NAUTILUS INSTITUTE

Global Scenarios 2010

Will East Asia Mega-cities be Secure and Sustainable by 2050?

Funded by the Korea Foundation and Hanshin University Center for Peace and Public Integrity

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On October 19, 2010, 25 scholars, activists, students and policy professionals from China, Japan, Korea, Australia, United States and India convened at the Academy House in Seoul, Korea for an intensive exploration of complexity and inter-connected global problems applying a strategic tool used by the Nautilus Institute for Security and Sustainability called *uncertainty scenarios*. We chose the rapidly evolving challenges of the mega-cities which characterize so much of the region and are home to a high percentage of the region's population; UN data forecast 70% of the region's people will live in mega-cities by 2050. The goals of the workshop were to:

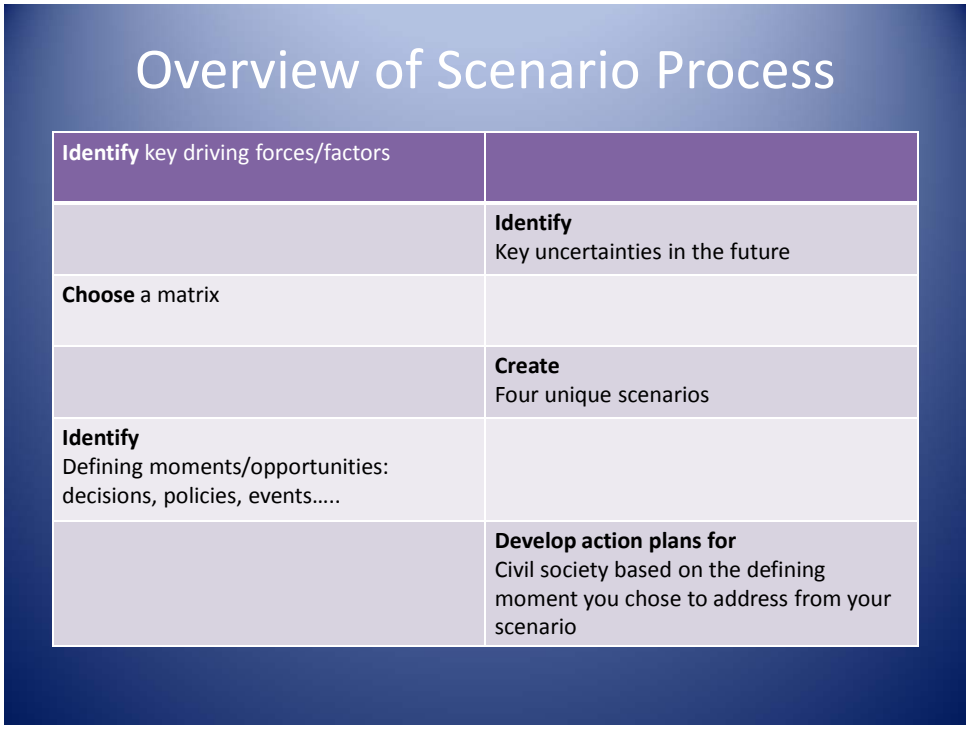
1. Create four scenarios which rather than predicting the future, encompassed a broad spectrum of possibilities for the future of East Asia mega-cities;
2. Analyze those scenarios to better understand the present;
3. Use the scenarios to identify critical policy actions, which if implemented today, could increase the likelihood of a more secure tomorrow in the region.

As we analyzed the four scenarios, many common or interdependent threads struck us. Environmental security (water, food, disasters) was not only fundamental to human security which in this conversation refers to the welfare of humanity and our ability to foster and maintain compassion and respect for every individual, but to rational growth in mega-cities—systematic planning for housing, shopping, transportation, spiritual growth and jobs. Another common theme was the power of non-political opportunities to shift relationships in the region. Finally, a third repeated theme was the challenge of distinguishing among communities (with no legal status, such as the neighborhood), cities, and states: when over 50% of a country's economic strength lies in a mega-city, how does the tension between the city and the state express itself and how can this expression be most positive for all people? As cities grow from large to mega- to giga-cities, what do individuals identify with—the city, the state, or their local community? And, if the latter, how can we motivate people to care about the city and state politics that seem so far away but control so much of what affects individual lives? Or should we encourage drifting away from a city/state focus—should and will communities "take the future into their own hands"? Is this even possible given that, at least now, cities and states control most of the infrastructure e.g., energy and transportation? These are the major overlapping conundrums and questions raised during our analysis of the four scenarios.

Before summarizing our conclusions, it is important to review the actual process of developing the four scenarios and the content of those scenarios.

