Government Office for Science](#) has foresight project teams. As mentioned, Interpol has been using futures and foresight for years to ensure that it anticipates changes and trends in global criminal activities and can respond accordingly. Related to this is the [Pearls in Policing program](#), which focuses not just on the changing safety and security landscape but also on using futures tools to create tomorrow's leaders. Futures thinking and foresight in this sense is futures literacy—helping tomorrow's leaders gain the tools while they are deputies in their international organizations.

Using the futures thinking and foresight approach, ADB has improved its work in varying degrees in [Armenia](#), [Cambodia](#), the [People's Republic of China](#), [Kazakhstan](#), [Mongolia](#), the [Philippines](#), and [Timor-Leste](#) by moving away from forecasting to [backcasting](#), from aiming for a predictable [used future](#) based on the present to exploring many possible futures. ADB workshops have introduced futures and foresight tools to governments and partners to support the development of a culture of innovation and enrich countries' strategic planning processes. The outcomes can be used to develop robust policies, identify high-impact technologies and sectors, and improve project design.

Agile and anticipatory—futures thinking and foresight at ADB

ADB started to apply futures and foresight tools in 2016 internally and began engaging with developing member countries on futures and foresight in 2018 through the [Demonstrating Future Thinking and Foresight in Developing Member Countries](#) project.

The project piloted the application of futures and foresight tools in policy dialogue in Armenia, Mongolia, and Timor-Leste. Project activities have been extended to Cambodia and the People's Republic of China; Indonesia and the Philippines are keen to get involved. The objective is to build capacity for outside-the-box thinking, long-term agile planning, and anticipatory policy making. The project defines new strategies for engaging with governments and will position ADB as an innovative knowledge partner.

ADB uses futures thinking and foresight as part of an innovation toolbox to help identify current challenges and emerging issues, and to understand how to identify opportunities to invest in future development that is equitable and sustainable.

ADB has collaborated with the Government of Thailand and co-hosted the Asia-Pacific Futures Network Conference in September 2019. The Malaysian Industry–Government Group for High Technology Foresight and Innovation, under the Prime Minister, invited ADB to collaborate in planning the Futures Network Conference in 2020. ADB will support strengthening the Asia-Pacific Futures Network as a peer-to-peer learning group, where public sector practitioners can share their foresight experience, which is particularly relevant to ADB.

The futures and foresight approach upends the traditional top-down developmental paradigm of national governments driving development and introduces a participatory and more grassroots approach. ADB partners with futurists to conduct workshops that focus on a broad range of development issues and engages with national and local government officials, development partners, local media affiliates, local business, and nongovernment organization leaders. Results are promising, with participants able to more effectively identify development needs. ADB has been invited back to many developing member countries to conduct follow-up workshops, proving that the new approach has value.

Plan investments for a future with minimal or radical change, or something in between?

While a developing country like Timor-Leste may have full mobile and data coverage, the use of the technology is mostly for entertainment and not to create new opportunities for economic development. Why is that?

Technology is changing much faster than cultural norms and values. This limits our ability to make optimal use of it, which is probably a key constraint for countries to leapfrog development stages.

Without leapfrogging, many countries will not be able to address poverty while reducing carbon emissions and diversifying their economies. They simply cannot catch up. And in a rapidly changing world, the divide between developed and developing countries will continue to increase.

The head of an innovation foundation in Armenia explained it very well: “If we use the experience from developed countries and apply, for example, their current education model to our context now, we will never become competitive because in a decade we will have only reached the stage where developed countries are now.”

To overcome this challenge, we need to have a clearer image of the future. If we only aspire to gradual change in a national education system, the business-as-usual approach is fine. But if we imagine and want radical change to better deal with major disruptions in technology or social change (migration, aging), today’s education system in developed countries will be obsolete 10 years from now in developing countries.

So, what do we advise countries to do? Plan investments for a future with minimal or radical change, or something in between?

This is where futures studies and foresight come into play. They seek to help governments better understand the processes of change, anticipate uncertainties and possible disruptions, and create wiser preferred futures. Futures studies make it very clear that we neither can predict the future, nor is there only one future awaiting us.

Futures studies provide tools that allow us to understand past change and current problems, while mapping emerging issues and trends. They enable us to “see” disruption and sense the future.

By using emerging issues to develop scenarios, futures studies can help uncover uncertainties, fears, and hopes—the future is questioned. This can lead to innovative solutions and resilient policies—because we see problems and opportunities earlier.

Futures studies also use a highly participatory approach to align visions for the future. In practice, this means to plan development programs and projects with perspectives and insights that are expected to be relevant in the future.

Lastly, futures studies create a path from the preferred future to the present. "Backcasting" helps understand which policies, investments, and actions are required to reach the preferred future. This path empowers governments to enact changes for the future they desire.

[Read the complete blog post, "Tomorrowland," by Susann Roth.](#)

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futures studies can help uncover uncertainties,
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STRATEGY 2030: APPLYING CAUSAL LAYERED ANALYSIS TO ASIA AND THE PACIFIC

ADB will help its developing member countries—especially those with vulnerable populations—sustain economic growth, create jobs, cooperate and integrate with other countries, and ensure that economic gains are widely shared.¹⁴

ADB navigates a dynamic and increasingly complex landscape shaped by global events and emerging regional challenges. The world's economic center of gravity has shifted to Asia and the Pacific, the fastest-growing region in recent decades and expected to account for more than half of global production by 2050. Robust growth has dramatically reduced income poverty and improved standards of living. Extreme poverty, as measured by the \$1.90/day threshold at 2011 purchasing power parity, significantly declined in developing Asia from 53% in 1990 to about 9% of the total population in 2013. But poverty remains as do many other problems.

ADB must itself change to meet new challenges. Strategy 2030 is its compass as we sustain efforts to eradicate extreme poverty and strive to achieve a prosperous, inclusive, resilient, and sustainable Asia and the Pacific.

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¹⁴ This chapter is based on ADB. 2018. *Strategy 2030: Achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific*. Manila. <http://dx.doi.org/10.22617/TCS189401-2>

The litany

What is the reality of Asia and the Pacific?

Remaining poverty and vulnerability The region was home to 326 million people living in extreme poverty (or below the \$1.90/day poverty line) in 2013. An additional 915 million people lived above \$1.90/day but below \$3.20/day and are constantly at risk of being pushed back into extreme poverty during economic downturns and other external shocks. Of the almost 520 million undernourished people in the world, 64% lived in Asia in 2016.

Rising inequality Close to 80% of the region's population lived in countries with widening inequality (as measured by Gini coefficients) between the 1990s and 2000s. Poverty is still more prevalent in rural than urban areas. Systemic gender gaps in productivity, wages, and income poverty persist, particularly in households headed by women. Growing inequality could undermine social cohesion, endanger social and political stability, and hamper the region's economic prospects.

Technological advancements Advances in diverse fields—including mobile and digital technologies, robotics, artificial intelligence, the Internet of Things, and 3D printing—will dramatically change how goods and services are produced, distributed, delivered, and consumed. They might possibly displace labor but can also improve lives and create new opportunities in labor markets.

Climate change and disasters They threaten the long-term sustainability of development in the region. Tropical cyclones, floods, droughts, heat waves, earthquakes, and tsunamis have caused significant loss of life and economic damage. Of the 10 countries with the highest estimated disaster risk, 7 are ADB developing member countries. The Pacific region is particularly threatened by rising sea levels.

Growing environmental pressures Air pollution, water pollution and stress, marine litter at sea and along shorelines and coastal areas, inadequate waste management, deforestation, land degradation, biodiversity loss, and water scarcity worsen living conditions of the poor, who depend disproportionately on ecosystem services for their livelihood and food security.

Rapid urbanization The share of the region's urban population increased from about 20% in the 1950s to about 48% in 2018. By 2030, it is projected to rise to 55% or about 2.5 billion people. People move from rural to urban areas often seeking jobs, better access to health and education services, and better living conditions, but cities in Asia and the Pacific are swelling and becoming harder to manage. Developing Asia was home to 431 million people living in slums in 2014—equivalent to 58% of the world's total slum population. Cities, particularly low-lying ones along the coastlines, are increasingly vulnerable to natural hazards.

Demographic changes Several developing member countries (DMCs) are aging fast while youth unemployment is a challenge. The elderly population (65 years and over) in Asia and the Pacific will grow from about 334 million (8.1% of the total population) in 2016 to about 870 million (18.1%) by 2050. Governments face fiscal challenges such as lower tax revenues and increased health care spending. Elderly people in the DMCs, particularly women, often lack adequate pension or health insurance. Several DMCs have a growing youth population (under 30)—2 billion or 54% of the global youth population—which could benefit the DMCs if they can offer quality jobs and maximize workers' productivity.

Systemic approaches and solutions

What should be done?

Ambitious development goals The Sustainable Development Goals (SDGs) call on all countries to accelerate efforts to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity. The Paris Agreement sets out a plan to keep global warming below 2 degrees Celsius. Given the size of the region's population, meeting key SDGs on poverty, hunger, and lack of access to social services will depend critically on Asia and the Pacific's success. The region is the fastest-growing source of greenhouse gas emissions, accounting for 48% of global carbon dioxide emissions in the energy sector in 2016.

Emergence of new development partners They include civil society organizations and nontraditional donors, such as charitable and philanthropic organizations, and new multilateral development banks, such as the Asian Infrastructure Investment Bank and the New Development Bank. Given the increasing importance of private capital inflows, the private sector must be encouraged to play a bigger role in development.

Impacts of globalization Close integration with global markets has boosted trade and external capital inflows but also exposed economies to external shocks. The global financial crisis during 2007–2009 showed the risks of large financial flows in an era of tightly interconnected financial markets. Globalization and technology are related to widening inequality in many countries.

Infrastructure deficits More than 400 million Asians lack electricity, about 300 million have no access to safe drinking water, and 1.5 billion lack basic sanitation. Asia and the Pacific will need to invest \$26.2 trillion during 2016–2030, or \$1.7 trillion/year for infrastructure, to maintain its growth momentum, eradicate poverty, and respond to climate change. The private sector will be a critical source of financing.

Governance and institutional capacity Many countries in the region still face governance issues, including poor public services, weak government institutions, and corruption. Governance reforms to counter corruption and strengthen professional civil services, regulatory quality, and the rule of law are needed to sustain development momentum and to ensure that the benefits of growth are equitably and widely shared.

Worldviews and alternative discourses

What is the mind-set shift?

Along with these worldview shifts are specific systemic strategies.

Growth only to inclusion Emphasize human development and social inclusion. Help create jobs, including by supporting small and medium-sized enterprises and inclusive businesses. Support developing member countries to improve education and training, achieve better health for all, and strengthen social protection and service delivery.

Imbalance to gender equity Ensure that at least 75% of the number of ADB's committed operations will promote gender equality by 2030.

Industrial growth to climate change mitigation and adaptation Ensure that 75% of the number of operations support climate change mitigation and adaptation by 2030.

Silo approaches to integrated solutions **Make cities more livable.** Provide integrated solutions to help build cities that are green, competitive, resilient, and inclusive. Promote urban health, urban mobility, gender equality, and environmental sustainability. Help cities explore new, and expand existing, sources of funding; improve inclusive and participatory urban planning; and integrate climate resilience and disaster risk management into urban planning.

Promote rural development and food security. Help improve market connectivity and agricultural value chain linkages. Help developing member countries increase agricultural productivity and food security by boosting farm and nonfarm incomes, promoting the adoption of advanced technologies and climate-smart agricultural practices, and supporting the improvement of natural resource management standards. Help improve food safety.

Strengthen governance and institutions. Create an enabling environment for sustainable growth. Help countries build resilience and respond to economic shocks, strengthen service delivery, and improve capacity and standards. Uphold environmental and social safeguards, adhere to fiduciary standards, and fight corruption in ADB projects and programs.

Foster regional cooperation and integration. Mitigate cross-border risks such as climate change, pollution, energy and water security, and communicable and infectious diseases. Increase financial sector cooperation and strengthen subregional initiatives, including through sharing and collaborating on knowledge and working with emerging initiatives.

Thus, the mind-set shifts toward inclusion, equity, climate change mitigation and adaptation, and integrated solutions.

Metaphors

What is ADB's narrative?

Knowledge institution Now that most developing member countries (DMCs) have attained middle-income status, ADB's continued relevance will increasingly depend on its role as a knowledge institution. Even when the DMCs can tap other sources of financing, clients often turn to ADB for high standards in project design and implementation; the transfer of technology and good practices; and, more generally, the sharing of knowledge, skills, and expertise accumulated over more than 50 years.

ADB will work closely with the DMCs to identify their needs, assist in solving complex development challenges and produce the most relevant knowledge products and services. ADB will look ahead to generate, capture, and share knowledge in anticipation of emerging and future DMC needs. ADB will engage in research, provide high-quality policy advice to the DMCs, strengthen the DMCs' institutional capacity to tackle development issues and deliver projects, and expand knowledge partnerships.

Customized support ADB uses the country partnership strategy to define customized support, promote the use of innovative technologies, and deliver integrated solutions. In Strategy 2030, ADB sees futures for the region and proposes ways to get there.

ADB thus shifts its narrative to becoming a knowledge and ideas bank that promotes and scales innovation, which is needed to finance a preferred future.

EXPLORING MYRIAD FUTURES THROUGH WORKSHOPS

Several countries use futures and foresight methods to strengthen their long-term development and policy planning. They have been used widely by government agencies (e.g., in Australia, Finland, the Republic of Korea, Malaysia, Singapore, Thailand); development organizations (e.g., Food and Agriculture Organization of the United Nations, United Nations Educational, Scientific and Cultural Organization, United Nations Development Programme); and the private sector.

ADB has engaged in futures thinking with stakeholders, seeking to postulate possible, probable, and preferable futures in specific social, cultural, and economic contexts, and to understand trends that might continue and what could plausibly change.

