RESILIENT SEMARANG

Moving Together towards a Resilient Semarang
Resilient Semarang
Moving Together towards a Resilient Semarang
RESILIENT SEMARANG
Moving Together towards a Resilient Semarang

Resilient Semarang Strategy Book
Published by Semarang City Government
Gedung Pusat Informasi Publik
Balei Kota Semarang, Jl Pemuda 148 Semarang
Phone (024)3540009
www.100RCSemarang.org
Twitter & Instagram @ResilientSMG
Facebook: Semarang Kota Tangguh

Publishing of this book is
initiated by 100 Resilient Cities
pioneered by Rockefeller Foundation
and supported by
Mercy Corps Indonesia

First edition, Mei 2016
Alhamdulillah, I would like to extend my gratitude to God Almighty for the completion of Semarang City’s Resilience Strategy Document as part of the 100 Resilient Cities initiative.

As a city, Semarang still faces a diverse range of issues. Tidal flooding and flash floods, sanitation and waste management, congestion, and unemployment, among others, are the issues the city currently dealt with. About five percent of the city’s population living in poverty is considered to be the most vulnerable to these problems. Therefore, a special attention is needed to this group of people.

During this time, the Semarang city’s government, together with all of the city elements, has tried to overcome these challenges, both through improved physical and non-physical infrastructures. The city has achieved and accomplished a lot, however, there is still much left to be done. For this matter, Semarang does not rule out the possibility to learn from other cities, either in the national or international levels. Further, Semarang’s participation in the 100 Resilient Cities network is expected to strengthen every effort the city makes in tackling these issues.

There are 6 pillar strategies, 18 strategies, and 53 initiatives listed in this City Resilience Strategy Document. The strategy was formulated through an inclusive process involving many elements of the city. It is hoped that the document becomes one of the guidelines in implementing the concrete actions towards the resilient Semarang. These actions will not only be done by the agencies within the city government, but also by the entire community of Semarang. In addition, through a network built in the 100 Resilient Cities, it is also expected that there are opportunities to cooperate with other parties related to resources in order to build the city resilience, nationally and internationally.

A resilient city does not only mean as a city that can withstand the current challenges and adapt accordingly, but also as a city that can further develop better in the future. In this regard, all elements of the city have a significant role in creating the city resilience. Therefore, on this occasion I would like to invite all ‘sedulur-sedulur’ –brothers and sisters-- in Semarang to move together towards a resilient Semarang, with the ultimate goal of realizing the welfare of the whole society. As for the future, I hope that with this City Resilience Strategy Document, Semarang, along with all its challenges, can become a more resilient city and develop into a modern and sustainable city.
Today, 100 Resilient Cities is proud to partner with the city of Semarang to release their comprehensive Resilience Strategy: Moving together towards a Resilient Semarang. For over four centuries, Semarang has been the focal point of trade in Indonesia, and a destination for people from all different backgrounds in the region. It takes a bold and honest view of the wide variety of challenges and opportunities the city faces, and brings together both existing and new resilience building initiatives while honoring the diversity that is a key characteristic of Semarang. This strategy is the end result of a process that ensured participation from a broad range of stakeholders. This strategy truly reflects Semarang as a whole-thoughtful, inclusive, and diverse and if implemented that process, along with the initiatives herein, will make the city better able to survive the shocks and stresses the city faces.

We would like to thank Mayor Hendrar Prihadi for his continued partnership, and congratulate him on the release of this strategy. None of this could have happened without his strong commitment to support the resilience building efforts in Semarang, from the city’s engagement in the Asian Cities Climate Change Resilience Network to the work we see before us today.

We must also commend the entire Semarang resilience team, including Chief Resilience Officer Purnomo Dwi Sasonko, and Wiwandari Handayani, Deputy CRO. Their tireless efforts and analytical thinking to produce this exemplary plan is already inspiring people in cities all across the world. We expect the city will continue to be a leader in a global resilience movement that will revolutionize the way cities act, think, plan, and support their citizens.

This document has 18 strategies and 53 initiatives, each of which were constructed to provide multiple benefits, realistic timelines, and project owners and supporters. The fact that this document is so actionable is critical, because the need for resilience building has never been greater not only here in Asia but around the world. The challenges and pressures of climate change, urban density, social cohesion and overtaxed infrastructure will continue to confront cities and their leadership for the foreseeable future.

Going forward, we could not be more excited to continue working with Semarang to support the implementation of key initiatives and solutions for the city and its citizens. With an engaged city leadership and the passionate resilience team, I am confident that Semarang will continue to leverage a wide range of local stakeholders and global partners to begin implementing the projects detailed within the strategy. Once again please accept my warmest congratulations to you all on behalf of the entire 100 Resilient Cities team. We are looking forward to continuing our strong partnership with Semarang to achieve our shared vision of building more resilient cities.
Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

We believe in building our capacity to better strengthen our city resilience.
EXECUTIVE SUMMARY

Semarang continues to transform. In the 6th century, the coastline of Semarang was in Bergota area, about 4 km from the current coastline. The continuous sedimentation from upper area of Semarang expanded the coastline further, extending the inland area, which grew into a coastal city. Unfortunately, the current trend of sea-level increase presents future flooding risk to this area. If Semarang’s physical transformation is highly dynamic, so are the challenges that come with it. The city is experiencing urbanization. Population and urban sprawl continue to grow, especially to the south and east part of the city. Regional dynamics also increasingly play a critical role. Therefore, it is necessary for Semarang to continue to adapt.

Semarang must have a preparation in facing these continuous changes and challenges. With the support from the 100 Resilient Cities (100RC) initiated by the Rockefeller Foundation, Semarang started the preparation of a city resilience strategy. The 100RC has a comprehensive view of city resilience that is based on four dimensions, which include (1) Health and Wellbeing, (2) Social and Economic Development, (3) Environment and Infrastructure and (4) Leadership and Strategy. All process is conducted in inclusive manner to ensure ownership of the 100RC by various elements of city stakeholders.

MOVING TOGETHER TOWARDS A RESILIENT SEMARANG

The development of city resilience strategy requires the participation of city stakeholders, including government officials, academics, business sector, youth and communities representatives in managing the shocks and stresses in the city. The collaborative work between city stakeholders identified 53 detailed initiatives in achieving the shared vision of “Resilient Semarang”.