Uncertainty Scenarios

The process used by the facilitator can best be summarized in the following table:



Initially we reviewed the key concepts of uncertainty scenarios which:

1. Are a *strategic tool* for grappling with future uncertainty which, when combined with deep research tools and using information to build common ground among all parties, can help contribute to resolving the complex global problems which threaten our shared humanity;
2. Focus on *plausible* futures and are not meant to be *predictions* of the future;
3. Are *designed* to capture wildcards and surprises that might elude us when we plan for the future using traditional methodologies;
4. Identify robust strategies that will prepare us best for whatever the future is;
5. Are based on humility by accepting what we don't know and cannot control;
6. Emphasize the value of diverse perspectives when thinking about the future;
7. Respect research, quantitative analysis and recognize their limitations when it comes to the future.

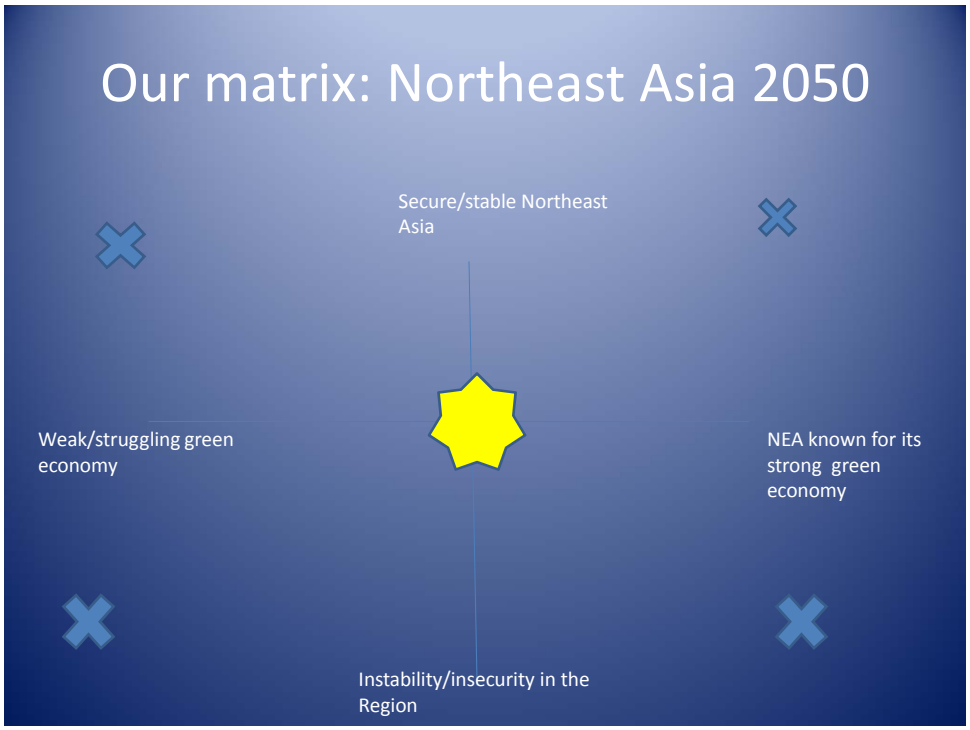
Having discussed these fundamental concepts, the group engaged in the process of building team scenarios. There were four teams and each team had multiple cultures, countries, ages, professions and perspectives represented in its membership.

Drivers

"Drivers" are key factors and environmental forces that might shape the future. The task was to brainstorm drivers—global, local, technology, politics, research discoveries, likely, unlikely, the best of the human spirit and the darker side of human behavior. Drivers generated by the groups included technological changes including nano-technology and energy related developments; pandemics; climate change including drought, sea level rise and changes in agriculture; shifts in public policy at the inter-governmental, city, state and local level; increasing ease of communication across languages; global economic crisis and recovery; migration and population diversity; regional vs. national identity; terrorism; global stress causing psychological meltdowns in the population; nuclear war in Korea; low birth rates; and Korean unification, among others.

Uncertainties and Building the Matrix for the Scenarios

The groups were next asked to identify which of their drivers were the most unpredictable and high impact while still being plausible. These special drivers, also called *major uncertainties*, were then used to build a matrix for the four scenarios. The chosen uncertainties were security in the region and green economic development. The resulting matrix looked like this:



The blue "x's" represent the year 2050 and the matrix creates the frame for the scenarios. Each group was asked to create a scenario within one quadrant and to describe how their East Asia

moved from today (the gold star at the center) to the blue "x" which defined their group's world in 2050.

The Four Scenarios

JAWS: a world that in 2050 is characterized by a struggling green economy and regional stability and cooperation.