Purpose The workshops had common aims:

- Familiarize the participants with futures thinking and foresight and introduce futures methodological tools as strategic planning tools (such as [emerging issues](#), [futures wheel](#), [scenario planning](#), and [causal layered analysis](#)).
- Enrich the strategic planning process and feed into the ADB country partnership strategy.
- Empower participants to create the futures they and the broader community desire.

Benefits Futures tools and methods help developing member countries

- strengthen their capacities to apply strategic foresight for visioning, strategic coordination, planning, and innovation;
- ease national policy discussion and dialogue, helping leaders consider a range of possible global, regional, and national challenges their countries may face over the next decade;
- identify new opportunities and sustainable development pathways that can lead to a better future for all;
- identify potential areas of innovative intervention;
- foster more innovative and cross-sector project design; and
- build government's ability to deal with complex, rapid change.

Strength The strength of this approach is in its adaptability and context awareness, building on

- exploration and sense-making,
- envisioning of futures,
- discovery of wicked opportunities or risks, and
- agreement on strategic opportunities and resilient policy pathways.

Methods Futures thinking and foresight introduce methods and activities such as [causal layered analysis](#), [backcasting](#), the [futures triangle](#), [emerging issues analysis](#), among others, which help their users understand how the world is changing and how to reduce risks, seize opportunities, and create [alternative](#) and [preferred futures](#). These methods help users

- reframe their current problems and issues by guiding them to deeper causative levels to identify solutions;
- construct the issues by understanding diverse world views and stakeholder opinions to develop more robust policy solutions; and
- discuss with stakeholders how to “deconstruct” current issues, consider different perspectives, and then “reconstruct” a more integrated and holistic solution.

Backcasting can generate a common understanding of the challenges ahead and align stakeholder actions for each stage of the project, program, or strategy (i.e., design, implementation, and operations). This approach is often used to create the basis for an action plan or road map that considers the needs, benefits, and views of stakeholder groups and changing trends and environments.

Workshop participants reflected their context

In [Armenia](#), they enthusiastically advocated radical change, having joined the recent “velvet revolution” that changed the government.

In [Cambodia](#), they saw women transforming from garment workers to national leaders.

In the [People’s Republic of China](#), participants advocated “unleashing” knowledge and giving it “wings.”

In [Mongolia](#), participants stressed cooperation since several development partners are crafting their own country strategies and some (such as the United Nations Development Programme) are also rolling out futures and foresight tools.

In [Kazakhstan](#), participants looked beyond oil to artificial intelligence technology as the product that would enrich their country. They examined how tourism would need to shift if climate disruption continued.

In the [Philippines](#), they imagined a flatter economic planning agency.

In [Timor-Leste](#), government officials, including those at the highest level, expressed a profound interest in the tools that might help them rebuild dilapidated infrastructure.

All agreed that they needed to understand better why and how they imagined the future and to develop resilient approaches to pursuing the preferred future and not only a “possible” future. Participants wished to become more “futures literate”—more capable, more skilled at “using the future” for different reasons, with different ways of imagining, in different contexts. They saw they could turn the future from a liability, a source of never-ending disappointment in false expectations, into an asset for detecting and inventing the rich, emergent, novelty-ridden world around them. Planners and decision makers start to feel empowered as they move from a reactive to an anticipatory mode of engaging with emerging opportunities and challenges, toward better navigation and appreciation of change.

Strategic foresight should be an integral part of strategic planning and monitoring

Strategic foresight provides tools that help users adopt an anticipatory, proactive approach to strategic thinking as opposed to a problem-solving approach—the default reactive mode in which most developing countries find themselves.

Instead of attempting to solve challenges as they are manifested or forecast based on historical data, strategic foresight encourages decision makers to explore the likely nature of the challenges as they may manifest themselves in the future(s) and evolve strategies that are more resilient to change.

Governments around the globe apply foresight to a wide range of policy domains. The practice has been institutionalized in most countries of the Organisation for Economic Co-operation and Development (OECD) (and in OECD itself), in other developed countries, and, more recently, in developing country governments.

Finland’s political and administrative leaders and experts, who regularly interact to explore long-term futures (50 years), have a foresight mind-set, which gave rise to the universal basic income and education reforms. The Prime Minister’s office has taken the lead on foresight.

Singapore’s experiments with military and national security scenario planning have evolved into a fully institutionalized and decentralized network of foresight practitioners that spans the public service and frequently engages political decision makers, experts, interest groups, and citizens. The Centre for Strategic Foresight (within the Prime Minister’s office) manages national scenario development, hosts international conferences, produces knowledge products, and engages the most senior leaders. A decentralized network of practitioners has regular formal and informal exchanges on trends, challenges, and opportunities.

Japan, the Republic of Korea, and Malaysia have created centralized institutions specifically for science and technology foresight, while some go beyond their mandate and engage in other topics.

Development agencies have followed a similar path. The International Labour Organization and the United Nations Children’s Fund have tool kits. The United Nations Development Programme has evolved a lean approach to foresight in public service. ADB, the Food and Agriculture Organization of the United Nations, the Organisation for Economic Co-operation and Development, the United Nations Environment Programme, and the World Bank have produced comprehensive studies and thought-leadership products. ADB is looking at foresight as an integral element of its innovation agenda and is testing its benefits.

Foresight has become increasingly important for governments

Traditional planning techniques need to adapt to changing times and to consider an increasingly volatile, uncertain, complex, and ambiguous world.

Foresight can help promote resilience, agility, and responsiveness through

- identifying, exploring, and “rehearsing” risks and opportunities that might lie ahead: **futures thinking**;
- considering and planning for alternative futures and scenarios: **pathways for flexible planning, influence, and intervention**;
- expecting, anticipating, and capitalizing on change: **agile, adaptable, and resilient public institutions**;
- deepening organizational adaptability skills: **empowerment of, innovation in, and enabling of public dialogue**;
- creating inclusive platforms for shared vision: **greater societal collaboration and sustainable results**; and
- giving the “future” a place at the decision table: **realizing intergenerational justice**.

The next sections summarize what happened in workshops in Armenia, Cambodia, the People’s Republic of China, Kazakhstan, Mongolia, the Philippines, and Timor-Leste.

BACKCASTING FROM “PARADISE” 2030

“Paradise.” That is where the workshop participants wished to be by 2030. They envisioned it as a radical future, the final stage of the energy and development transition, where 100% of all cars are electric; all housing stock and public buildings are green, retrofitted, and safe (Armenia is in an earthquake zone); all streets modernized; and ecotourism, agriculture, information technology, and data analytics thriving.

Participants More than 40 from the Ministry of Territorial Development, the Ministry of Energy Infrastructures and Natural Resources, the Central Bank of Armenia, and the private sector, as well as mayors, governors, and development partners. One workshop was hosted by ADB’s Central West Asia Department’s Urban Development and Water Division, providing more development context and ensuring that Armenia Resident Mission staff enabled and supported interactive discussions for Livable Cities aligned with Strategy 2030.

Location and date Yerevan, 25–27 March 2019

Aims of the workshops

- Develop futures literacy.
- Foster a policy dialogue that aims to see more and new opportunities for policy innovation and long-term engagement in new sectors such as water and sanitation and education.

The futures and foresight methodology can help stakeholders

- align their vision and prioritize investments across the country;
- engage government agencies to strengthen long-term planning and future visioning for the country’s regions’ development planning;
- analyze uncertainties and turn them into opportunities, for example, by encouraging businesses based on knowledge capital such as nuclear and nano-physics, and by developing each region’s comparative advantage in tourism, agriculture, or water resources, among others.

Armenia needs

- knowledge solutions built on deep understanding of country-specific issues, paired with regional knowledge such as case studies from other countries;
- a government that uses limited resources in a way that optimizes benefits for the population in the current age of fast-paced technological, social, scientific, political, environmental change; and

- practical knowledge solutions, including institution building, capacity development of implementing agencies, and capacity development to plan and implement public–private partnerships and contract management.

Challenges Armenia faces and how futures thinking and foresight can help

The futures thinking and foresight approach is built on wide participation and iteration and can be used to support highly participatory policy, project, and program development and alignment among country stakeholders.

The government has limited capacity to coordinate across—and even within—agencies. A more participatory approach supported by a neutral convener could help line agencies agree on vision and develop strategies.

Box 4: Seeing the future(s) of Armenia

The innovative practice of “futures studies” offers a new vision for urban development in Armenia

We live in a world full of seemingly endless possibilities. Technology is developing rapidly, business opportunities are increasing, and there is more money to invest in sustainable and inclusive development solutions.

However, people’s mind-sets often are not changing as fast as the possibilities around them. Enter futures studies, an effective tool to change mind-sets and make new opportunities visible in times of uncertainty. Futures studies—plural because there is more than one possible vision for the future—allow us to leapfrog ahead. Take, for example, the future of urban development in Armenia.

Armenia is a small landlocked country in the South Caucasus region. With limited resources, economic growth was expected to slow down from 5.2% in 2018 to 4.3% in 2019. About a third of the population lives below the poverty line with the economy highly concentrated in the capital, Yerevan, which provides 58% of gross domestic product.

Yerevan is the industrial, construction, services, and retail trade center of the country. There are pronounced demographic, economic, and social disparities and inequalities among the *marzes* (regions) and municipalities.

The current administration, which was elected following a popular revolution a year ago, faces high expectations to improve the lives and well-being of the population in urban areas. To do so, it must address a major challenge: a limited capacity to coordinate across—and even within—agencies.

Source: Read the complete [blog post](#) by Susann Roth and Ramola Naik Singru.

How the workshop was conducted

In many institutional settings, when the workshop focuses on an impossible vision, participants tend to shy away, believing the present reality is too difficult to change. In Armenia, however, most of the participants had joined the recent “velvet revolution” and were convinced that transformation was not only possible but also inevitable. They did not wish for “no change” or for “marginal change.” They insisted on adaptive change and, indeed, wished for radical change. This created a fertile ground for the discussions and for creating a common vision.

Several techniques were used to introduce the concept of a used future, understand emerging issues, develop alternative futures, and understand how to influence and create the preferred future. These techniques are frameworks for making sense of data generated by structured processes influenced by knowledge of the past and the present to think about the future. The technique has been used widely by government agencies (e.g., Finland, Singapore, Thailand); development organizations (e.g., Food and Agriculture Organization of the United Nations, United Nations Educational, Scientific and Cultural Organization, United Nations Development Programme); and the private sector.

Once the used future is identified, change is possible. What is not working and has not worked (also called a stranded asset) can be eliminated or minimized. It is important to discern how the future might be changing. These are disruptions that have the potential to change the purpose, structure, and function of Armenia’s development.

The next part of the journey was exploring not one future but alternative futures—the different scenarios or plausible worlds ahead. The facilitator used the “no change,” “marginal change,” “adaptive change,” and “radical change” methods.

Along with scenarios that intend to mitigate risk and create opportunities, the workshops went further and created desired visions. These visions are intended as the “pull” of the future, and as national and municipal strategic directions.

Preferred futures

“Our city must be green, comfortable, with infrastructure accessible for everyone, for drivers and pedestrians, for pets, and those with disability.”

The participants articulated a preferred future through the idea of “the future city.” The mayors suggested its key features:

- a clean and green city with good public transport, urban environmental infrastructure, and access to urban services;

- a smart city using the full range of new fourth industrial revolution technologies;
- a city for all: friendly to the disabled, walkable with greenways and well-designed public spaces;
- a city connected to the regions, boosting regional development; and
- citizens who have work–life balance.

The participants reflected on the regional infrastructure and national priorities essential to enable sustainable city development:

Innovative regional infrastructure

- Investment prioritization
 1. Connectivity—roads, rail
 2. Renewable energy—solar, wind
 3. Education—mind-set change—green thinking
 4. Water resource management
 5. Solid waste management
 6. Institutional capacity
- Planning and management
- Tourism development
- Cultural heritage conservation and marketing
- Job creation
- Human capital development
- Training and skills development, technical and vocational education and training

This new city could possibly be supported by new technologies such as data analytics, enabling artificial intelligence applications to predict congestion, pollution, and crime, and provide early warning systems so that policy makers and strategists could act early. This was not just a clean, green, smart, and connected city but also an inclusive city.

The participants realized that cultural and behavioral change would be required to realize the preferred future. Otherwise, the strategies would merely be things the participants wished for and not prioritized or aimed for. To uncover the deeper culture, the facilitator used the metaphor methodology, asking for the current metaphor and then the desired narrative—the story that could enable the preferred future. This ensured that “culture does not eat strategy for breakfast.”¹⁵

¹⁵ Usually “culture eats strategy for breakfast,” meaning that even the best-laid strategy will fail if it does not consider culture.

The geopolitical context

To develop new cities and a new nation, participants were clear that geopolitics must be favorable. They needed to ensure a four-level strategy that

- measured as success the number of peace treaties, plus infrastructure that enabled regional connectivity;
- allowed for systems that enable open borders, with peace based on mutual safety; and
- supported a world view where the neighbors all shared an ideology of peace first.

This meant moving from isolation to strong interconnection created through friendly markets.

Participants envisaged a transformative narrative, the moving from an “island” to an “interconnected oasis,” where Armenia invited neighboring countries to collaborate on different projects.

Small group discussions gave rise to a metaphor of nature. The “energy group” saw the present as a “dying tree in a desert,” with the ideal as a “self-sufficient forest.” Achieving it meant exploring a range of energy security options, including safe nuclear energy; renewable energy sources, with the renewable portion of energy increasing; and the use of artificial intelligence to ensure energy efficiency and house-to-house energy sharing.

The four-level strategy was based on the causal layered analysis model, which deems measurements, systems, worldviews, and narratives as equally important and necessary for strategic success.