We believe in building our capacity to better strengthen our city resilience. Any efforts on improving our resilience in facing increasing shocks and stresses needs to be supported with excellent capacity. Capacity building for the government, community and institutions to increase empowerment and productivity will become key aspect in many of our initiatives.

The initiatives are under six pillars:
SUSTAINABLE WATER AND ENERGY

The risk of water scarcity in Semarang is increasing due to the expected rise of future water demand, topographical challenges with hilly terrain and drought. PDAM (the city-owned water company) continues to improve water access in the city; however, their coverage is still limited. Another challenge is electricity distribution as blackouts occur frequently in the city.

Related to these challenges, Semarang identified that its water and energy consumption must be conducted sustainably. We believe this can be accomplished through a series of performance improvement actions of our water management system and by promoting innovations in water provision and fostering environmentally-friendly behaviors in the community.

Therefore, the provision of alternative water sources will be explored. These alternative sources include, among others, rainwater harvesting, upstream and watershed area conservation, desalination plant and advocacy to reduce the excessive groundwater use. Coordination with neighboring local authorities for water provision is encouraged as it is a regional issue. Relating to energy, the city must organize energy-saving campaign and green building campaign.

NEW ECONOMIC OPPORTUNITIES

The unemployment rate in the city of Semarang excedds the average rate in Central Java and national level. One of the causes is labor market gap where employment level does not meet the high number of job seekers. In the past, Semarang’s industrial sector was dominant. However, trade and service sector gradually reduced the dominance of industrial activities. Semarang needs to creatively explore additional alternative economic resources to minimize the potential increase of unemployment. The rapid development of SMEs (Small Medium Enterprises) seems to have a potential capacity in becoming a future generator of economy and employment in Semarang. Market research will be conducted in parallel with the provision of SMEs’ trainings.

Additionally, environmentally-friendly business innovations such as urban farming, waste recycle and ecotourism are potential and will be encouraged. Traditionally, the city also be revitalized, not limited only to physical improvements, but also extended to the management and capacity of quality control. Furthermore, research cooperation between the government, private sector, universities and NGOs in identifying new strategic economic sector must be encouraged.

By creating economic climate that allows the emergence of new opportunities, we believe that it will answer the economic and unemployment challenge in Semarang. Furthermore, Semarang will be able to secure the welfare of its citizens.

READINESS FOR DISASTERS AND DISEASES

Semarang is at risk of flooding, landslide, and dengue fever outbreak. The disasters also have a vast element; they are connected to regional issues and spatial planning issues and they involve various stakeholders.

The public must have better knowledge of these risks so they can be better prepared.

Dissemination of information about the risk of disasters and diseases to communities must be conducted due to the increase in private vehicles. Meanwhile, road expansion is very limited. The municipal government continued to improve the city transportation service with the provision of BRT (Bus Rapid Transit). However, the institutional capacity and management of BRT must also be improved. More integrated, better quality and more affordable service will interest people more into switching to public transportation.

TRANSPARENT PUBLIC INFORMATION AND GOVERNANCE

The performance of Semarang development budget is still low, resulting to inefficient public services. Musrenbang (development planning forum), which serves as a participatory planning and budgeting platform, has been implemented, but it still has weaknesses, especially in its too rigid procedures and schedule. The performance of development planning and implementation can still be improved and realized by increasing the active role of participatory monitoring from communities.
Better access to the city’s public information is required to improve the role of participatory monitoring by community members. Various city agencies also need to improve their data coordination and information integration. Not only that it will be beneficial for the community, integrated data will also support Semarang government in formulating effective policies with little or without overlap between government agencies.

Semarang identified that development program information must be made public transparently in order to improve the quality and performance of the program. We are optimistic that we can achieve this by taking several actions under the strategy pillar of transparent public information and governance. These actions will enhance governance performance by improving participatory process and coordination system, and improve the public information system by providing integrated data.

6. COMPETITIVE HUMAN RESOURCES

Low quality of human resources and skill gap among job seekers contribute to the lack of competitiveness in the labor force in Semarang. The proportion of elementary and junior high school graduates is quite significant, while the proportion of graduate and diploma qualification is still low. However, labor market has improved regionally and even internationally with the launch of the ASEAN Economic Community.

Therefore, higher qualifications of labor are required in order to prepare Semarang workforce in facing these dynamic changes. Future Semarang workforces must be equipped early with information regarding the future job market or provision of scholarships and career consultancy support.

Better cooperation between employers, academics and the government in Semarang is expected to reduce the gap in the labor market. Career information center that provides information about various career pathways and support job seekers to find the right employers and vice versa could be established. We identified the need to connect citizen to new skills and knowledge. We believe we can fulfill the need by taking a series of actions which will increase the capacity of Semarang workforce by establishing information career centers and providing training, workshops and information about education.

NEXT STEPS

Semarang must continue and extend the goal in becoming the city with adequate security, effective mobility and high capacity to the inhabitants and stakeholders. This is supported by the city’s participation in the 100RC network in which opportunities are open the city to collaborate with various cities and institutions on international scale, enhance our local knowledge and expertise in tackling urban challenges.

Semarang will become the first city in Indonesia to launch a Resilience Strategy. The launch is not the end but rather the beginning of the city in becoming more resilient. Participatory process during the CRS formulation must be maintained in the implementation phase. Creating a resilient city is a collective work. Future urban challenges are real, and caused by and affected everyone. Ideas and initiatives included in this strategy are expected to inspire the municipal government, citizens, business sectors and every other element in Semarang to acknowledge these challenges and participate in achieving a resilient city.