Between 2010 and 2030 nuclear energy grows at a rapid rate and by 2030 it supplies 65% of energy in the region in the name of green growth. Unfortunately, the decrease in climate disrupting emissions is too late to protect the region from 47cm of sea level rise.

In 2028, the Olympics are held in North Korea and while reunification does not happen in this scenario, this international validation and recognition of the DPRK fosters economic cooperation between the two Koreas and results in increasing stability for the entire region.

In 2040, a massive earthquake triggers a tsunami that is exacerbated by the increased weight of the sea wreaking havoc upon disaster as the region's nuclear plants located on coastal shores are destroyed. These seemingly innocuous nuclear plants on the East Asia seaboard are the "Jaws", the invisible sharks beneath the surface which once awakened by the earthquake destroy that most basic infrastructure system, energy. In addition to the meltdown of the nuclear power plants, the mega-cities themselves suffer extreme damage: levees break, communities are underwater: flooding, homelessness, disease and suffering abound.

The region is saved from despair by the foundation of good-will built up over the preceding three decades which triggers international aid although it is soon clear that what is rebuilt will not look like what was destroyed. Individual communities feel that their governments failed them by relying so heavily on nuclear power and begin to shift focus towards more local governance and decentralized political systems. More threatening, however, is the shift away from nuclear and back to fossil fuel and climate changing energy technologies.

The Dark Age of the Mega-city: a world that in 2050 is characterized by instability in the region and a weak and struggling green economy.

In 2015, China, Japan and South Korea begin to construct nuclear power plants and export nuclear technology to other Asian countries with the shared goal of addressing climate change and increasing internal energy supplies. Unfortunately, this nuclear investment does not meet all of their energy needs and the countries compete for other energy resources including coal, oil, natural gas, etc. rather than investing in renewable green energy technologies.
The financial crisis in the United States has not abated and the US begins to close its military bases abroad. This includes its military presence in East Asia even though Japan and South

Korea fund a disproportionate amount of the cost of these bases. In response both the ROK and Japan increase their own militaries. The ROK expands its military and the Japanese government takes this opportunity to revise Article 9 in the Japanese Constitution "normalizing" the Japanese Self-Defense Force into a formal military.

As the resource crisis continues, military assets are increasingly deployed to secure energy and rare materials. In 2020 Japan deploys its navy to the East Sea Natural Gas Deposit to deter the Chinese. In that same year, Kim Jong-il, who has been sick for over a decade, dies after securing the transition of power to Kim Jong-Un.

In 2030 a nuclear plant near Shanghai melts down damaging the Chinese economy but also releasing radioactivity over Japan and South Korea. This exacerbates tension in the region and increases the competition for energy resources, a tension that finally triggers a brush-fire war between Japan and China over mineral resources in Mongolia.

The skyrocketing price of energy and the repercussions of the nuclear power-plant meltdown in China lead to an overall economic slow-down in East Asia. Over the next decade the economies of Japan, ROK, and China sink into recession losing the competitive edge that once made them thrive. Compounding this, the environmental degradation and the impacts of climate change lead to food shortages and disease which heighten tensions within major cities in East Asia, particularly between ethnic groups. Major cities are divided into ethnic enclaves with hostile relationships among neighbors.

In this environment East Asia cannot retain its talented next generation leaders who leave to the US or Europe. This deprives East Asia of the leaders and innovators who could help its economic recovery. By 2045 the average life-span is well above 100 years old and the aging population has added a further burden to the economies in this region. In Japan and South Korea despair results in a psychological meltdown characterized by high suicide rates, hopelessness, low productivity, and the deterioration of the family unit.

By 2050 the megacities of East Asia are economically and culturally depressed. They are dark, polluted places full of despair and ethnic conflict.

Droughts Yield a Green Tomorrow or From Gulag to Garden: A world that in 2050 is characterized by regional instability and a strong green economy.

In 2015, the Songhua River in China is officially declared "dead" after a massive chemical spill and thousands of ecological refugees are left homeless or on land so polluted that life could not be sustained. As a result, China relaxes its border security allowing refugees to leave for the DPRK which welcomes them with opportunities to build a new life; others migrate to Russia in

search of opportunities. Shortly thereafter, South Korea is hit by widespread famine and again, Kim Jong-un reaches out to starving and disenfranchised neighbors.

However, by 2020 food shortages and population pressure mounts in the DPRK resulting in a military coup by the young generals who believe that the most productive path for the region is DPRK integration as a recognized and responsible player in the region. The Six Party Talks which had reconvened in last decade support the political transition in the North and the talks become increasingly open to the voice of a parallel "civil society six party talks" and to innovative strategies and solutions to the humanitarian crisis and intolerable instability in the region. In 2025, the US, China, and South Korea all pledge support for transforming Pyongyang into a world-class Green City.