Stages and scenarios of urban development

One scenario development exercise went as follows:

- **Continuation of the present.** Traffic jams, pollution, congestion, and slow economic growth all leading to unhappy citizens. Solving these problems using short-term marginal strategies—e.g., 10% of the cars in the nation electric; 10% of buildings green (smart, healthy, efficient, reducing negative health, and increasing well-being); some industrial growth; and some streets modernized—would lead to marginal well-being: the 10% scenario. Participants agreed more was needed.
- **Adaptive change** was required and was the next step. In this preferred future, 50% of the cars would be electric; 30% of buildings would be green and safe (indeed, trees would be seen as infrastructure); three to four cities would develop economic sectors (tourism, food, textiles, and perhaps artificial intelligence). This was described as the “City on the Move.”

- Where they wished to end up by 2030 was in a **radical future**, what they called “Welcome to Paradise”—the final stage of the energy and development transition, where 100% of all cars were electric; all housing stock and public buildings green, retrofitted, and safe (Armenia is in an earthquake zone); all streets modernized; and ecotourism, agriculture, information technology, and data analytics thriving.

Figure 7: Scenarios for urban development by workshop participants in Armenia

Source: Authors and workshop participants.

How can Armenia realize better futures?

One group of mayors and governors was clear: innovations must be commercially viable and create wealth. For example, roads that created energy, although currently unaffordable, would be a smart step.

Adoption of artificial intelligence to increase energy efficiencies to reduce costs would be another step. Further steps would be like the new Alibaba project in Malaysia and 23 other cities in Asia, which is creating a “[city brain](#)” to ensure that real-time information reduces congestion.

To understand how to derive concrete actions to create the preferred future, the groups did a [backcasting](#) exercise. Figure 8 summarizes the discussions and shows that participants were thinking holistically, starting with the national digitalization program and education sector reform.

Figure 8: Backcasting in Armenia

Source: Authors and workshop participants.

Generally, all agreed that Armenia needed to follow key principles to create an enabling environment for change:

- Ensure zero tolerance for corruption to create a culture of trust, an enviable investment climate, and a virtuous cycle of prosperity.
- Focus on investments that are green and sustainable to reduce energy costs, increase the well-being and health of citizens, and create innovation that could lead to more innovation.
- Include investment on artificial intelligence and other new technologies. While these disruptions would lead to some unemployment in the short run, in the medium to long run, new industries and jobs—clean, green, and smart—would be created.
- Consider regional development and how the capital, Yerevan, can develop in conjunction with the regions. Consider the role of open borders and peace with neighbors.

Main learning

- Armenia used to be known as the Silicon Valley of the former Soviet Union. Several participants said that intellectual capital had not disappeared but needed to be nurtured, encouraged, and invested in.
- Armenia aims to move from business as usual with gradual change to adaptive and radical change. Small groups discussed the following topics:
 1. energy independence, mobility in cities, jobs, regional infrastructure;
 2. development, conflict-free future; and
 3. a conservative culture and mind-set continuing to pull back radical change.

- Participants focused not just on technology but also and especially on the societal and inner change required to transform conservative mind-sets. Futures interventions become possible when leadership is committed and the need for inner change is well recognized.
- These needs link to ADB’s emerging role in Armenia. While capital will be needed for green infrastructure projects, ADB can shift from being a traditional development bank focused on financing and contract disbursements to an intelligent bank, helping Armenia leapfrog ahead.
- The knowledge required includes (a) intelligent support to create visions of the future, (b) risk management through developing scenarios of possible futures, and (c) discerning the leverage points that allow for the greatest and smartest impact. ADB would not only facilitate finance but also use its combined intelligence from its long-standing experience, its data, its regional footprint, its technical know-how, and its ability to link all of that to create change driven by transformative knowledge.

Next steps

Futures and foresight methodologies can be applied to change mind-sets, create scenarios and visions of preferred futures, strengthen leadership, and build capacity for innovative thinking, enabling more innovative and cross-sector project design and longer-lasting change.

Government and development partners can feel overwhelmed by the multitude of development challenges. Prioritizing which activities and investments yield the most impact is difficult. This first engagement on futures thinking and foresight showed that government officials are keen to engage in futures-oriented interactive dialogue and understand emerging issues and trends. Participants said that futures thinking and foresight help improve communication on a common vision while defining detailed steps how to get there.

The following areas were identified as essential to further engage with Armenia under ADB’s futures thinking and foresight project:

- **Nurture the community.** Engage and empower champions. Connect change agents in the country by, for example, inviting them to the regional Asia-Pacific Futures Conference and coordinating with other development partners that apply futures and foresight tools in their policy dialogue (e.g., United Nations Development Programme).

- **Identify the next engagement** with the municipalities and mayors, together with ADB, and collect information on projects for engagement, which is ongoing under the ADB national urban assessment.¹⁶
- Use the futures approach and the outcomes from the futures and foresight sessions to inform the **ADB country partnership strategy**.
- **Institutionalize futures** within the government and **strengthen innovative culture**.
- Work with the city governments, citizens, and other stakeholders, including businesses and civil society organizations, through city visioning workshops to develop **integrated urban action plans**.

One senior leader suggested that this novel approach needed to be presented to the Prime Minister. Participants quickly identified and challenged traditional mind-sets such as hierarchical design or (over) concentration of development in one city, which had influenced their ways of thinking. Brainstorming allowed participants to co-create and embrace visions of a new Armenia, which warranted strategy and policy innovation. Participants appreciated the way of thinking and the tools offered, especially the combination of data, worldviews, and narratives to understand push and pull factors for change, which helped empower participants to take a more active role in the country's development and change management.

¹⁶ National urban assessments are conducted in alignment with the country partnership strategies for developing an urban profile, establishing an urban vision, and identifying strategic priorities for targeted investments in the urban sector through a cross-sector understanding of the issues and challenges that affect urban development in the country. (R. Naik Singru and M. Lindfield. 2016. *Manual for Undertaking National Urban Assessments*. Manila: Asian Development Bank.)

A TREE NOW, A FOREST IN 2050

Cambodia has a young and growing population, a dynamic and developing start-up landscape, and an expanding private sector. The country recently joined the lower-middle-income ranks and aspires to become a digital economy by 2030 and an upper-middle-income country by 2050 (Vision 2050). How can futures thinking and foresight help Cambodia attain these visions using the e-Buddha as metaphor?

Participants 34, mainly government executives

Location and date Phnom Penh, 23 September 2019

Aims of the workshop

- Clarify emerging issues and trends.
- Identify factors impeding desired futures.
- Empower leaders and managers to create the futures they desire.
- Improve government effectiveness in delivering the organizational vision.

Outcomes for participants were

- an understanding of emerging issues,
- capacity to analyze and develop alternative futures, and
- capacity to use futures methods for better planning and to foster a policy dialogue for innovation and long-term engagement in areas identified by the participants.

How the workshop was conducted Participants learned the concepts of used futures, emerging issues, and alternative futures, and how to influence and create the preferred future. The takeaway was, “Our brains are wired to the past, but the past is not a guide to the future.”

To underscore the importance of visioning, the participants discussed predicted inventions, which showed how people had envisioned the future and how it came to be. The participants then considered the question, “If we know the future we want, do we have the right people and the right capabilities to make it happen?”

Activity 1. Visioning “What is impossible today but, *if possible*, would change everything in your nation, city, or organization?”

The participants identified six topics for discussion:

- transparency and accountability,
- leadership,
- women empowerment,
- climate resilience,
- innovation, and
- technology in governance.

Activity 2. Used future “What is a *practice that continues* even though it does not work and is no longer linked to the broader vision or strategy?”

For instance, the skills women are learning now are not the skills they will need for the future.

Once the used future is identified, how the future is changing must be discerned. Disruptions might change the purpose, structure, and function of the public sector.

Activity 3. Alternative futures Cambodia does not have *one future* but *alternative futures*—different scenarios or plausible worlds. The participants considered the “no change,” “marginal change,” “adaptive change,” and “radical change” scenarios.

Activity 4. Preferred future After exploring the alternatives, the participants focused on the preferred future, the desired direction for the country under Vision 2050:

- public sector reform and e-governance, including the development of open platforms to “break silos” within government departments and enable cross-sector approaches to development challenges, primarily scaling up education, learning, and skills building to diversify the economy;
- community-led development for the “futures,” envisioned as a bottom-up approach to implement Vision 2050; and
- leadership programs to empower women and help them transition from factory workers to leaders.

It became evident that cultural change was required to realize the preferred future, otherwise, it would merely be something the participants wished for, not prioritized. To uncover the deeper culture, participants used metaphors—the current metaphor and the desired narrative, the story that could enable the preferred future.

For Cambodia in 2030, the participants highlighted

- decentralization and greater transparency,
- simplification of processes and greater use of technology and digitalization,
- training and education, and
- empowerment of women.

Activity 5. Participants came up with several nature-related metaphors:

- Causal layered analysis**
- The “leadership” group saw Cambodia today as a “leap frogging” and future Cambodia as a fully grown tiger.
 - The “transparency” group perceived the present as a tree and the future as a forest.
 - The “technology and governance group” saw the present as a tiger and the future as a phoenix.
 - The “women’s leadership” group saw the present as one man overseeing many female factory workers and the future as a woman leader addressing a rally of many men.

Box 5: Cambodia 2030: A national journey of transformation led by women and information and communication technologies

Can the leaders of Cambodia be female by 2030? Can women go from being garment manufacturing workers to making up 50% of executives in government and business? The futures and foresight workshop participants, themselves government executives, asked this and other questions, not only for reasons of equity but also for optimization. They knew that Cambodia would become a wealthy nation, an efficient nation, a fairer nation with more females in leadership positions. Moreover, we know from global data on start-ups and financial firms that females overall perform better than their male counterparts. Whether this is because they can manage the economy better in turbulent times or because they are more cautious is not clear. We do, however, know that gender equity is a prerequisite to a prosperous society. To shift Cambodia, to make the change, the future first needs to be imagined. Thus, the participants’ image of the future was that of 50% representation in government and prominent female leaders. Today, in contrast, the main key performance indicator is number of shirts produced.

Cambodia: Women’s empowerment

Litany or description	Shirts produced per day	Number of women in leadership
System	Rules based, low status	<ul style="list-style-type: none"> • Diverse work opportunities • Political and social empowerment
Worldview	Industrial economy	Knowledge economy
Metaphor	Garment worker = A woman	Leader = A woman

continued on next page

Box 5: *continued*

Diversity of gender was not the only issue that the participants saw changing in the decades ahead. Cambodia needed to diversify its economy, innovate, and ensure that governance was transformed through transparency and technology. Indeed, the participants saw these changes as working together to create a possible transformation.

If Cambodia did not embark on these changes, it would not merely stay the same but would fall behind other nearby nations embarking on social change.

While the foresight workshop was conducted in English, the metaphors that were used to describe the change were localized. For example, participants imagined the new governance system as e-Buddha—a system for the good of all. The current information technology system was considered complicated, paper-based, and for the good of the local organization. It was like a room full of monks and nuns. In the e-Buddha world, administrative processes would serve the nation, be paperless, and easy to use. They would need to be on open platforms, allowing different systems to access and change the parameters.

This would be quite a shift from the current system, which was more like a “C drive,” private and siloed.

Cambodia: Governance

Litany	Complicated	Simple and efficient
System	Paper and C drive	Paperless with an open platform
Worldview	For the government department	For the nation
Metaphor	e-Monk	e-Buddha

The e-Buddha system would be wise, helping all Cambodians, making everyone’s life easier. But how would the new administrative and technological system change the nation?

Participants said new information and communication technologies (ICTs) would assist participation and communication of views and preferences, as well as services. The technology is already present with 98.5% of the population, or about 15.8 million people, using the internet. Facebook alone has 7 million users. The bureaucracy needed to transform, using new technologies to decentralize.

But it was not just the administrative sector that needed to change; the economy also needed to shift from being city and manufacturing based to becoming far more diversified, and ICT based. Citizens too needed to be trained for the technological disruptions ahead—in soft and hard skills. Foreign investment was needed so the economy could move from being a tree that was bearing fruit to an entire forest with multiple industries.

Participants felt that with ICT, governance would become decentralized, paperless, far more efficient—whole of government, citizen, and business—and then Cambodia could transform itself from an economic toad to a tiger.

But for this vision to come to pass, used futures needed to be challenged. These are strategies that no longer work but we continue to use them. Participants asserted that the main used future was the Cambodian mind-set—reactive, rigid, formal, and risk averse.

Box 5: *continued*

The bureaucracy was a manifestation of this way of thinking. It was this historical weight that would not allow innovation that could enhance well-being and prosperity. This was especially so given how new technologies were challenging traditional knowledge and bureaucratic structures.

As one group suggested, “We want a smart governance system that is open and sustainable, has online public services, has great information and communication technology (ICT) infrastructure, and ensures excellent communication between the government and citizens and the government and the private sector.”

But how to get there? Using the methodology of backcasting—imagining the future and then the steps to realize it—participants saw the following:

- By 2023, there is a minister for ICT.
- By 2025, the country is nearly fully literate.
- By 2025, there is a nationwide ICT infrastructure system.
- By 2026, there is a system to evaluate what is working and not working in e-governance.
- By 2027, an agile cybersecurity system is fully functioning.
- By 2028, cost savings from the ICT revolution are visible.
- By 2029, gender equity is improved because work ICTs are not gender based.
- By 2030, with a decade of data collection, evidence-based policy making begins.
- By 2030, Cambodia receives an award for e-government.
- By 2035, leaders of Cambodia include women.

The backcast clearly showed that the drivers for a different future were education, ICTs in governance, and empowerment of women. Each factor or driver works with the other drivers, synergistically creating a new Cambodia. Investment and anticipatory action learning projects in these areas needed to be prioritized.

Source: Sohail Inayatullah, Sonia Sandhu, and Sunniya Durrani-Jamal.

Next steps This first engagement on futures thinking and foresight helped participants unravel and unpack challenges and converge on a road going forward. The workshop showed that they were keen to engage in futures-oriented dialogue to deepen their understanding of emerging issues and possible solutions to achieve the country’s vision. They also demonstrated that the futures and foresight methodology would help improve communication, i.e., break silos with a common vision and collective action.