Let’s move together to build of Resilient Semarang!
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCG</td>
<td>Academic - Business - Community - Government</td>
</tr>
<tr>
<td>ABT</td>
<td>Air Bawah Tanah / Underground Water</td>
</tr>
<tr>
<td>APBD</td>
<td>Anggaran Pendapatan dan Belanja Daerah / City Budget</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
</tr>
<tr>
<td>Bapermasper KB</td>
<td>Badan Pemberdayaan Masyarakat Perempuan dan Keluarga</td>
</tr>
<tr>
<td>BBM</td>
<td>oli-fuel</td>
</tr>
<tr>
<td>BBWS</td>
<td>Balai Besar Wilayah Sungai / River Agency</td>
</tr>
<tr>
<td>BLU-UPTD</td>
<td>Badan Layanan Umum-Unit Pelaksana Teknis Dinas / Public</td>
</tr>
<tr>
<td>BMKG</td>
<td>Badan Meterologi, Klimatologi dan Geofisika / Agency for</td>
</tr>
<tr>
<td>BPBD</td>
<td>Badan Penanggulangan Bencana Daerah / Disaster</td>
</tr>
<tr>
<td>BPJS</td>
<td>Badan Penyelenggara Jaminan Sosial / Social Security Agency</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>DAS</td>
<td>Daerah Ali mari Sungai / Catchment Area</td>
</tr>
<tr>
<td>DHF</td>
<td>Dengue Hemorrhagic Fever</td>
</tr>
<tr>
<td>FEDEP</td>
<td>Forum for Economic Development and Employment Promotion</td>
</tr>
<tr>
<td>FPRB</td>
<td>Forum Pengurangan Risiko Bencana / Disaster risk reduction forum</td>
</tr>
<tr>
<td>Gasurkes</td>
<td>Petugas Surveilans Kesehatan / Health surveillance officer</td>
</tr>
<tr>
<td>HDI</td>
<td>Human Development Index</td>
</tr>
<tr>
<td>Jumantik</td>
<td>Juru Pemantau Jenitik / mosquito larva monitoring officer</td>
</tr>
<tr>
<td>Kedungsepur</td>
<td>The greater Semarang conurbation including surrounding authorities including</td>
</tr>
<tr>
<td>Kelurahan</td>
<td>Neighbourhood area, consists of RWs</td>
</tr>
<tr>
<td>KSB</td>
<td>Disaster preparedness group</td>
</tr>
<tr>
<td>KSB</td>
<td>Masyarakat Ekonomi Asean / Asian economic society</td>
</tr>
<tr>
<td>Organda</td>
<td>Organisasi Angkutan Darat / Land transportation organization</td>
</tr>
<tr>
<td>P3M</td>
<td>Pusat Pengloaan Pengaduan Masyarakat / Central of public report</td>
</tr>
<tr>
<td>PAD</td>
<td>Pendapatan Asli Daerah / City income</td>
</tr>
<tr>
<td>PDAM</td>
<td>Perusahaan Daerah Air Minum / State-owned water agency</td>
</tr>
<tr>
<td>PODR</td>
<td>Produk Domestik Regional Bruto / Domestic Regional income</td>
</tr>
<tr>
<td>PLN</td>
<td>Perusahaan Listrik Negara / State-owned electrical company</td>
</tr>
<tr>
<td>RPJMD</td>
<td>Rencana Pembangunan Jangka Menengah Daerah / Mid-Term Development Planning</td>
</tr>
<tr>
<td>RPJP</td>
<td>Rain Water Harvesting</td>
</tr>
<tr>
<td>RWH</td>
<td>Sumber Daya Manusia / Human resources</td>
</tr>
<tr>
<td>SME</td>
<td>Small Medium Enterprise</td>
</tr>
<tr>
<td>SILPA</td>
<td>Sisa Lebih/Kurang Pembiayaan Anggaran / Budget surplus/deficit</td>
</tr>
<tr>
<td>TPA</td>
<td>Tempat Pembuangan Akhir / Landfill</td>
</tr>
<tr>
<td>SME</td>
<td>Small Medium Enterprises</td>
</tr>
<tr>
<td>WWF</td>
<td>World Wide Fund for Nature</td>
</tr>
</tbody>
</table>
Resilient Semarang
Moving Together Towards Resilient Semarang

Table of Content

MAYOR’S LETTER 6
LETTER FROM 100 RESILIENT CITIES 8
EXECUTIVE SUMMARY 12
WHY RESILIENT CITIES? 24
About This Document 25
Strategy Development Process 30
Strategy Development Governance 32
VISION: RESILIENT SEMARANG 34
SEMARANG RESILIENCE CHALLENGES 42
Security 46
Mobility 57
Capacity 60
RESILIENT CITY STRATEGY 64
Sustainable Water and Energy 71
New Economic Opportunities 85
Preparedness for Disaster and Disease Outbreaks 99
Integrated Mobility 112
Transparent Public Information and Governance 128
Competitive Human Resource 143
REALIZING RESILIENT CITY 154
ACKNOWLEDGMENT 156
APPENDIX : SUMMARY OF SEMARANG RESILIENCE INITIATIVES 158
WHY RESILIENT CITIES?

A resilient city is a city that continues to function in the face of various challenges and then able to recover, grow, and develop better. The people who live and work in a resilient city - particularly the poor and vulnerable - have the capacity to survive, adapt, and grow in spite of various shocks and stresses they must face.

Throughout the years, Semarang citizens have been building resilience in order to tackle challenges. For example, in managing tidal flooding, every year some coastal communities allocate their saving to increase the height of their houses. Tanjung Emas Port, located near these communities, built a higher new road to enable access during flooding, so that the port can still function when faced by shocks. The city authority also implemented innovative programs such as rain water harvesting, flood and dengue early warning system, mangrove reforestation and many more. In the process, we also invited multi-background stakeholders to give input, for example, by forming the Urban Development City Board, with members of experts from various backgrounds. However, with the increasing challenges in the future, there should be more things to be conducted.

Semarang is the first city in Indonesia participating in the 100RC network, along with 65 other selected cities around the world. The combination of challenges and issues faced by Semarang, opportunities to improve and commitment to increase resilience have provided a solid ground for the city’s participation in the 100RC work.

The 100RC organization was created by the Rockefeller Foundation and aims to help cities to be more resilient in the face of physical, social and economic shocks and stresses. Cities around the world are facing similar challenges especially with unprecedented global challenges, such as climate change. Therefore, Semarang participation in 100RC brings opportunities to combine our local context and expertise in facing various resilience challenges with shared lessons from international institutions and other cities in the 100RC network, supporting our efforts in improving Semarang resilience.

Acute shock is a sudden and dangerous event that threatens the city. Example: earthquake, flash flood and disease outbreaks.

Chronic stress is a situation that weakens the daily or periodically functions of a city. Example: tidal flood, water scarcity.
The 100RC started with the development of resilience strategy by applying the comprehensive “City Resilience Framework/CRF” approach. This approach is based on four important dimensions in the city system, which included:

1. The inclusive process emphasizes the need for wider consultation and the nature of ‘mutual cooperation’ to create a sense of belonging, as well as their shared vision in building city resilience. Inclusiveness targets all elements of society, including vulnerable groups, persons with disabilities and it is more gender responsive.