Civil society, corporations and the former DPRK military capabilities rapidly undertake various economic projects and soon the infrastructure for jobs and development is strong.

The DPRK military bases are converted into land for model organic farms. In 2028, a light railway system is constructed in Pyongyang as the city evolves into the "New Dubai" with the development of "Pyongsong" fuels, a newly developed renewable energy source. However, no story has such a simple ending, the new wealth and living conditions trigger a "Pyongsong" population boom—the wider Pyongyang-Kaisong population hits ten million and the mega-city challenge is fully felt—instability in the region returns as the infrastructure cannot support the burgeoning population.

Green Gold Giga-City: a world that in 2050 is characterized by regional stability and successful green economic development.

The transition in 2012 from Kim Jong Il to Kim Jong Un was smooth although the new leader moved much more quickly with reforms than expected. By 2013, there was an open door and a presidential election. Two years later, Russia completed its gas pipeline and fast train via North Korea to South Korea and Japan: the region was truly opening its mind as well as doors. The DPRK responded by denuclearizing and joining the six nation nuclear weapon free zone talks. It was clear that the US was losing influence in the region and when in 2018 Kim Jong Un and the South Korean president shared the Nobel Peace Prize for promoting the zone, the US role as global protector was thrown further into question.

The cities in the region encouraged local production and genetically modified organic food to feed the millions; Pyongyang in 2028 hosted the Olympic Games further demonstrating the independent strength of the region. In 2030, China adopted a multi-party system and a bio-chip made it possible for us to talk to one another in our own languages and instantaneously understand what is being said; all cars were either bio-fuel and nuclear-electric.

With one common market, historical reconciliations resolving historical problems, many small cell-cities emerged within the giga-city. These cell-cities are networked, connected functionally but not limited by a single hierarchical rule: the cooperation to solve the problems of the giga-city is strong. This strength also generated the momentum and security for Seoul to become the center of the regional cooperation, for China and Taiwan to unite by popular vote; for one Korea to emerge, one country but two systems working in harmony; in 2042, the Nobel Peace Prize again went to the peninsula, this time for a peaceful reunification.

By 2050, the giga-city of Pusan-Seoul-PY-Sinijui and down the NE coast of China to Yanbian and Shanghai is connected with a tunnel. Food production relies on industry, nutrients from sewage recycling, aquaculture on the ocean side integrated with tidal power. The region has fortified itself against storm surge, storms, extreme wind; it has mastered the art of adaptation and exploited that skill to bring hope and happiness to people in the giga-city.

Identify Defining Moments

After completing their scenario, each group was asked to identify one "defining moment", a critical decision that shifted their narrative either positively or negatively. The most basic condition for a "defining moment" was that the decision could be influenced by concerted well-organized action and intervention of civil society.

The following critical moments were selected by the groups:

The world in 2050	Defining Moment
Regional Stability/Low Green Economy	2028 Pyongyang Olympic Games
Regional Instability/Low Green Economy	2020 Resource Crisis
Regional Instability/Strong Green Economy	Decision to allow refugees into DPRK
Regional Stability/Strong Green Economy	Acceptance of NWFZ in region

In each of the above selected critical moments there was a conscious response to some series of events or *drivers*. Our job was to begin (it had already been a very full and demanding day for the participants) thinking about the skills that civil society would need to influence the decisions effectively. It is interesting to note that all decisions require a multi-national civil society network which in and of itself informs us of a great need in the region—*how do we build a robust network of civil society organizations or individuals?*

As the groups discussed strategies for influencing public and social policy, the need for improved education and communication surfaced again and again: how do we build that common understanding of the threats to humanity in the region? How do we educate civil society such that it can transform governance in the region? The issues associated with secure and sustainable mega-cities are extremely complex and require a sophisticated understanding of resources, energy and food systems, population and population policy, transportation, economic development, and eco-system services; they require the critical thinking skills and fundamental analytic skills necessary for recognizing excellent science so that arguments are powerful and convincing; they require leaders at every level that can communicate, listen, and continually refine and revise strategies for engaging political leaders and influencing policies.

Conclusion

We spent a full day and could easily have spent two more days, developing our scenarios and more importantly developing the action plans for effective civil society interventions in regional planning and development. While we came away with more questions than answers, we also came away with great clarity on the complexity of the challenge of mega-cities in the region, the interconnectedness of the fundamental problems of urban security, energy security and green economic development. We also came away more convinced than ever that the answers lie in cross-border collaboration and networks: the future will be determined by the threads that connect us and not the lines on a map.

Participant List

NAME	Affiliation	Position	Nationality	Sex
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