The following next steps were proposed, in alignment with ADB’s Cambodia country partnership strategy (2019–2023):

- Form a “wolf pack” from among the groups and work together on implementing Vision 2050 with ADB support, and on establishing a platform using government budget.
- Fund a project (participatory action research) with an ADB grant.
- Make futures thinking part of the civil service intake coursework under ADB’s public sector management support.

“GLOBAL ADB” AND “KNOWLEDGE WITH WINGS”

The desired metaphor was “knowledge with wings,” knowledge that can capture global solutions and apply them to a local context with no limitations.

Participants More than 20, from the Ministry of Finance and the National Development and Reform Commission, including the director of the International Economic and Financial Cooperation Department and other senior officials from the Development Planning Department, and from ADB's People's Republic of China Resident Mission.

Location and date Beijing, 15–16 May 2019

Aims of the workshop Foster policy dialogue with more opportunities for policy innovations and long-term engagement in new sectors such as education.

The futures and foresight methodology can help stakeholders

- harness innovations and develop alternative and visionary future scenarios for a time frame longer than the 5-year planning cycles being used;
- future-proof the 5-year plans by focusing on emerging issues and disruptive futures, thus making the planning cycle far more robust, able to withstand novel technologies and social changes; and
- support long-term policy dialogue and inform ADB's next country partnership strategy for the People's Republic of China (PRC), which is being drafted and will identify the support that ADB will provide to the PRC for the next 3–5 years.

The People's Republic of China needs to

- create knowledge solutions built on deep understanding of country-specific issues, paired with regional knowledge such as case studies from other countries;
- prioritize the use of its resources to optimize benefits for the population in an age of fast-paced technological, social, scientific, political, environmental change, including by building institutions and developing the capacity development of implementing agencies; and

- sustain its economic growth while allowing more people to partake in its growth story.

A more participatory approach supported by a neutral convener could help line agencies agree on desired visions and develop strategies for implementation.

How the workshop was conducted

Participants created a used future. Participants then identified emerging issues and developed alternative futures. Once they had identified the used future, participants understood what needed to change, what had worked, and how to deal with stranded assets (concepts that were not working).

Participants said they would apply the techniques they had learned to

- the evolution of the partnership between the People's Republic of China (PRC) and ADB, and
- the future of innovation and knowledge for ADB and the PRC.

They developed four possible futures, with "no change," "marginal change," "adaptive change," and "radical change." Along with plausible scenarios, participants created desired visions, which were the "pull" of the future. Since many officials were drafting the 14th 5-year plan, they viewed transformation in the People's Republic of China with measured optimism and dived deeper into marginal and adaptive change scenarios.

Preferred futures ADB, knowledge, and innovation

The desired metaphor was "knowledge with wings," knowledge that can capture global solutions and apply them to a local context with no limitations.

The group of ADB staff members articulated their preferred futures through the ideas of "count for impact" and "borrow for knowledge." "Global ADB" would

- be an incubator of new solutions and an agile organization that provides cutting-edge, tested, and innovative solutions;
- not just provide loans but also use its convening power to pilot and demonstrate new solutions;
- leverage financial resources and, with its convening power and global reputation, leverage a higher rate of return per dollar invested or raised;
- focus on sustainability of asset, financial, and knowledge management results; and
- move from project-based lending to programmatic support (geographic, sectoral, and thematic).

This preferred future could be supported by new internal processes that enhanced ADB's role as an innovator and knowledge solutions provider. ADB would be an organization that was abreast of key issues that needed to be solved to eradicate poverty in Asia and the Pacific and thrived in its role as a “family doctor” that brought global solutions to a local context.

Participants realized that several of these initiatives were already underway but, to reach the preferred future, change management, staff behavior change, and a culture shift would be needed. Otherwise, ADB would continue down the road of business as usual, with just a few unsystematic efforts made without envisioning the larger goal. That was when participants came up with the metaphor “knowledge on a leash” to explain that ADB was producing excellent knowledge but it was on a leash and, therefore, of limited influence. The desired metaphor was “knowledge with wings,” knowledge that could capture global solutions and apply them to a local context with no limitations.

The participants listed steps that needed to be planned to achieve the preferred future:

- Encourage a performance-based incentive system.
- Introduce agile internal processes and simplify procedures that had not been updated in many years and may no longer be relevant.
- Introduce information technology systems that were current and improved productivity.
- Hire talent best suited for ADB's 20-year strategy and invest in human capital development.

ADB would be an organization that was abreast of key issues that needed to be solved to eradicate poverty in Asia and the Pacific and thrived in its role as a “family doctor” that brought global solutions to a local context.

Figure 9: People's Republic of China: Scenarios for ADB's future in knowledge and innovation

Source: Authors.

Figure 10: People's Republic of China: Causal layered analysis for ADB's future in knowledge and innovation

Source: Authors.

As part of rethinking knowledge, participants explored the futures of knowledge. They argued that while institutionalized knowledge, compulsory education, and standardized learning had been instrumental in the rise of the People's Republic of China (PRC), the next phase required new learning skills. Education needed to be far more flexible, moving from copy-paste to knowledge about self, the world, and the future. As a narrative, this meant shifting from a dragon bounded by the Great Wall to a dragon pulling the PRC toward globalized education.

50 years of partnership between the People's Republic of China (PRC) and ADB

PRC officials and ADB staff members envisioned “ADB and the PRC celebrating its 50th partnership anniversary” in 2036. In this preferred future,

- ADB would be primarily a knowledge and innovation bank, even as finance remained important; and
- the PRC would be a solutions provider for knowledge sharing across Asia.

Figure 11: People's Republic of China (PRC): Causal layered analysis for the future of the PRC–ADB relationship

Source: Authors.

Main learning Several officials mentioned that the 14th 5-year plan being drafted needed to drive innovation and new technologies. They identified education as a key priority.

The strength and relevance of this partnership would be highlighted in ADB's country partnership strategy for the People's Republic of China (PRC), 2021–2024. The strategy would identify the main pillars of ADB's support to the PRC, highlight the changing nature of the relationship, and emphasize knowledge and innovation.

Participants focused not just on processes and policies required for change but also on the human and societal change required to transform conservative mind-sets. Futures interventions become possible when leadership is committed and the need for change is well recognized within the country.

ADB could support the PRC by introducing more innovative and new approaches to help meet joint development objectives. ADB could pilot the futures and foresight methodology in a sector or a key priority area. ADB's long-standing experience, data, large regional footprint, and technical skills could help create change driven by transformative knowledge in the PRC.

Next steps Development challenges require a cross-sectoral, innovative, human-centric, and participatory approach to finding solutions. Futures thinking and foresight offer new ways to think holistically, create scenarios of preferred futures, strengthen partnerships, train leadership, and build capacity for innovative thinking.

The engagement with the PRC on futures thinking and foresight showed that ADB's government counterparts were keen to learn and engage in interactive dialogue, understand emerging issues, and shape trends that might determine the future of the country. They said that futures thinking and foresight helped improve communication on a common vision while defining detailed steps to get there.

Participants identified the following as the next steps to further engage with the country under ADB's futures thinking and foresight project:

- **Nurture the community.** Engage and empower champions. Connect change agents within the country by, for example, inviting them to the regional Asia-Pacific Futures Conference and coordinating with other development partners that apply futures and foresight tools in their policy dialogue (e.g., United Nations Development Programme).
- Identify how futures thinking and foresight could inform the drafting of the country partnership strategy. **Apply the methodology** to a priority sector in the strategy.

**Futures thinking and foresight offer new ways
to think holistically, create scenarios of
preferred futures, strengthen partnerships,
train leadership, and build capacity for
innovative thinking.**

FROM OIL AND PASTURES TO ARTIFICIAL INTELLIGENCE

“We are nomads of the 21st century.” Kazakhstan’s strategy is to be a transport hub as it is right between the economies of Europe and the People’s Republic of China.

Participants 30, from the public sector and state-owned enterprises

Location and date Almaty, 16 November 2019

With Kazakhstan’s developing start-up landscape, increasing foreign investments, and expanding private sector, the country’s application of novel foresight methodologies can support dynamic government planning and implementation and accelerate social and economic development. Foresight can provide a long-term development path for each sector, help mitigate risk, and find new opportunities for growth.

- Aims of the workshop**¹⁷
- Clarify emerging issues and trends—the changing future.
 - Empower leaders and managers to create the futures they desire.
 - Clarify factors impeding the preferred future.
 - Increase effectiveness of delivery of the organizational vision.

Participants discussed emerging issues, alternative futures, and the use of futures methods to improve long-run competitiveness. QazTech Ventures and ADB organized the workshop with the support of the Ministry of National Economy. Sohail Inayatullah, Chair in Futures Studies of the United Nations Educational, Scientific and Cultural Organization, facilitated the workshop.

- Creating preferred futures**
- Participants were divided into five groups tackling one topic each:
- infrastructure for agriculture development and beyond,
 - tourism as a key contributor to economic growth,
 - smart city applications to treat waste,
 - foresight for industrial and innovative development, and
 - increasing competitiveness through regional cooperation.

¹⁷ Funded by TA 9476 – KAZ: Joint Government of Kazakhstan and the Asian Development Bank Knowledge and Experience Exchange Program, Phase 3, <https://www.adb.org/projects/51305-001/main#project-pds>

The groups

- challenged used futures,
- anticipated disruptions,
- articulated the implications of these disruptions,
- created scenarios to manage uncertainty,
- developed the preferred vision, and
- created new metaphors or stories.

Used futures.

Participants gave examples of practices that do not work, the baggage that needs to be jettisoned so that innovation is possible.

Infrastructure for agriculture development and beyond

- Lack of private ownership of the land and its inviolability (now can be rented for 49 years). When you are not a full owner of the land, you do not invest in it.
- Lack of qualified human resources
- Low access to advanced technologies
- Lack of infrastructure to develop agriculture
- Lack of wholesale distribution centers that meet international standards
- Low level of forage harvesting of small and medium-sized farms
- Conservative use of new technologies
- Low grain production
- Lack of diversification; need to transition to oilseeds and increase productivity through technology
- Large tracts of land issued to one owner. Issuing more than 50,000 hectares decreases efficiency.

Foresight for industrial and innovative development

- Need financing of research and development
- Goals highly dependent on resources
- Government support for the same enterprises
- Poor perception of programs developed by central government bodies in the region
- High number of tasks that take time from important issues
- Setting high goals without solving basic issues
- Loss of continuity because of high turnover of politicians

Tourism as a key contributor to economic growth

- Weak development of tourism
- High concentration in certain regions
- Weak branding of Almaty and its countryside (Kapshagay region, casinos); low use of its potential
- Weak development of facilities such as for alpinism
- Development of open-sky infrastructure by government, but airlines compete for airports
- Lack of development of the Silk Road, adventure tourism, ecotourism, medical tourism
- Many beautiful spots but hard to reach them because of poor roads and connections
- Efforts scattered among too many unimportant spots instead of concentrating on existing strengths

Increasing competitiveness through regional cooperation

- Clustering
- Many different programs that have low effect
- Development of monocities
- Isolation of regions and regional policy, lack of information about trade flows in regions
- Frequent staff turnover in government bodies
- Regional development programs are short term
- Ineffective public servants who control processes but not results

Smart city applications to treat waste

- Plastic waste
- Lack of waste processing
- Central heating
- Paper
- People will not be responsible for waste separation
- Waste is collected
- Waste managed individually
- Use of landfills
- Lack of smart segregation

Emerging issues.

What will disrupt the sector in a big way in the next 5–10 years? What big idea will change the business model and possibly upset the current trajectory?

Infrastructure for agriculture development and beyond

- Transition to high-quality components and to production of artificial meat (less water consumption; more resistance to diseases, pests)
- Change the approach to water consumption (perhaps increasing water tariffs will encourage consumers to be more careful)
- Widespread transition to production of organic food
- Production of artificial meat (the high cost of artificial meat will decrease; traditional meat is costly to produce and energy-consuming)
- Gene modification of bioagents (bees) to get rid of certain insects and fertilize plants

Foresight for industrial and innovative development

- Automation and robotics
- Diffusion of borders between consumers and producers
- Influence of space on production (space—new logistics of production)
- New materials for cheap energy (helium)
- New types of materials
- Customization
- Vanishing of professions, prevalence of skills
- Creativity vs. full-time employment, loss of private space

Tourism as a key contributor to economic growth

- Service and digitalization as a driver of tourism
- Use of holograms, tourism without visiting Kazakhstan
- Reduce barriers to increase the flow of tourists (visas, border procedures)
- Ecotourism and other types, ecologically friendly solutions
- Module and capsule hotels, classification of tourists
- Digital solutions for tourism
- Infrastructure to reach remote areas
- English-speaking employees
- Motorway services

Increasing competitiveness through regional cooperation

- Disappearance of city borders, creation of social markets
- Urbanization, movement of citizens from villages to cities
- Fast transport of people and freight, for example, hyperloop
- Appearance of attractive points in big cities
- Movement of technologies to big markets
- Increased mobility due to technologies (no need to live near work)
- Tense social situation around cities that will lead to development of security market
- Challenges for cities' infrastructure: transport, community facilities, among others
- New forms of employment
- Increase of competencies in regions
- Changes in local governments' approaches because of high access to information

Smart city applications to treat waste

- Enzymes can decompose any waste
- Household generator of energy from waste
- Turning waste into energy
- Waste auctions
- Robots disassembling any materials (de-supply chain)
- Turning waste into food

What will disrupt the sector in a big way in the next 5–10 years? What big idea will change the business model and possibly upset the current trajectory?

Disruptions in 2030.

What are the implications?