2. Individuals or institutions that reflectively apply their past experience and extensive knowledge have the ability to identify, prioritize and plan for future anticipations or constantly changing trends.

3. The integrated process can unify systems and institutions and enable cooperation to achieve greater goals.

4. The existence of responsive oversight, transparency and control system enables fast actions and precise handling in the event of shocks or pressure.

5. A resilient city is resourceful, has sufficient resources also human resources who are competent to carry out the planned programs, have alternative and sufficient funding.

6. Robust designs, systems and assets are elements that are properly created, organized, and maintained that they are safe from damage in the face of shocks and stresses.

7. Redundancy refers to having capacity alternatives, substitution or diverse resources, providing the city with alternative strategies or other methods in the face of shocks and stresses.

The strategy development process also referred to the principles of resilience qualities, in order to design resilience in city systems, services, and institution:

2. Economy and society.
3. Environment and infrastructure.
4. Leadership and strategy.

The CRF also covers 12 drivers that collectively assessing the city’s strengths and weaknesses, and uncovering opportunities to address vulnerabilities.

The Resilient City Framework

Picture 1

The Resilient City Framework
The resilience strategy document is expected to function as an initial step in achieving resilient Semarang. City resilience strategy will help in creating benefits with minimum investment or even to increase investments in the city. Other than that, city resilience strategy can minimize the costs resulting from shocks and stresses and invite the community to actively participate in city development.

Semarang medium-term development planning cycle is every 5 years and is part of the 25 years long term development plan. The timing of Semarang resilience strategy development is in parallel with the drafting of the 2016-2021 Semarang RPJMD (Medium-Term Development Plan). This makes the completion of city resilience strategy is in great momentum to better support the overall city development plan. The strategy also focuses on the directives of the 2005-2025 Semarang long-term development planning (RPJP), which include:

- Achieve cultured and quality community life
- Achieve a more reliable government to increase public service
- Achieve a dynamic and environmentally insightful metropolitan city
- Strengthen people’s economy that is based on local excellence and build a conducive business climate.

This document can also be used as a proposal and investment tool of which can be proposed to obtain funding commitment unrelated to the government’s budget. Participation in the 100RC enables Semarang to collaborate with international institutions and other cities in the 100RC network. The initiatives included in the city resilience strategy document can also be supported by the central or provincial government, or national or international donor and research institutions.

Community, businesspeople and various stakeholders in Semarang are actors who will be affected by the shocks and stresses in the city. The initiatives included in the document are expected to inspire these actors in realizing actions to face the urban challenges and taking part in building city resilience.

Therefore, the document is expected to be able to support collaboration between various stakeholders in Semarang, Indonesia and the international world.
WHY RESILIENT CITIES?

RESILIENT SEMARANG

STRATEGY DEVELOPMENT PROCESS

The diagram below explains the stages and milestones in the development of city resilience strategy in Semarang.

The diagram below explains the stages and milestones in the development of city resilience strategy in Semarang.
STRATEGY DEVELOPMENT
GOVERNANCE

The city resilience strategy development process was coordinated by the CRO (Chief Resilience Officer) team. The team is supported by six Working Groups related to the analysis process of each priority aspect. In the process, the team found a number of inputs from various city stakeholders during a series of meetings and workshops.

During the development, the team had received guidance from the Resilience Steering Committee. The committee included the City Secretary, acting as the committee advisor; and the head of Semarang’s BAPPEDA (Regional Development Planning Board), acting as the committee chairperson. The team was also supported by other urban decision makers, representatives of the business sector, academics, and community representatives. In terms of developing the substance, the team also consulted with the already established Urban Development Advisory Council whose members were made up of experts representing various fields in Semarang.

The strategy formulation was also supported by Mercy Corps Indonesia as the strategy partner.
VISION: RESILIENT SEMARANG

Semarang is paving its way to work together towards a great city. Through collaborative and inclusive efforts, we will become a much more resilient city with enhanced security, efficient mobility and excellent capacity, and will embrace practicing resilience as a part of our culture.

Security: Establish an urban system in Semarang that meets basic needs, ensures socio-economic security and prepares for disaster emergencies and disease outbreaks.

Mobility: Provide efficient accessibility and connectivity for improving the community’s wellbeing.

Capacity: Build the capacity of all stakeholders, increasing their productivity and capabilities in urban development.

SHORT PROFILE OF SEMARANG

Semarang is the capital of Central Java Province and the fifth largest city in Indonesia. Semarang and 5 other neighboring regions form what is called the Kedungsepur Urban National Strategic Area, placing Semarang in a strategic position.

Semarang has international hubs located at Tanjung Mas Port and Ahmad Yani Airport, which also function as the main economic gate in Central Java.

Semarang is adjacent to 3 districts, i.e. Kendal, Semarang and Demak. Semarang has 16 sub-districts and 177 kelurahan.

Total Area: 373.70 km²
Population Increase (2013): 0.83% / year
Economic contributions to the Gross Regional Domestic Products/ PDRB (2014):
- Agriculture: 7.41%
- Mining and Minerals: 8.37%
- Industry: 12.17%
- Electricity, Gas, and Water: 14.74%
- Building: 10.87%
- Trade, Hotel, & Restaurant: 13.58%
- Transportation & Communication: 12.68%
- Financial and Corporate Service: 13.16%
- Other services: 11.8%

2014 Population Number: 1,584,068 People
2014 Poor Community: 5.04%

2014 Population Number: 1,584,068 People
2014 Poor Community: 5.04%

Semarang
Jakarta
Surabaya
Jawa Island

KENDAL
DISTRICT
SEMARANG
DISTRICT
SALATIGA
GROBOGAN
DISTRICT
DEMAK
Semarang has a varied topography. Although known more as a coastal city, hilly areas can also be found in Semarang. The lowland in the north region along the coast is known as Semarang bawah (lower). The old city’s center and also the center of government and trade are located in this area. Meanwhile, the hilly south region is known as Semarang atas (upper). Waduk Jatibarang (reservoir) is located here. The city development is increasingly moving to the upper region. This trend threatens the upstream area that functions as a conservation area.

In the 6th century, the coastline of Semarang was in Bergota area, not too far from Simpang Lima area (the current city center). The sedimentation is coming from upper Semarang to the coastal area, shifting the coastline further to the Java Sea. Until 2007, the coastline has extended as far as ±6.5 km. The current climate change affects coastal abrasion and reduces ground height on the new dry land as a result from sedimentation. Coastal abrasion causes the coastline to shift inland as far as 2.6 km (Wicaksono in Climate Week, 2015).

Semarang Coastline Shift Map
Source: Research and Development, SANITATION AND LANDSCAPING OFFICE, UNDIP, IPB, 2009

COASTLINE SHIFTING

In the 6th century, the coastline of Semarang was in Bergota area, not too far from Simpang Lima area (the current city center). The sedimentation is coming from upper Semarang to the coastal area, shifting the coastline further to the Java Sea. Until 2007, the coastline has extended as far as ±6.5 km. The current climate change affects coastal abrasion and reduces ground height on the new dry land as a result from sedimentation. Coastal abrasion causes the coastline to shift inland as far as 2.6 km (Wicaksono in Climate Week, 2015).

Semarang Coastline Shift Map
Source: Research and Development, SANITATION AND LANDSCAPING OFFICE, UNDIP, IPB, 2009

Semarang has a varied topography. Although known more as a coastal city, hilly areas can also be found in Semarang. The lowland in the north region along the coast is known as Semarang bawah (lower). The old city’s center and also the center of government and trade are located in this area. Meanwhile, the hilly south region is known as Semarang atas (upper). Waduk Jatibarang (reservoir) is located here. The city development is increasingly moving to the upper region. This trend threatens the upstream area that functions as a conservation area.

In the 6th century, the coastline of Semarang was in Bergota area, not too far from Simpang Lima area (the current city center). The sedimentation is coming from upper Semarang to the coastal area, shifting the coastline further to the Java Sea. Until 2007, the coastline has extended as far as ±6.5 km. The current climate change affects coastal abrasion and reduces ground height on the new dry land as a result from sedimentation. Coastal abrasion causes the coastline to shift inland as far as 2.6 km (Wicaksono in Climate Week, 2015).
DEMOCRATIC, SOCIAL AND CULTURE

Population level: 4.241 jiwa/km²

Population level Semarang is a multicultured city with various ethnicities inhabiting the city. The diverse culture has been evident for a long time, and the community lives harmoniously with each other. This is one of the strengths of Semarang community; social provocations do not really work and social conflicts are rare.

URBAN DEVELOPMENT

Semarang city began to develop in the coastal area. The Dutch also built here before Indonesia independence and now it is become the Old City area. However, lately the trend shifted physically and culturally. There have been urban sprawl in the city and the community now inhabits the suburban area, far from the coast.

People live in various kampung neighbourhoods. Kampung is high density urban settlement neighbourhood where residents build their own houses. Each kampung has strong identity and traditions such as communal work (gotong royong). While large part of Semarang is still kampung, the new development in suburban area shifts toward formal landed housing by developers.
Semarang has a long history, approaching its 469th anniversary in 2016, and it continues to transform. The city with 1.5 million inhabitants is facing an economic transition from industry-based economy to services and trade. Semarang industrial area has moved to the outer part of the city and thus creates changes. The labor force must respond to these changes with a better preparation. Built up in Semarang and their surrounding grow rapidly in sprawling pattern and not supported by the provision of adequate transport services and infrastructure.

Semarang, a coastal city, deals with various physical challenges, such as tidal flooding, erosion, land subsidence and rising sea levels and they threaten the lower Semarang area. Simultaneously, development in the hilly upper Semarang has led to a decrease of tree coverage in the upstream area. This increases vulnerability to landslides, water shortages and floods. Regarding health issues, as a tropical city Semarang is prone to outbreaks of dengue hemorrhagic fever (DHF). These shock and stresses present more challenges for Semarang. Interrelated challenges can lead to more problems and increase the severity of the shocks. Shocks and stresses can upset both the environment and the continuity of business services when business sector is disrupted and residents lost their livelihood. The more affected people are the marginal and poor community.

Related to the resilient status of Semarang and to complement the shock and stress assessment, the 100RC program also helped us to identify public perception of the performance of city resilience. The assessment was conducted by holding workshops with participants from the government, business sector, academics, and communities. The participants were asked to mention and measure resilience-related factors in Semarang. The assessment result showed that people were more concern with certain dimensions, such as infrastructure and basic needs. This result was consistent with the assessment on shocks and stresses in Semarang. Factors related to infrastructure and basic needs were more frequently mentioned and considered important. However, the performance of both things was considered weak, as seen in the following image. In the image, it can be seen that, for example, sanitation assets were reviewed as poor and must be upgraded.
In Semarang, issues related to infrastructure and environment are still viewed as the greatest challenge, followed by health and wellbeing.

Physical shocks and stresses are perceived as the main challenge in the city because they are easy to identify and people can directly relate to them. Intervention was conducted to tackle said shocks and stresses. However, the result of this intervention was not optimal, indicating that there were weaknesses in other aspects. There seemed to be less public attention to leadership, strategy, and social and economic dimension, which is confirmed by the resilience assessment. Furthermore, a more thorough analysis found problems that were related to siloed planning and management between the municipal agencies and provincial government, lack of information dissemination to the public and low education level, which are reflected on the limited capacity of the city.

It shows that the shocks and stresses scan as well as perception assessment easily recognize the perceived problems such as on infrastructure, basic needs and congestion while there are less attention on the capacity issue. Whilst, we believe that capacity serves as important function in improving our resilience. Any efforts on improving our resilience in facing increasing shocks and stresses needs to be supported with excellent capacity. Therefore, this city resilience strategy will put a lot of attention in building capacity. Capacity building for the government, community and institutions to increase empowerment and productivity will become important part of this strategy. This holistic view on seeing the relationship of perceived problems and function is reflected in the following graph.
SECURITY

RELATE SHOCKS AND STRESSES

Semarang has been known to be affected by tidal flood, DHF outbreaks and landslide, and also flash flood that happens more often lately. The city has a big task in providing basic needs, such as water and electricity, for the citizens. Physical shocks added with stresses such as high level of unemployment can increase the impact of the shocks and reduce the community’s ability to survive, especially within poor and vulnerable community.