Infrastructure for agriculture development and beyond

- Strengthening control over production, storage, delivery, sale, certification of organic products at the legislative level
- Provision of logistics infrastructure
- Creation of a trading exchange with product storage
- Regional branding considering ecological products
- Impact of artificial products' prices on natural products (if the price of meat decreases, producers of fast food will use artificial meat)
- Less consumption of products because of health and lifestyle

Foresight for industrial and innovative development

- 50% of industry is industry 4.0
- Development of information technology (IT) sector
- Development of Internet of Things
- Reform of human resources policy
- Kazakhstan is Asian hub of IT solutions for industry 4.0
- Development of creative economy
- Unemployment increases because of active use of technologies and low skills of employees

Tourism as a key contributor to economic growth

- Customized tourism
- English-speaking staff (police, guides, salespeople, waiters, public servants in migration, tourism managers)
- Gastro-tourism (customize oily national food for tourists)
- Increase Kazakhstan's attractiveness:
 - more destinations,
 - more jobs,
 - achieve international standards,
 - increase safety (police can communicate),
 - more incoming and outgoing tourists.

Increasing competitiveness through regional cooperation

- 80% of trade flow from the People's Republic of China to the Russian Federation, Uzbekistan, Iran, and Europe will be through Kazakhstan
- Presence of gasoline and electric service stations
- Harmonization of customs regulations
- New bonded storage
- Development of Internet of Things
- Appearance of new professions
- Formation of new markets
- Development of alternative sources of energy
- Development of freight security technologies
- Transformation of industry and agriculture

Smart city applications to treat waste

- 50% of waste is processed, 50% less in landfills
- Land can be used for other purposes
- Ecopreneurs
- Waste trade market`
- Develop the digital currency to trade waste
- Regulations for recycling
- Baseline of oil and gas waste production
- Solar panel disassembly
- "Shoot it into space"

Alternative futures.

To negotiate uncertainty and the risks associated with implementation, each group developed four scenarios.

Infrastructure for agriculture development and beyond

Scenario 1. Continuing current policy of opening markets to agriculture products

Scenario 2. Formation of wholesale and retail centers, but infrastructure, logistics, and certification still lacking

Scenario 3. The country is capable of responding to global trends (for example, artificial meat)

Scenario 4. Kazakhstan gives rise to trends and culture related to some kinds of food (*saumal* [mare's milk], *kumys* [fermented mare's milk], horse meat, cannabis); promotes research and development in enterprises

Foresight for industrial and innovative development

Scenario 1. Participation of foreign companies in realizing industry 4.0; high unemployment; emigration

Scenario 2. Automation of traditional sectors; middle-income trap

Scenario 3. Prioritization of sectors; training of skilled workers; development of rare metals mining

Scenario 4. Restructuring of government (introduction of artificial intelligence)

Tourism as a key contributor to economic growth

Scenario 1. Rate of tourism will go down

Scenario 2. Kazakhstan is the center of Asian sky tourism

Scenario 3. Tourism contributes 10% of gross domestic product; 10 million tourists visit yearly; Kazakhstan is a top-10 destination

Scenario 4. Legalization of cannabis for medical purposes

Increasing competitiveness through regional cooperation

Scenario 1. Same structure of the economy; regions will be like transit stations

Scenario 2. Automation of processes; faster logistics and economic processes

Scenario 3. “Green corridor” with transport infrastructure, alternative energy, digital process management

Scenario 4. Search for new niches, loss of transit because of development of 3D technologies, high-speed movement or economic wars. Or Kazakhstan will become a global branding country, promoting products of the People’s Republic of China to the Russian Federation and European markets for provision of transit flows

Smart city applications to treat waste

Scenario 1. Build more landfills; sources of water decrease; land pollution; unattractive for investors

Scenario 2. 10% reduction in waste production; new recycling facilities

Scenario 3. 30% waste is recycled; create industry in recycling; waste trading market; development of digital currency to trade waste; become an expert in oil and gas waste management and recycling

Scenario 4. Space waste program; lead in developing waste-eating bacteria

Preferred future in 2030.

While alternative futures reduce risk, it is the preferred future that sets the direction.

Infrastructure for agriculture development and beyond

- Kazakhstan is the leading trendsetter in the consumption of agriculture products
- Highly effective system training skilled workers in agriculture
- Establishment of regional agricultural trade exchange in Central Asia
- Share of agriculture in gross domestic product is 20%

Foresight for industrial and innovative development

- Automation of enterprises
- Export of only value-added goods
- Participation in value-added chain
- Brand “Made in Kazakhstan”
- GGG (Gennadiy Gennadyevich Golovkin) is still the boxing champion
- Migration service is overloaded
- Baikonur is an international space center
- Main breakthrough: contract with Elon Musk

Tourism as a key contributor to economic growth

- Tourism as driver of the economy
- 5 million tourists
- Electronic visas
- Increase in tourists
- Infrastructure development and services
- Development of aviation tourism—helicopters, aviation trips
- Electronic visas or visas at airports
- Establish low-cost airlines that will go to popular destinations in Kazakhstan
- Increase investment in tourism
- 10% of gross domestic product from tourism, 10 million tourists, Kazakhstan is a top-10 new destination

Increasing competitiveness through regional cooperation

- 80% of trade flow from the People's Republic of China to the Russian Federation, Uzbekistan, Iran, and Europe will be through Kazakhstan
- Effective system of training skilled workers
- New transit green corridors
- Focus on innovation

Smart city applications to treat waste

- Kazakhstan has the best waste-recycling technologies
- Hosts the global waste trading platform
- "Waste and Road Initiative"

Old and new metaphors.

Participants developed new stories for the future to direct strategy and help frame Kazakhstan's destination.

Infrastructure for agriculture development and beyond

Old metaphor

- Share of agriculture in gross domestic product is 4.9%; necessary to increase it to 20%
- 20% of the population is involved in the sector
- What is needed:
 - high value added,
 - digitalized processes,
 - direct foreign investment (Tyson Foods and others),
 - high level of human resources,
 - increased productivity.

New metaphor

From villages to the cities

Foresight for industrial and innovative development

Old metaphor

- Kazakhstan is a country with pasture farming and dirty production; oil mining and agriculture are the main sectors.
- We are rich because of the high price of oil.

New metaphor

- In 2020, defining of priority sectors that react to artificial intelligence (AI)
- Link of AI to our statistical base, e-government
- In 2023, first production of microelectronic element base
- We are rich because of AI.

Tourism as a key contributor to economic growth

Old metaphor

Kazakhstan is the center of sky tourism.

New metaphor

Kazakhstan is the center of Asian sky tourism.

Increasing competitiveness through regional cooperation

Old metaphor

Same economic structure; regions will be like transit stations.

New metaphor

- Be a transport hub as Kazakhstan is right between the economies of Europe and the People's Republic of China.
- We are nomads of the 21st century and should use our national culture.

Smart city applications to treat waste

Old metaphor

- Wasted opportunities
- We don't care about waste.

New metaphor

- Waste is the new oil.
- Do not waste time, invest in waste.

The workshop concluded with a clear strategy in the five working areas. Instead of working on the problems of the present, the participants worked on the possibilities of the future, on ensuring that Kazakhstan did not fall behind but that it would wisely use the future to become more competitive.

GREEN, SUSTAINABLE, EGALITARIAN ULAANBAATAR BY 2040

Participants envisioned Ulaanbaatar as a green and sustainable human-centered city, more egalitarian, friendlier, and supportive.

Workshop with line agencies, the Central Bank, and civil society representatives

Participants 18, from the ministries of education, culture, science and sports; construction and urban development; food, agriculture, and light industry; road and transport development; and construction and urban development; and the National Development Agency, Central Bank of Mongolia, civil society, and development partners.

Location and date Ulaanbaatar, 19 March 2019

Aims of the workshop

- Introduce futures methodological tools, including [emerging issues](#) analysis and the [futures wheel](#).
- Improve the capacity of leaders to start transforming their organizations toward futures-oriented anticipatory fidelity.
- Empower participants to create the futures they and the broader community desire.
- Test new tools to engage with developing member country counterparts to foster policy dialogue that drives more innovation and long-term engagement in new sectors such as urban development, pollution management, and agriculture development.

The participants articulated a preferred future for Ulaanbaatar in 2040. They imagined a city that is

- clean and green, human-friendly, more accessible by public transport, without congestion, without air pollution, and with fully recyclable waste;
- sustainable, free from concrete, spacious, and without dust;
- expanded and spread out, well connected to the country's regions, with clean infrastructure and developed tourism;
- less divided, more participatory and inclusive, with income and gender equality, without violence against women and girls, and with equal access to services for all;

- corruption free; and
- community driven; people with better attitudes and living in a stress-free environment, supporting each other.

Three main themes emerged: Ulaanbaatar as green, sustainable, and human centered; more egalitarian; and friendlier and supportive.

Exercise 1. Participants constructed their own understanding of the changes in the last decades by “traveling” back in a “time machine.”

Mapping: Participants were divided in two groups. One remembered Mongolia in 1985 and the other in 2019. One participant from 1985 and another from 2019 talked about the dramatic political, technological, societal, and cultural changes since 1985, demonstrating that it was probably impossible to have predicted them in 1985.

Time machine

The groups discussed the following key changes:

- pace of technological change;
- pace of population growth;
- increased rural–urban migration;
- decline of Russian, rise of English;
- 100% employment under Soviets, high unemployment now;
- inequality between the educated and uneducated (the uneducated were better off in Soviet times); and
- more political freedom now, which did not always translate into opportunities as people today were restrained by lack of financial means.

The groups spent a long time discussing the new materialistic values that emerged with the change in political regime.

Exercise 2. Participants used emerging issues analysis to identify current problems such as pollution, high unemployment, waste management, coming trends such as migration, and emerging issues such as changing technology and values. By examining selected emerging issues participants could imagine the future. The participants discussed—first with each other and then with the facilitator—the possibilities that could be created for Mongolia.

Anticipating: Emerging issues analysis

Exercise 3. Based on the emerging issues analysis, the same issues were chosen for this exercise:
Deepening:
Futures wheel

- “Undeveloped” becomes king.
- 10 new cities will be developed by 2040.
- 3D-printed leather, wool, and meat will replace traditional products.
- Smart *gers* (yurts) will be widely available.
- Artificial intelligence robots replace high-level decision-making.
- Shared economy becomes mainstream.
- 90% of the population do not go to big hospitals anymore.
- 20% of young Mongolians use only virtual reality for horseback riding.
- Carbon footprint points become a new currency.

Participants formed three groups of five or six. They worked on first- and second-order effects of the issues, using at least six words per effect.

Some of the emerging issues allowed the participants to think deeply about Mongolia’s possible creative strategies for development, including the following:

- becoming independent from cattle farming;
- keeping the country’s natural resources “undeveloped” or less developed to adhere to a minimalist lifestyle, be less dependent on carbon energy sources, develop ecotourism, and disperse urban development and not congest Ulaanbaatar; and
- developing smart *gers*.

All participants thought the workshop as successful, relevant, and interesting. Several noted that it should have been longer. They said that the futures and foresight approach allowed them to think in new ways and that they obtained new useful knowledge for sustainable planning in Mongolia.

Session with media and Central Bank representatives

Participants More than 20

Location and date Ulaanbaatar, 20 March 2019

The presentation for the Central Bank of Mongolia was followed by exercises to demonstrate the futures and foresight approach and allow the participants to “experience the future.” The participants recalled 1985 and described what they had seen since then:

- Ulaanbaatar has become much bigger.
- Population has grown.
- There are new technology and new opportunities.
- Many institutional factors have not changed significantly: populism, corruption, governance issues.

Using a futures wheel, participants identified development strategies like those identified by other groups:

- becoming independent from cattle farming and losing the nomadic culture;
- keeping natural resources “undeveloped” or less developed, decentralizing and dispersing urban development (instead of congesting Ulaanbaatar), leading to better quality of life and less stress; and
- developing tourism, information technology, and other technology sectors.

The participants were surprised at the extent and kind of change that had taken place in such a short time and wanted to learn to apply the method to longer-term monetary planning. Overall, they were highly positive about the workshop outcomes and wanted to continue learning about it.

Main learning The country leadership expressed interest in futures and foresight tools. In many places, when we focus on a vision of the future, participants tend to shy away from radical change, thinking that it is too difficult to achieve. The participants in Mongolia, however, were open to change and interested in learning innovative ways to think and plan. They saw a lot of rapid change negatively impacting their livelihoods—climate change, rural–urban migration, pollution—and were convinced that transformation was the only solution and wished to shape it for their country’s benefit.

- Mongolia has undergone several transformations, including a paradigm shift from socialism to democracy and intense population migration. People have not had enough time and opportunities, however, to internalize and adapt to the changes. The past years paved the way for a significant change in values, but several things have either not had time to change or have been ignored (negative impact on environment, both progress and relapse in the quality of education, improvement and worsening of quality of life because of technological change).
- The economy has grown, bringing hope, but people are aware that the future can bring positive and negative changes and they need to imagine and plan for potential consequences.
- Mongolia is diversifying its economy and needs new ideas to not simply catch up with developed countries in the next 10 years but to leapfrog and rival their levels of development and economic growth. Futures thinking and foresight allow the government to anticipate challenges and changes and be flexible in its response.
- In the face of short-term planning (monetary plans are 1 year long and evaluated 6 months into implementation) and high government turnover, how can the futures and foresight methodology be applied and how can it be effective?
 1. The futures and foresight method helps formulate a common approach to thinking about the future and, once a common vision is in place, policies can be designed and investments made to realize this vision. The method can help introduce longer-term vision even amid the boom–bust cycles of Mongolia’s economy. If this approach is institutionalized and if citizens find it valuable, it would be difficult to abandon even if the regime changes because politicians would be held accountable. However, the futures and foresight method should be applied and reiterated so that the common vision can adapt with time and take into account changes and opportunities as they arise.
 2. To come to a common vision, it is important to engage those around you and gain allies in your organization, agency, home, and country. Futures interventions are more possible when leadership is committed to them. For the government to be able to use futures and foresight, mind-sets need to change. One way to change mind-sets is to help participants “sense the future.”