A resilient city is a place that can provide protection for the inhabitants. As the first step, city inhabitants must be able to survive and adapt to various shocks and stresses. Security is the basis of resilience strengthening in Semarang against the shocks and stresses that have a direct impact to the community. Security also covers issues that are identified by city stakeholders. A successful urban system is a system that can provide protection and security to the community.

CLEAN WATER

The main water sources in Semarang are (1) water spring with contribution up to 11%, (2) underground water which supplies up to 19% and (3) surface water that provides up to 70%. However, the quality of these sources is threatened by domestic and non-domestic waste into the river. Another problem is saltwater intrusion in the north part of the city. The concentrate of chloride (Cl) has been increasing steadily for the past 20 years. Chloride content in clean water must not exceed 250 mg/L; higher than that indicates poor water quality. The underground water in the coastal area of Semarang has a higher level of chloride than the maximum level of chloride found in clean water.

Meanwhile, the need of clean water tends to increase along with the rising number of the population. It is estimated that the need of clean water will continue to increase up to 200% in the next 15 years. The city’s water demand is supplied from water sources that are managed by the state-owned water company (PDAM) and non-PDAM parties. The Semarang PDAM manages their water source in a network of pipelines.

Some sources of surface water are still in their development process and have not been utilized, including Waduk (reservoir) Jatibarang with the capacity of 1,000L/s, Blorong River with the capacity of 200L/s and Pramuka water processing installation (IPA) with the capacity of 200L/s.


IMAGE 2 THE 2013-2033 PROJECTION OF CLEAN WATER DEMAND AND SUPPLY FROM PDAM TIRTA MOEDAL
Meanwhile, non-PDAM parties distribute water via pipeline system and non-pipeline system. Non-pipeline distribution by non-PDAM parties contributes 31% of the total clean water, which comes from dug wells and pumped wells. The proportion of this contribution is still very high.

The 100:0:100 program listed in the 2015-2019 RPJMN targeted 100% clean water service in the city. The quality level of clean water service via a pipeline system by PDAM and non-PDAM in Semarang must be increased to reach the target. One of the challenges in providing clean water to citizens of Semarang is the diverse topographic conditions. For example, Kelurahan Gunung Pati has a steep slope level of 20-40%, which means that the PDAM cannot provide any water service at this location. Besides that, population increase causes the demand of clean water to increase as well. Twenty percent of the total citizens that have not been covered by the PDAM will be encouraged to get water from non-underground water sources.

“For everyday needs, (we) have water from water springs and artesian wells. But during dry season, the water isn’t available, so (we) have to buy water. It costs around Rp 3,500/jerrican...”

Suyati
35 yo
citizen of Kelurahan Rowosari

Source: Semarang PDAM, 2015

Image 6 Clean Water in Semarang in 2015
The number of Semarang citizens increases along with the rise of energy consumption level, mainly electricity and transportation. The supply of electricity is still balanced against the demand from various sectors. Demand for energy is supplied by the steam power plant (PLTU) Tambak Lorok in North Semarang sub-district and there is plan for water power plant Jatibarang. Electricity supply in Semarang is managed under the authority of the central government. The electricity system in Semarang is connected to the Java-Bali national electricity system, supplied by several main power sources such as Paiton and Jepara. The 9 main power relay stations in Semarang meet the 2,000 MW demand, but despite that, power outage happens often. In 2013, there were 1,144 reports of power outage to the state-owned electricity company/PLN (BPS 2014).

Ironically, non-renewable energy resources such as oil, gas and coal are still dominantly used to fulfill energy need in Semarang, despite the fact that these sources will be exhausted sooner with the continuous consumption. Furthermore, both fuel and electricity consumption increase emission level.

Energy consumption in Semarang contributes to the city’s greenhouse gas emissions. It is predicted that the greenhouse gas emissions from the energy sector can increase up to 74.69% in 2020 with the current energy consumption pattern. Energy efficiency and the development of renewable energy sources are needed to ensure the continuation of energy service for the citizens of Semarang.

The challenge that must be faced by the city in terms of employment is the imbalance and mismatch between the labor demand and the available employment. The percentage of unemployment in Semarang is 7.76%, higher compared to the average percentage in Central Java Province (5.86%). Since Semarang is the province’s capital and one of the metropolitan cities in Java, workers and job seekers also come from outside of the city.
In the context of fairness and equality, the number of labor is currently dominated by men with a ratio of 60:40, although the gender proportion of job seekers is 50:50. Equality between male and female laborer and also disabled people must be taken into consideration because everyone is entitled to equal rights to gain income.

Other than that, health and social security for the people must be extended, not only in the formal sector but also to the informal sector. The formal sector’s participation in insurance scheme is good enough, however, the informal sector that includes traders, fishermen or freelance laborers does not have enough participation. The low participation in the informal sector is due to the community’s lack of awareness of insurance scheme, although informal sector and micro-small enterprise and small and medium enterprise have the potential to be developed.

Another sector which holds an important role is the market, both modern and traditional. Modern and traditional markets affect the regional income. The income tax from businesses and traders can increase the original regional income (PAD). It is then necessary to maintain the presence of the market. Other than functioning economically, traditional markets specifically have historical values that should be maintained, such as in Pasar Johar.

DISASTERS

Semarang is known for different types of disaster especially with its frequent flood. There are two types of flood that occur in Semarang, i.e. the tidal flood which is caused by, among others, the increase of seawater level and land subsidence (causing seawater to flood the coastal area), and flash flood (a sudden flood due to high precipitation that increases the river’s water discharge). There are 21 rivers located in Semarang, creating a high risk of flash flood. Flash flood is also caused by poor drainage infrastructure, environmental degradation in the upstream area, sedimentation in the downstream area and high precipitation.

Communal waste management can also contribute to the likelihood of a flood disaster. Flash flood and tidal flood are related to the community’s poor attitude towards the environment, such as littering. Furthermore, the municipal government’s waste management service only managed to pick up 34% of the total waste in 2013, and left behind the remaining 66%. This shows the poor management of the city waste, considering 50% of the total population was not covered by the service especially in the slum kampung where the low income and vulnerable people live.

Flood disaster is a regional issue, since it cannot be solved in only one particular area. It needs a thorough management and requires cooperation between different administrative regions, for example, the management of flash flood at Kali Garang watershed; the upstream area is located in Semarang district. The development trend towards upper Semarang area, which initially was established as a conservation area, creates a more complex situation.

Meanwhile, tidal flood is increasingly worse due to land subsidence and climate change that causes seawater level to increase, first happened in 1957. Vital assets such as airport, station and port are located in areas prone to tidal inundation.
It reached 13 cm annually in 2015 and this means that tidal flood would affect around 300,000 people who inhabit the coastal area of Semarang, such as North Semarang, East Semarang sub-district and Gayamsari sub-district. Unfortunately, the residents in coastal community who mainly work as factory workers and fishermen could not do much. Some of them adapted their houses to be higher than ground surface, while some simply see the flood as a part of normal life considering it happens so often. Even worse is, their kampung is largely slum with poor condition.

Besides, landslide incidents also occur in Semarang, especially in the upper Semarang. Landslide is influenced by the fluctuation of rain precipitation, the type of soil as well as the decrease of vegetation and increasing development in the risk prone areas, a challenge with the current development trend towards hilly upper Semarang.

The government of Indonesia (GoI) encourages efforts to reduce the risk of disasters by establishing disaster-resilient kelurahan (rural village). On that note, Semarang established a Disaster-prepared Group (KSB) to reduce risks of disasters on kelurahan level. By the end of 2014, Semarang established 22 KSBs in locations that were prone to flood, landslide and fire. KSB must be encouraged continuously to be established in every kelurahan that is prone to disasters. Furthermore, training and knowledge sharing on the risk of disasters must be spread and applied in the community.

“A phenomenon to spontaneously help each other, such as establishing a disaster command center, getting things to higher ground and collecting donation for flood victims, naturally happens in villages as a way to response (to disasters).”

(Rendy A. Diningrat, winner of 100RC blog writing competition, 2015)
DISEASE OUTBREAKS
Tropical climate and the steady increase of temperature due to climate change have aided the flourishing of different types of virus in Semarang. High humidity level also encourages mosquitoes to breed, which is one reason why Semarang has a high number of dengue hemorrhagic fever (DHF) case, becoming the 3rd city with the highest number of DHF case in 2015 in Indonesia.

DHF is caused by dengue virus and the virus is transmitted by a mosquito, Aedes aegypti. Aedes aegypti can breed in abandoned houses, empty land, midden, poultry enclosure, horticultural garden, mosques, stagnate gutters, water parks, water container behind water dispenser and refrigerator unit that often is overlooked by people.

Human population density is another factor of DHF occurrence, where dense areas would tend to have more DHF case. People younger than 14 year olds are more prone to DHF. Special care and interventions are needed to reduce the risk of DHF in this vulnerable age group, for example by doing interventions at their locations and during their activities. DHF prevention efforts at school should become one of the main concerns, considering children age group spend a lot of time at school especially in the morning (Semarang HCVA, 2015).

MOBILITY
If Semarang could not provide good access and connectivity, security element would not be fully achieved. A city with good mobility would support its citizens to conduct various activities easily and affordably. Good mobility also prevents geographical isolation that could weaken social relationship between communities and other groups.

Challenges related to mobility have been put under the spotlight considering the increasing risk of congestion in numerous parts of Semarang. Transportation service is still not optimal, both its quantity and quality. The condition is complicated further by the sprawling regional development, preventing infrastructures to be provided efficiently.

PUBLIC TRANSPORTATION
Semarang is the provincial capital located strategically, supported by train line, seaport and airport. Goods and human transport here is very active. The annual increase of population in Semarang also increases the demand of movement. However, the quality and quantity of public transportation in the city is inadequate, causing people to choose their private vehicles over public transport.

The growth of private vehicle ownership for the past five years has shown a significant increase, especially for motorbikes. From 2013 to 2014, private vehicle ownership increased as much as 16%, while public transport only grew 0.09%. The management of public transport in Semarang is not yet integrated and effective, although the city has established the Bus Rapid Transit (BRT).

The quantity of the BRT unit is insufficient, causing longer waiting period on every bus stop, especially at bus corridors with high number of passengers. The separated public transport system also causes high cost of transportation, mainly when the consumers have to change to different transportation modes and paying each separately. BRT units and bus stops are in poor condition with a lot of damages.
The bus stop was designed to have a higher platform than the pavement; however, this separates BRT from other modes of public transportation. Private vehicles, especially motorbikes, can be purchased quite easily and cheaply, which attracts more people to get their own. This, in return, increases the road load significantly. One of the concerns is the low supervision of the use of private vehicles on the road. Underage students are often found driving their private vehicles and they usually obtained their driving license illegally. The driving exam that should have been obligatory to ensure the mastering of proper driving skill was not taken by these students. This increases the number of road accidents.

Private vehicles are a more attractive option than public transport. However, this creates several issues. On one hand, private vehicles enable the community to reach their destination, but on the other hand, they add to the road load. Highest mobility can be found on main roads, even though the capacity of these roads is not high, which resulted in congestions. Transportation is also a high emission source. With high frequency of congestion, the produced emission will increase.

Another challenge regarding public transportation is its limited coverage. Public transportation has not been able to cover every area in Semarang. Transportation in Semarang can be categorized into two types, formal and informal. Formal transportation modes include minibus (angkot), bus and BRT, while informal transportation modes include motor taxi (ojek) and rickshaw. There are more than 2,000 public minibuses and 90 formal routes in Semarang and despite that some areas are still not covered. Many of these areas are settlement or generation areas, so the inhabitants choose to use informal transportation modes that actually do not adhere to government-implemented conditions of public transportation.

The spreading of the city in urban sprawl with people moving to work and study present a challenge in providing transport infrastructure. The cost of infrastructure and service for transportation will increase and coordination with the surrounding areas will be needed to manage this challenge.

Santi, 59 yo
Citizen of Kelurahan Rowosari

"...where I live there isn’t any public transport, so we rely on our motorbike. If we didn’t have the motorbike it would be hard to go to places. The kids take the minibus operated by someone in the neighborhood..."
**CAPACITY**

**RELATED SHOCKS AND STRESSES**

Capacity is the keyword in understanding city resilient in the context of 100RC and the basis of city resilience strengthening. However, capacity is not yet considered crucial in Semarang. If a city has a great potential in the economy, location and funding, but unable to achieve a better level, it means the system does not have enough capacity.

Despite its great potential, Semarang cannot progress to the next level because the city is not able to mobilize resources from various levels. Not only the government that is lacking this ability, but other stakeholders do not possess it as well, which include academics, communities, business sector and the society. Furthermore, the current governance system and leadership cannot encourage the participation of stakeholders in contributing to the city’s development.