- The country leadership expressed interest in futures and foresight tools. In many places, when we focus on a vision of the future, participants tend to shy away from radical change, thinking that it is too difficult to achieve. The participants in Mongolia, however, were open to change and interested in learning innovative ways to think and plan. They saw a lot of rapid change negatively impacting their livelihoods—climate change, rural–urban migration, pollution—and were convinced that transformation was the only solution and wished to shape it for their country’s benefit.

Given the plethora of challenges, the futures and foresight methodology can be applied to strengthen leadership and build capacity for innovative thinking. Applying the methodology will enable more innovative and cross-sector project design and longer-lasting change. This first futures and foresight engagement showed that ADB’s government counterparts were keen to engage in a futures-oriented interactive dialogue and to understand emerging issues and trends that might determine the country’s future.

The participants said that futures and foresight methods helped improve communication on a common vision while defining detailed steps to get there. Mongolia, with its comprehensive and innovative ADB portfolio, offers ADB many opportunities to work closely with the government to tailor and co-create new solutions and to innovate to face multiple development challenges. These include harsh weather, remoteness of communities, urban centralization, and dependence on natural resources. Many lessons can be learned from Mongolia on how to design and implement innovative solutions. The portfolio shows that ADB’s strong country presence and the staff’s commitment, deep understanding of the country context, and good leadership allow for innovative approaches. The portfolio also shows that more needs to be done to implement innovations, facilitate ideation of new solutions, and build capacity in government institutions. ADB has many opportunities to lead innovations together with the government, the private sector, and partners.

Next steps The following areas were identified as essential to further engage in Mongolia on futures and foresight:

- Nurture the community. Engage and empower champions, for example, at the Central Bank of Mongolia. Connect change agents within the country, for example, by inviting them to the Asia-Pacific Futures Conference.
- Conduct follow-up missions with mayors and municipalities that have asked for similar workshops, and with line ministries (they said the time for the workshop was too short).
- Combine the futures and foresight approach with design thinking in project design.
- Collect information on potential sectors and projects for engagement and liaise with country partners (United Nations coordinator, government).
- Solicit more interest in the country and widen the futures and foresight community in Mongolia.
- Institutionalize futures (within the government) and strengthen innovative culture.

All participants confirmed that the course was relevant. Several noted that the workshop should have been for 2 days. They requested more examples of how futures and foresight techniques are being applied to policy making.

FROM “FLIGHTLESS EAGLE” TO “SOARING FALCON”

The Philippines’ development plans usually span 6 years. For the first time, the national development plan, for 2017–2022, is anchored on attaining the Sustainable Development Goals for 2030. Faced with disruptions brought by innovation and technology and spillovers from climate change and global uncertainties, the Philippines has embarked on Ambisyon Natin 2040 (Our Ambition 2040), a long-term vision for the next 20 years. It will be crucial to find new ways to implement the plan and move from paper to action.

Participants 30, from the National Economic Development Authority (NEDA) and its attached agencies: Philippine Institute for Development Studies, Philippine National Volunteer Service Coordinating Agency, Philippine Statistical Research and Training Institute, Public-Private Partnership Center, and the Philippine Tariff Commission.

Location and date ADB Headquarters, Mandaluyong, 15 October 2019

Aims of the workshop

- Identify and work with possible scenarios for selected areas.
- Enrich strategic planning and contribute to the midterm review of ADB’s country partnership strategy.
- Strengthen the knowledge management capabilities of NEDA and identify knowledge needs to meet the targets of Ambisyon Natin 2040 (Our Ambition 2040). This was deemed timely given the government’s focus on strengthening its capacity for long-term planning, pending a bill in Congress to strengthen NEDA.
- Align the ADB Philippines Country Office’s vision with the government’s and engage government agencies to strengthen long-term planning and future visioning, analyze uncertainties, and position them as potential opportunities. The country office is pioneering an approach to country knowledge programming that identifies knowledge products and services based on the government’s needs.

Aims of the tools used during the workshop

- Empower participants to create the futures they and the broader community desire.
- Foster policy dialogue with more opportunities for policy innovations and long-term engagement in new sectors such as education.

The futures and foresight methodology can help stakeholders

- Focus on sustaining economic development and ensuring that development benefits the many;
- Prioritize education, housing and urban development, manufacturing, connectivity through transport, tourism and allied services, agriculture, health and wellness services, and financial services to ensure that the people have a strongly rooted, comfortable, and secure future; and
- Support ADB’s long-term policy dialogue and inform midterm changes, if any, to the country partnership strategy and encourage exploring a new approach to programming ADB’s knowledge.

How the workshop was conducted

Participants created a used future. Then they identified emerging trends or issues, sometimes called weak signals. Participants then developed alternative futures, which may occur simultaneously. Once they had identified the used future, participants understood what needed to change, what had worked, and how to deal with stranded assets (concepts that were not working).

Participants said they would apply the techniques they had learned to (i) the future of the National Economic Development Authority (NEDA), (ii) higher education, (iii) alternative learning, and (iv) the K–12 learning model. Participants explored not just one future for NEDA and education but also developed several alternative futures—“no change,” “marginal change,” “adaptive change,” and “radical change.” Participants created desired visions that would be the “pull” of the future.

Preferred futures**The future of the National Economic Development Authority**

One group envisioned NEDA as composed of high-caliber people adept at employing high technology and maximizing shared data. To strengthen the development authority’s oversight role in planning and coordination, the agency should be flat and modern.

NEDA, the group said, was constrained by a limited mandate, highly controlled budget, bureaucracy and politics, inability to retain talent, and scant recognition by peers in government. The central national development plan and the sectoral plans were widely disconnected. Supplementary plans were merely wish lists. Plans did not prioritize issues and were unrealistic or lacked funding. Participants said that as demand for economic and development reforms continued to grow, institutionalizing NEDA as an independent agency, broadening its mandate, and expanding its setup was warranted.

While NEDA had noteworthy accomplishments over the past 45 years, it had to become more flexible and efficient. As changes were expected as a result of economic planning and governance reform, crosscutting and long-term initiatives would have to be sustained so that the government's planning, policy making, programming, and budgeting processes could be timely, coordinated, and uninterrupted.

This preferred future would be achieved through the following:

- laws institutionalizing the development authority as the lead integrator of economic development programs and policies,
- a clearer mandate,
- management of talent to ensure that staff members are competent,
- supportive management and executive support,
- adoption of new technology, and
- full use of global trends that support development planning.

Figure 12: Philippines: Scenarios for the future of ADB in knowledge and innovation

Source: Authors.

Figure 13: Philippines: Causal layered analysis of ADB’s future in knowledge and innovation

Source: Authors.

Participants explored the futures of knowledge. They concluded that building a flatter organization would require

- revisiting the current 20 hierarchical levels in 15 sectors;
- restructuring and assessing the composition of the agency’s talent, most of whom are generalists and sector specialists;
- deploying sector specialists to implementing line agencies to learn by doing;
- reducing support staff and increasing technical experts;
- providing early retirement for old staff members; and
- nurturing a champion to execute the new strategy once the bill on the National Economic Development Authority (NEDA) was approved.

The NEDA Act would build more momentum for Ambisyon Natin 2040 and empower economic managers to ensure timely and coordinated planning.

Under Ambisyon Natin 2040, well-educated, innovative people would continuously improve the quality of life. The government, therefore, the participants said, must proactively set the agenda for education.

**The future
of alternative
learning systems**

Another group of participants examined how to strengthen alternative learning: not learning in a formal class or on a traditional campus but community learning, nontraditional, non-customized learning, particularly among those who cannot afford higher education. The Department of Education provides out-of-school youth and adults a “second chance” through the Alternative Learning System. Those who pass the accreditation and equivalency exam receive a government credential that can ease access to higher education, vocational training, and better employment prospects.

Participants envisioned a preferred future for alternative learning that was essentially “learning on demand,” creating problem solvers. This future would be characterized by

- systems thinking to encourage group work,
- collaboration to solve real-life problems and co-create solutions,
- a hub of excellence for alternative learning, and
- engagement of learners in remote areas who have all the resources they need and access to the curriculum.

This preferred future could be supported by

- embedding case groups in alternative learning;
- using classroom education not only for technical but also for cognitive learning;
- offering interesting electives;
- employing and adapting new technologies for learning (artificial intelligence, robots, big data analytics); and
- a quick-changing, student-driven, or unstructured learning curriculum.

Participants recommended

- conducting pilots for unstructured learning to alter the current view of alternative learning;
- developing a niche for the Alternative Learning System (ALS);
- engaging public–private partnerships, forming consortia of ALS providers, mobilizing donor funding for the pilots, and transferring technology from foreign experts; and
- building capacity of teachers to increase their readiness for new technology.

The participants said alternative learning was needed and that formal schooling was expensive and public schools lacked teachers. The Department of Education expanded the Alternative Learning System (ALS) by partnering with nongovernment organizations to ensure that everyone, especially the indigenous and the marginalized, had access to quality nonformal education and skills training. The participants said that ALS should expand its partners, diversify its offerings, and widen opportunities for eligible learners.

Figure 14: Philippines: Scenarios for the future of alternative learning systems

Source: Authors.

Figure 15: Philippines: Causal layered analysis for the future of alternative learning systems

Source: Authors.

- Other areas for education** Two other groups of participants chose to test the futures methodology in higher education and in development of basic education through the K–12 curriculum. The groups’ preferred futures employed advanced information technology:
- a professor coming out of a pen to respond to inquiries;
 - virtual reality glasses that enable visual learning;
 - green parks or green spaces, and a digital future;
 - connectivity with students at all times, not only through physical connections;
 - real-problem solving;
 - use of ultramodern technologies and simulations; and
 - odor-sensing learning.

To realize these preferred futures, a combination of the following would be needed:

- Bring down the cost of technology.
- Build artificial intelligence abilities.
- Secure an agreement with the World Trade Organization on information sharing.
- Create a super-ministry to strengthen coordination with the departments of education, science and technology, information technology, and environment.
- All agencies agree to share information.

Main learning The Philippines remains focused on sustaining momentum for Ambisyon Natin 2040, which sees education as key to economic development. Economic Planning Secretary Ernesto Pernia opened the workshop with a call for change. In the era of industry 4.0, he said, it could not be “business as usual.” The government must be prepared to face the challenges and seize the opportunities using strategic thinking and foresight.

The participants focused not just on processes and policies required for change but also on the human and societal change required to transform traditional and conservative mind-sets. Through a demand-driven knowledge program, ADB could introduce more innovative and new tools to strengthen development planning. The National Economic Development Authority would like to be the government’s pillar for knowledge management and a driver of innovation. ADB’s willingness to respond with more innovative ways of providing knowledge support would help create change and drive transformation.

Figure 16: Philippines: Higher education

Source: Authors.

Figure 17: Philippines: K-12

Source: Authors.

Next steps Development challenges require a cross-sectoral, innovative, human-centric, and participatory approach. The futures and foresight methodologies offer a new way of thinking holistically, generate scenarios of preferred futures, strengthen partnerships, train leadership, and build capacity for innovative thinking.

The participants were enthusiastic about finding ways to strengthen development planning and said that futures thinking and foresight would help improve communication on a common vision while defining detailed steps how to get there.

The participants identified the following as the next steps to further engage with ADB under its futures thinking and foresight project:

- Hold intensive workshops to prepare more in-depth studies to support the proposed bill to strengthen the National Economic Development Authority (NEDA).
- Conduct small discussions to influence 25% of stakeholders.
- Meet with other government agencies, initially with NEDA directors, and encourage NEDA to embrace futures thinking.
- Collaborate with countries such as Malaysia, which has used futures thinking and foresight for decades and established a think tank (Malaysian Industry–Government Group for High Technology Foresight and Innovation) under the Prime Minister’s Office.
- Work with other agencies to prepare to implement the Philippine Innovation Act to support the Philippine National Innovation Council Technical Secretariat. The budget for this policy has been submitted for approval.

POSTCARDS FROM 2030

Timor-Leste is young and dynamic, and still heavily dependent on oil and gas resources. More than 60% of the population is under 25 years old. Applying foresight methodologies can help harness opportunities and accelerate the country's social and economic development.

Meeting with the Prime Minister and the Cabinet to introduce futures thinking and foresight

Location and date Dili, 12 February 2019

The positive response of the Prime Minister and the Cabinet contributed to the high turnout rate of the workshop the next day.

Workshop with government staff

Participants Over 50, from the ministries of education, agriculture, and foreign affairs; the private sector; and development partners.

Location and date Dili, 13 February 2019

Aim of the workshop Foster policy dialogue on identifying more and new opportunities for policy innovation and long-term engagement in new sectors such as water and sanitation and education.

Exercise 1. Participants constructed their own understanding of change by traveling back to the past in a “time machine.” One group remembered Timor-Leste in 1985 and the other in 2019. One participant from 1985 and another from 2019 talked about the dramatic political, technological, societal, and cultural changes that had happened since 1985, showing how it was probably impossible to have predicted them in 1985. The groups focused a lot on technology development.

Exercise 2. Participants used emerging issues analysis to identify current problems such as malnutrition, high unemployment, waste management, coming trends such as migration, and emerging issues such as changing technology and values. Selected emerging issues helped participants imagine the future. They discussed first with each other and then with the facilitator the possibilities that could be created.

Exercise 3. Based on the emerging issues analysis, the following were chosen for the futures wheel exercise:

- Deepening:**
- Futures wheel**
- Timorese become the minority in Timor-Leste.
 - 85% of land is occupied by private companies.
 - 95% of youth in Timor-Leste leave the country.
 - Plastic products become illegal in Timor-Leste.
 - Organic, locally grown food becomes 20 times more expensive than imported food.
 - Petroleum fund is depleted.

Groups worked on first- and second-order effects of their chosen issue and described each effect in at least 10 words, allowing participants to understand how threats can be turned into opportunities.

Exercise 4. Groups wrote headlines for an imaginary newspaper in Timor-Leste in 2040. The participants picked one headline related to the identified emerging issues and supplemented it with text and a drawing. The intention was to deepen the understanding of futures and use both the analytical and creative parts of the brain.

Deepening:

Newspaper writing

The participants pointed out that the futures and foresight methodology

- offers a new way of thinking, a set of new tools to plan and strategize;
- brings hope for changing business-as-usual governance and planning;
- expands horizons;
- is a powerful way to create new purposeful partnerships;
- is a concrete and tangible methodology (versus the pre-workshop misconception of futures thinking as abstract);
- is participatory and not top-down, which is the usual approach in planning and policy making;
- strengthens connectedness among participants; and
- is not just about numbers.

Main learning **Young population.** The large proportion of young people under 20 (74% are under 35 and nearly 40% under 15) deserves serious consideration by policy makers. Most youth lack jobs and appropriate education and are ill-equipped to participate in fast-changing socioeconomic and political life. Decent jobs and markets must be created and investment in a skilled labor force boosted.

Socioeconomic issues. These include society's evolution from collectivism to individualism and consumerism; the country's heavy dependence on the petroleum fund; and urbanization issues such as pollution, low water quality, and loss of human connectivity.

Next steps. ADB's government counterparts were keen to engage in a futures-oriented interactive dialogue and understand emerging issues and trends that might determine the country's future. They said that futures and foresight methods would help them improve communication on a common vision while defining the detailed steps to get there. The following areas were identified as essential to further engage Timor-Leste in the futures thinking and foresight project:

- Nurture the community. Engage and empower champions. Connect change agents within the country, for example, by inviting them to the regional Asia-Pacific Futures Conference and by supporting the United Nations' futures and foresight initiative in Timor-Leste.
- Conduct a follow-up deep-dive mission in June 2019 with the Ministry of Public Works, civil society organizations, and water project beneficiaries. Conduct a workshop to
 1. create ownership over the project;
 2. explore which water sector development model to follow, considering a vision for the future of the water sector;
 3. define uncertainties linked to futures (water consumption, population size, behavior);
 4. discuss the value of water for Timorese and how that can change in the future;
 5. explore how the agency sees the future of water utility operations in 20 years;
 6. identify innovative project design features;
 7. inform the project design, apply design thinking, allow for deeper engagement with civil society and beneficiaries (especially women), enable strong project ownership and explore innovative solutions to address the multiple water sector challenges; and
 8. support cross-disciplinary communication on project benefits.

- Collect information on potential sectors and projects for engagement and liaise with country partners (United Nations coordinator, government).
- Solicit more interest in the country and widen the futures and foresight community in Timor-Leste.
- Institutionalize futures (within the government and within the resident mission) and strengthen innovative culture.

All participants confirmed that the course was relevant. Several noted that it should have lasted 2 days. They requested more examples of how futures and foresight techniques are being applied to policy making, for example, in Finland and Singapore.

Water supply and sanitation workshop

The goals and targets of the 2030 Agenda for Sustainable Development describe a generic “preferred future” for 2030. However, the world in 2030 will be very different than it is today. Accelerating technological transformation and profound geopolitical shifts combined with social, demographic, and environmental trends can create a period of rapid change and high uncertainty on an unprecedented global scale. This means that all countries face a wide range of plausible scenarios about what the global context could look like in 2030.

Participants National and subnational government officials, and government advisers engaged in the water and sanitation sector, health, education, environment, finance, major projects, public procurement; development partners (ADB; United Nations agencies [United Nations Children’s Fund, United Nations Development Programme, United Nations Educational, Scientific and Cultural Organization, World Food Programme, World Health Organization]; international nongovernment organizations; Japan International Cooperation Agency; United States Agency for International Development; Department of Foreign Affairs and Trade [Australia]); civil society organizations active in water supply, sanitation, and health; and officials of the host ministry.

Location and date Dili, 24–25 June 2019

Background The government is developing the first large-scale investments in the water sector in the country, supporting the development of infrastructure and introducing new ways to manage water in Dili and the municipalities. The projects will support behavior change to improve hygiene and sanitation and bring in cross-sector collaboration. The investments will lead to significant changes in how the water sector is managed and maintained, how poorer groups are targeted and involved, and how the impact is measured beyond water quantity.

Box 6: Change is changing in Timor-Leste's water sector

But there is still a discrepancy between vision and mind-set

Being in Timor-Leste feels a bit like traveling back in time. Dili, in a charming bay surrounded by mountains, is only slowly developing into a busy capital. The country's human development status has not changed much in recent years and Timor-Leste has one of the lowest Human Development Index rankings in the region. Timor-Leste also has one of the highest youth unemployment rates among comparator countries. In the last 17 years, the young nation has recovered from war and invested heavily in establishing peace and order. This has been the primary focus of the country's leaders. And they have been successful.

Timor-Leste's economy is supported mainly by oil and gas reserves. Investments in public infrastructure and social services all come from the petroleum fund. Significant sums have been invested in roads and energy to run a national grid on diesel fuel, but nearly nothing has been invested in the water sector. Poor water services seem to be taken for granted. The links between water, nutrition, health, children's intellectual abilities, and economic opportunities are now at the top of the government agenda, which still needs to be translated into the state budget and actionable projects.

Water sector infrastructure is dilapidated: more than 90% of water is lost before it reaches users, and only 30% of schools and health centers have access to water, which is not safe to drink.

The country's ambitious Strategic Development Plan 2011–2030 has clear goals for the water sector but public servants seem to be waiting for the top leaders to make decisions and provide direction. The leadership is struggling to balance the needs of the water sector against competing priorities, including the allocation of financial and human resources. This leads to inaction and reactive policies, piecemeal investments, and only minimal change, protecting the status quo, which is peace and independence. But how long can this status quo be protected if the large young generation cannot develop its full potential, work, or access public services? And how can the country attract foreign investment if living conditions, workers' skills, and health standards do not meet business needs and expectations?

Box 6: *continued*

Clearly, there is a discrepancy between the country's desired future—the big goals and visions—and what needs to be done and how mind-sets need to change to get there.

The great thing is that the government knows that the very speed and heterogeneity of social change—the changing nature of change itself—means that governing is becoming more difficult. At the same time, precisely because of the increasing rate of change in and outside the country, and because the country aims to join the Association of Southeast Asian Nations, the government is pressed to manage innovation and ensure that the country remains at peace and financially independent, while developing faster and tackling climate change, plastic pollution, rural-urban migration, and decades-long undernutrition.

To speed up change, the government is learning about foresight methods. When the country was created, it had complex but clear goals—independence, peace, financial resources—and had achieved them. Now the government has many more goals. Foresight methods have helped businesses and governments worldwide identify the implications of current trajectories, envision alternative future possibilities, and move toward preferred futures amid uncertainty. Foresight empowers people to take charge of their future instead of waiting for it to arrive. The result of a foresight process is not planning but increased transformative capacity to pursue goals faster and in a proactive anticipatory manner.

Timor-Leste needs this transformative capacity in the water sector to catch up with performance indicators, which are lagging behind the 2030 Sustainable Development Goals, and to leverage the impact of a functioning, well-managed water infrastructure for economic growth.

Source: Susann Roth and Tiago Ribeiro.

- Aims of the workshop**
- Understand the rapid changes and critical uncertainties surrounding investment.
 - Map emerging challenges and opportunities.
 - Identify changes required for current strategies, plans, and institutional arrangements.
 - Apply strategic foresight to develop a more robust, adaptive, and future-ready design, implementation, and operational strategy.
 - Foresee required mind-set shifts to enable large-scale investments.
 - Inform project design and implementation.

- Why futures thinking and strategic foresight?** The future cannot be predicted, but in the face of rapid change and uncertainty, strategic foresight provides valuable methods and tools for engaging with futures scenarios and developing more robust, adaptive, and future-ready visions and strategies by
- identifying key emerging changes and critical uncertainties;
 - exploring the potential implications of these changes for advancing a national development plan or the 2030 Agenda for Sustainable Development, including what new challenges and opportunities these changes could create, and how these changes could affect the trade-offs between competing goals and priorities;
 - testing current strategies against a range of plausible futures or scenarios for 2030 to assess how well these would fare under different conditions, and adjusting where necessary (“future-ready strategies”); and
 - provoking innovative thinking about the best-suited strategies to advance policy objectives in the face of the slow pace in Timor-Leste, rapid change in the region, and uncertainty about the future.

Planners and decision makers usually feel empowered as they move from a reactive to an anticipatory mode of engaging with emerging opportunities and challenges, toward a better navigation and appreciation of change. In Timor-Leste, such empowerment is timely since several water sector-related performance indicators are falling behind expectations, which might affect the country’s ability to meet the 2030 Agenda for Sustainable Development.

The goals and targets of the agenda describe a generic “preferred future” for 2030, along with a framework for measurement. However, the world in 2030 will be very different than it is today, creating new challenges and new opportunities for achieving the Sustainable Development Goals and the agenda’s objectives. Accelerating technological transformation and profound geopolitical shifts combined with social, demographic, and environmental trends can create a period of rapid change and high uncertainty on an unprecedented global scale. This means that all countries face a wide range of plausible scenarios about what the global context could look like in 2030.

- Approach** Participants were introduced to the conceptual underpinnings of foresight, followed by a discussion on the Strategic Development Plan 2011–2030 and a series of practical exercises to test out foresight approaches in water supply and sanitation that broadly fall into the following categories:
- **Sense-making.** Understand the drivers of change and critical uncertainties in the water sector to manage frustration with slow progress.
 - **Backcasting from the future to the present.** Identify ways to connect present-day reality with a desired future, map emerging challenges and opportunities, and identify changes required.

- **Anticipating and capitalizing on change.** Consider the insights gained from the foresight exercises, agree on actions that leverage anticipated opportunities, and align actions of various stakeholders.

The first workshop, with development partners (ADB, United Nations agencies, international nongovernment organizations, Japan International Cooperation Agency, United States Agency for International Development, and Department of Foreign Affairs and Trade), applied backcasting, based on agreed vision and strategy documents that describe the desired future. Backcasting works backward from the desired future to today, exploring resilient policy and programming pathways.

The second workshop included participants from municipal and national government (departments, agencies, ministerial advisers) involved in the water and sanitation sector, health, education, environment, finance, major projects, and public procurement. The workshop started with a scanning exercise to get a quick overview of emerging trends and dynamics in the near and distant future related to water and sanitation. This was followed by a light-touch sense-making effort (identifying critical uncertainties) and some exercises that deployed anticipatory thinking and human-centered design to consider the needs of citizens in 2030.

- Aims of the development partner workshop**
- Follow up on the informational session with government and development partners held in February 2019.
 - Jointly test out some key methods and tools to assess their utility in engaging stakeholders in a strategic discussion about common challenges and potential collaboration in the water supply and sanitation sector.
 - For the Ministry of Public Works, better understand stakeholder concerns, draw attention to issues in the water supply and sanitation sector and its pivotal role in achieving the development objectives set out in the Strategic Development Plan 2011–2030, which was developed during the era of the Millennium Development Goals.

Backcasting The exercise started with the targets laid out in the Strategic Development Plan 2011–2030 and the water supply and sanitation sector narrative. The plan includes the following short-, medium-, and long-term targets:

- **2015**
 - The Millennium Development Goal of 75% of Timor-Leste's rural population having access to safe, reliable, and sustainable water will have been exceeded.

- Improved sanitation facilities will be available in 60% of district urban areas.
 - The improved operation and maintenance of the Dili drainage system will result in a cleaner city and reduced flooding.
- **2020**
 - All government schools will be connected to clean piped water.
 - There will be appropriate, well-operated and -maintained, sustainable infrastructure for the collection, treatment, and disposal of sewage in Dili.
 - Drainage will be improved in all districts.
 - **2030**
 - All subdistricts will have improved drainage systems.
 - All districts and subdistricts will have appropriate sewerage systems.

Participants reviewed the Strategic Development Plan 2011–2030 objectives, assessed the status quo in the most relevant domains to see to what extent the objectives had been attained, and scanned for other priorities not covered in the plan but which had emerged after it was finalized almost 10 years ago. Discussing the possible trajectories between the status quo (current state) and the plan's objectives, they mapped key milestones as intermediary states (conditions for success) and identified discontinuities (signposts for a departure from the envisaged pathway).

Challenges The participants realistically assessed possible program and policy pathways, identified possible joint activities, and highlighted the following challenges:

- **Status of the water sector.** Less than 30% of schools and health facilities and less than 85% of urban households and 68% rural households have access to water but it is unsafe to drink. Only 40% of water infrastructure is functioning and that, too, highly intermittent. The lack of safe water supply has secondary effects on health, education, private sector development, tourism, and livelihood opportunities, including agriculture. Increasing population pressure combined with the effects of climate change are impacting water resources.

- **Critical uncertainties and pending policy decisions.**

Insufficient institutional capabilities (including technical capacity of staff, operation and maintenance, role clarity) are frustrating national and municipal leaders. The government is considering several large-scale investments and regulatory changes that would significantly impact how the water sector is managed, how infrastructure is maintained, how poorer population groups are targeted and involved, and how impact is measured beyond water quantity. While decentralization has been initiated, municipal administrations struggle with their assigned roles and responsibilities, requiring adequate empowerment, accountability, and financial independence to manage operation and maintenance.

Potential follow-up Discussions revealed that many shared challenges could be tackled better collaboratively (e.g., advocacy with decision makers, private sector development) and would require the involvement of multiple sectors (e.g., raising awareness through behavior change communication; investments in education and training, including user groups, local regulation, and enforcement actions).

It became clear that continued conversation across sectors and stakeholders could lead to a joint road map for the sector. The Ministry of Public Works officials said they would table this for discussion at the next session of the WASH Forum, which it regularly convenes.

Given the limited time, participants did not analyze in-depth their assumptions and did not flesh out potential interventions. To complete the process, the conditions for success (intermediary states) could be further elaborated as milestones under a joint road map. Similarly, a complete backcasting process would define the signposts indicating that the envisaged development was not on track. These activities could be refined during continued backcasting (building on current results) and then carried forward into the continuous scanning that would accompany road map implementation.

This exercise would entail querying what assumptions are being made, who is and is not at the table, potential trade-offs that need to be made, and the group's hidden biases.

The participants deemed the workshop useful and successful and proposed follow-on workshops. They valued the interactive methodology and the application of foresight tools.

Government workshop

Participants said it was refreshing to move from piecemeal to big-picture thinking and that it was most valuable to be able to appreciate their roles in achieving the Strategic Development Plan 2011–2030.

Participants Seven, senior-most officials of municipalities, program and project officers, advisers and other senior officials, including heads of departments of the host, the Ministry of Public Works.

Location and date Dili, 24–25 June 2019

Aim of the workshop Share and test key methods and tools to assess their utility and relevance for practical application in national and local government planning.

Government officials engaged in a strategic discussion about shared challenges, emerging opportunities, and potential collaboration with a rapid prototyping session that looked at designing a future-ready public water supply and sanitation services.

The host ministry sought to better understand the concerns of other government agencies, while drawing attention to issues in the water and sanitation sector and its pivotal role in achieving the development objectives set out in the Strategic Development Plan 2011–2030.

Trend and driver mapping, identification of critical uncertainties Participants reflected on key trends and emerging issues—current and expected—considered relevant for Timor-Leste’s water and sanitation sector in the near or distant future (second and third horizons).

Individual trends that participants identified as critical in their horizon scan were grouped under the following:

- natural resources and the environment;
- waste and pollution;
- role of community;
- health and well-being;
- economy (agriculture, industry, and commerce);
- population dynamics;
- education and schools;
- operation and maintenance (water and sanitation sector);
- water resources; and
- regulation and action.

Participants attributed three trends to education and schools:

- Less-educated people are more affected by negative health effects.
- 21st-century school infrastructure—universal access to schools
- Technology encourages educational advancement.

The goal was to jointly identify the dynamics that drive the trends that impact the water supply and sanitation sector. Seventeen drivers were identified and mapped on a 2 x 2 matrix (importance and certainty as axes). Most drivers ended up in the “high importance” quadrants. Less important drivers tend to be captured in processes that dig deeper into system dynamics.

Drivers in the quadrant that combines high uncertainty and high importance are considered crucial and are used to generate alternative futures (scenarios). These critical uncertainties tend to have been given less consideration in current strategies and plans but possible futures can be derived from them because of their potential impact.

The following critical uncertainties were identified:

- accountability for implementing plans and strategy;
- investment in education and training;
- economic and income opportunities;
- foreign direct investment;
- empowered local governments and investment at the local level;
- game-changer investments (mostly infrastructure, social, or education policy);
- productivity increase through technology adaptation;
- digitalization of the economy;
- resources for operation and maintenance; and
- capacity (institutional) for operation and maintenance.

An example of a fully formulated “uncertainty pair” would define the tension between two extreme manifestations of a critical uncertainty: a low vs. a high level of digitalization of the domestic economy. Participants used the critical uncertainties to trigger a mental shift into the year 2030 and to consider the changes that would lead to these futures.

Participants enabled the identification of critical uncertainties that warrant more detailed engagement with foresight tools. Drivers that were mapped in the “certain” or “unimportant” quadrants can be considered less relevant for futures work. Drivers considered certain and important are usually already tackled by government schemes and programs while the uncertain and important ones are not.

2030 postcard narratives and service design

To quickly envision a future “lived reality” in 2030, each participant assumed one of the following identities (personas) to reflect on their experiences, particularly related to water and sanitation:

- working professional (25 years old), well-off;
- entrepreneur, recently started a company;
- unemployed 40-year-old, with three children, financially unstable;
- youth of secondary school age;
- elderly person, working part time to earn a living; and
- farmer, member of minority group (any age).

Postcard narrative exercises are effective even for participants who have not been thoroughly briefed on futures thinking and foresight because most people are used to writing postcards or letters. Participants wrote a short letter or postcard from the future (June 2030) to a friend. The facilitator selected the entrepreneur, the unemployed mother of three, and the well-off professional. Participants identified the core issues that each 2030 character was facing. They switched roles, acting as a public official, and explained how they would use all available resources, human capabilities, technology, social and cultural assets, among others, to solve these problems in a possible 2030 future.

The director general of the Ministry of Public Works said the following:

- Multiple master plans and detailed designs for projects were ongoing (including those proposed for ADB support) and six municipalities would have a new master plan by 2020.
- A public water utility would be established by 2020, creating skilled jobs.
- Cost-recovery modalities, particularly tariff groupings (household, commercial, social, subsidized) needed further consideration.
- Legislation (on water supply, sanitation, water resource protection) was being drafted; public-private partnerships being studied; and discussions with the Millennium Challenge Corporation regarding projects in Timor-Leste ongoing.
- Feasibility studies were being conducted for long-term water resources, such as the construction of a dam in the Gleno and Railaco river basin and the aquifer recharge project in Dili because the coast is seeing saltwater intrusion and erosion (hollowing out of the coastal road).

Insights Government stakeholders were most concerned about the institutional arrangements and the clarity of key actors' roles. Participants said it was refreshing to move from piecemeal to big-picture thinking and that it was most valuable to be able to appreciate their roles in achieving the Strategic Development Plan 2011–2030. Confidence in partnerships must be built and decentralization to empower local authorities clarified and tweaked.

Potential follow-up Facilitators and organizers felt that it would be useful to engage local facilitators who can manage the process in Tetum and other local languages to deepen engagement, particularly in municipalities. More-detailed worksheets could help guide and structure participants' inputs to crowdsourcing, visioning, and narrative drafting.

The workshop team debriefed Public Works Minister Salvador Soares dos Reis Pires and his coordinating adviser, José Belo, the following day. They expressed keen interest in a follow-up activity to link institutional reform and the capacity development agenda.

FORESIGHT: “A LUXURY THE DEVELOPING WORLD CANNOT AFFORD”?

The following touches on how ADB works with policy makers to bring futures thinking and foresight into decision-making and how ADB monitors something not easily measurable.

ADB’s Susann Roth speaks to Umar Sheraz, *Journal of Futures Studies* (abridged; complete interview [here](#))

We need more bespoke engagement—“co-creation”—with policy makers. It is not about talking at each other but talking with each other. Foresight enables people to use not only evidence but also their imagination and creativity. This is often missing in highly bureaucratic public sectors.

What indicators does ADB use to monitor progress, especially in auditing a foresight program?

How do we prove that our foresight engagement and foresight program add value? The program opens the mind. It looks at uncertainties. It uses creativity to grade these scenarios. Then you can innovate in [backcasting](#) policy decisions and the investments that need to follow. The program is one tool for engaging in dialogue on innovation. For an organization like ADB, evidence that the program works is of the greatest importance. The program should result in, first, better policy dialogue and more sustainable and equitable policies. Second, the program should encourage positive engagement with our member countries so that they want to work with ADB as a knowledge partner on foresight and national policies. The partnership should shape investment decisions. And third, the foresight program should raise the quality of our projects and other programs and make them more efficient, effective, sustainable, and relevant.

What is relevant today is different, of course, from what will be relevant in 10 to 20 years. The success of foresight programs has to do with inspiring people. Yes, we are a multilateral development bank but we must set agendas and help people have the vision and inspire them to do the work. We want to be part of that change and we want to see that change for our children.

ADB still needs to monitor progress. For example, how many kilometers of roads have been financed or has gross domestic product per capita improved?

Our new corporate results framework looks also at all kinds of quality outputs, which go beyond kilometers of roads or transmission lines built. ADB has one of the best corporate results frameworks among multilateral development banks and we are proven to be among the best in development effectiveness.

Our economists are interested in social and sustainable development and in how you link that with GDP. There are discussions about circular economies and green economies. How do you reduce poverty while reducing carbon dioxide emissions? Once we have the answer, then we also have the Holy Grail and a silver bullet. [Strategy 2030](#) makes it clear that innovation needs to happen.

Let us talk about the paradox of a [used future](#). A big issue with e-health, for example, is that it represents a used future. It is glitzy but has not served who it was supposed to serve. How do you encourage your stakeholders not to pursue used futures?

When we developed the e-health or digital health agenda at ADB, we used foresight. We said that is the future and we must use digital tools to reach more people and improve the quality of care. E-health is only as good as the benefits to its users. In the context of foresight, you can have various scenarios. You can have a vision of a certain future, but you must understand what kind of foundations you need to put in place to get to that kind of future. The challenge is in the mistake we sometimes make: let us just leapfrog to stage seven and use new technologies. Although this is wonderful and well-meant, we forget the foundations that need to be in place. But you cannot measure them very well. They do not come in kilometers of roads or transmission lines built. The foundations include good governance—information technology in this case—and basic infrastructure, skills, capacity development, human capital development, and so on, which are difficult to measure. A lot depends on education to realize our vision for the future.

At ADB, do you have capacity-building programs to sensitize policy makers to the need for foresight?

The question for me is not so much about capacity development but about how capacity is developed. First, you need to work with the various development partners. Second, you need to combine peer-to-peer learning with bespoke workshops and so on. I am absolutely against any kind of PowerPoint presentation because I do not think that is capacity development. It must be on-the-job learning. We have engaged in various countries on foresight and have started to build foresight literacy.

The powerful thing about foresight, especially if you use [causal layered analysis](#), is that you touch people's emotions and feelings. You might say that you come from a bank and that we work in financing and policy and there should be no room for feelings and emotions. But feelings and mind-sets, that is what life is about, and this is what humans are about. This makes us different from any artificial intelligence. And I do believe this is where we need to invest: in the emotions and feelings we use to make the right decisions. What is right? It comes back to sustainability and equitability and avoiding a situation where only certain people benefit from policies and investments.

CONCLUSION

In times of slow or minimal change, futures thinking and foresight are luxury planning approaches. However, in times of rapid change, they are critical for not only the success but also the very survival of an organization, a corporation, or an institution. Indeed, as the spread of Covid-19 demonstrates, early warning anticipatory systems for nations and the world economy are foundational requirements for the health of the entire system. Futures thinking and foresight help us do the following:

- Map the future so we gain a better sense of direction.
- Anticipate emerging issues and disruptions so that we reduce risk and can avail ourselves of new opportunities.
- Time the future differently by using a three-horizons framework—the present, the uncertain emerging future, and the envisioned long-term future. Organizations keep an eye on all three horizons.
- Include all stakeholders so that risk is reduced, new ideas are created, strategic success is enhanced through partnerships.
- Use scenarios so that different futures are clarified, and distinctions between the used, the disowned, the preferred, and the outlier are understood.
- Move from imagined future to creating desired future. The future imagined is created.

Futures thinking and foresight can be used in different national and institutional settings.

Futures thinking and foresight can help develop water strategies—access to clean water and sanitation—as in Timor-Leste.

Futures thinking and foresight can help anticipate new opportunities as in recycling and space exploration as in Kazakhstan. They can also be used to determine human resource shifts: which jobs are new, which jobs are disappearing, and which jobs are changing. In Kazakhstan, futures thinking was used as well to rethink tourism, to make it far less decentralized, to use new technologies to create new tourism opportunities.

Futures thinking and foresight can move the portfolio, as in the People's Republic of China, from borrowing for roads to borrowing for knowledge. Futures thinking and foresight anticipate the next development stage and help shift ADB strategy. Knowledge itself must shift, from rote learning to knowledge with wings—both global and applicable to local contexts. ADB in this context changes from being a family doctor to becoming a patient care manager in an increasingly complex development landscape, bringing in global expertise for local change.

Futures thinking and foresight can be used to innovate as in Armenia, which seeks to move toward full green, smart energy, self-sufficient, and inclusive cities. Participants imagined a future of connectivity and renewables with a transformation in education.

Futures thinking and foresight can be used to diversify the economic portfolio as in Cambodia. They can also be used as a lever for economic growth by changing deep social relations, where individuals imagine women as national leaders rather than garment workers. Futures thinking can help tell a new story as in Cambodia, which wishes to shift from a paper-based bureaucracy to a far more efficient cloud-based system, what participants called the e-Buddha (efficient and wise).

Futures thinking and foresight help reshape human resources and educational systems needed to help create the desired future, as with interventions at the Philippines' National Economic and Development Authority. To create an innovative national economy, participants were clear that the current educational system would need to drastically change. Indeed, this was the feature of all workshops: in a world of artificial intelligence, disintermediation, 3D printing, rise of renewable energy, demographic shifts, digitalization, education was still focused on the previous industrial era, not the emerging fourth industrial revolution.

Finally, futures thinking and foresight can help strengthen partnerships as between the People's Republic of China and ADB as well as with other nations. Partnerships become focused on where nations seek to go—not on where they are today but on where they can be in the future.

Traditional planning thus needs to expand to include the long term, to use the future to change today, and develop a robust strategy to create a new tomorrow. The present shows us that we have focused for too long on short-term gains and that solutions of the past can turn into the problems of tomorrow.

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Futures Thinking in Asia and the Pacific

Why Foresight Matters for Policy Makers

Solutions to Asia and the Pacific's socioeconomic, political, and environmental and climate change challenges lie not in 5-year plans or ad hoc schemes. They lie in people's visions of futures they can actively shape, first imagining them and working backward to make them happen. This publication shows how ADB piloted futures thinking and foresight to understand entry points to support transformation change in the region. Some of the region's policy makers envisioned their countries a decade or more hence and the steps to reach those desired futures. This is our message: We must use not just knowledge and evidence but also emotions and creativity. We cannot change the past, but everything we do now changes the future.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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