Achieving good governance and responsible government requires implementation of the principles of accountability, transparency and law supremacy by involving members of community in the drafting process of every public policy. In the process, the community must be accommodated. This effort, although still not optimal, had been implemented in the development planning of Semarang.

**COORDINATION FOR DEVELOPMENT IMPLEMENTATION**

In carrying out the planned programs, the availability of resources and the ability in allocating resources are the foundation for achieving optimal development. The ability to allocate available resources is based on the ability to lead, shown in the way the city government utilizes the knowledge or deep understanding of various potentials and problems in order to find various alternatives of solutions.

There are four issues in building the capacity of resources, i.e. institution, knowledge, leadership and accountability. Based on the workshop held by the 100RC team on capacity assessment of Semarang, it was gathered that the city’s ability was considered still inadequate and required more improvement, especially in the aspects of strategic environment, regional finance, human resource and knowledge development and inclusivity.

Strategic environmental analysis must be considered in drafting policies and budgets. This has been applied in the city’s planning and policy documents. However, they did not support an analysis related to the ability of Semarang in facing and creating a strategic environment in managing various changes. This indicated that a dialogue mechanism to discuss strategic environment had not been seen as a priority.

Semarang financial management is based on the regional budget (APBD). APBD management is targeted to create an illustration of the regional financial capacity and ability in funding regional development. In general, funding source in regional finance is derived from 2 sources, i.e. regional income (tax, levy and grant), and other fund from the cooperation between the government and other parties (joint venture and concession).

The issue in this context is the high amount of undisbursed funds (SILPA) in Semarang. In 2014, SILPA reached 33%, far above the allowed percentage (6%). Infrastructure programs have low budget absorption, some only reached 50%. This could mean that the city’s preparedness in managing shocks and stresses might be reduced. As the value of SILPA increases annually, it shows that the fund from PAD and other regional income sources has not been absorbed optimally. Another problem is the absence of a follow-up of the SKPD program post-evaluation.

One of the components to achieve inclusive Semarang is the availability of a mechanism to ensure community’s participation. Participatory development planning is represented by Musrenbang which is a regional development planning forum. The municipal government holds Musrenbang annually. The forum is conducted in phases on an neighborhood, kelurahan, sub-district and municipal level in order to collect people’s opinions related to city development. Unfortunately, the implementation design of Murenbang is heavily influenced by a top-down approach, signified by the unified planning approaches in the national and regional level. The forum is often too rigid and formal, especially concerning the schedule. It is too short to enable a more intensive participation and communication between the government and community.
PUBLIC INFORMATION

Semarang, a metropolis in Central Java Province, has a faster information cycle compared to the surrounding cities or districts. Therefore, periodic information update and collection of newest information are necessary to improve future policies and regulations in Semarang. It is necessary to highlight the importance of information transparency. The accountability of the government can be increased through the mechanism and implementation of transparency principle.

The city facilitates information sharing via electronic media that can be accessed easily by the community. However, the problem is that not all communities can access electronic media, which means that information dispersion via print media or government socialization is still needed.

The community expects a clearer system for permit processing and that it can be applied easily. The permit application process currently takes a long time. However, easiness is not the only factor observed. Adequate and transparent information will enable people to apply for permit correctly and help creating a better city development.

People’s complaints must be collected and followed up in a two-way process between the government and community. It is expected that this will improve public service performance. Too many separated outlets for complaint have caused some complaints gone unnoticed. Another problem is that the facility for people to lodge a complaint is still not properly introduced.

HUMAN RESOURCES

The level of education qualification is not balanced in Semarang. The gap between primary school and junior high school graduates is quite significant. It shows that the education level of some citizens of Semarang is still relatively low. With low education level, they would face problems in getting employment. To improve their welfare, they must improve their education quality. Most of the available employment requires workers with a minimum high school degree.

This situation contributes to the low productivity of Semarang citizens.

Meanwhile, around 27% of the total apparatus within the Semarang government office has only high-school degree, while 48% has a bachelor’s degree, 5% has a master’s degree and only 1 person has a doctorate. This is evidently a challenge that must be dealt by building their capacity to improve the organizational ability and regulation system in mobilizing resources to better develop the city in the future.

PUBLIC INFORMATION

Semarang government must improve their communication with the community because people would also like to be involved in the development of Semarang (@richamiskiyya, a participant of the 100RC Twitter competition, 2015).

Image 13: The number of workers based of the quality of education in 2010-2013 (Number of People)
Each initiative mainly tackles direct challenges, but it is strongly based on capacity building of the affected stakeholders in order to build and maintain their resilience better. People and communities respond, adapt and learn when they face shocks and stresses that are beyond technical solutions and infrastructure. A holistic view on Semarang resilience challenges includes 18 strategies and 53 initiatives that fall under the six pillar strategy.

The six pillars are, as follows:

1. **Sustainable Water and Energy**
   Semarang will meet and use water and energy in a sustainable manner to address challenges such as the risk of water scarcity, decreasing quality of water and undistributed electricity.

2. **New Economic Opportunities**
   Semarang will create an economic climate that allows the emergence of new opportunities in order to decrease the number of unemployment and prepare for a new economic status as a center of trade and services.

3. **Preparedness for Disasters and Disease Outbreaks**
   Semarang will improve information sharing, innovation and collaboration for improving the preparedness for disasters and disease outbreaks.

4. **Integrated Mobility**
   Semarang will improve the connectivity and institutional capacity of transportation service to address mobility challenges such as traffic congestion, poor quality of public transportation and poor accessibility.

5. **Transparent Public Information and Governance**
   Semarang will increase information transparency and governance to improve the quality of the program and its performance considering the performance of development budget is still low, resulting in inefficient public services.

6. **Competitive Human Resources**
   Semarang will provide access to new skills and knowledge for the citizens, preparing the ASEAN Economic Community launch and also capacity building of Semarang labor force, considering their current low qualification.
THE INTERRELATIONSHIP BETWEEN STRATEGIES AND PILLARS

Our pillars and strategies are interrelated to ensure that the strategies and initiatives provide integrated solutions. “Transparent Public Information and Governance” and “Competitive Human Resources” are strongly correlated to other pillar strategies, showing our focus on building capacity towards better city resilience.

One pillar has elements that are related to other strategies under a different pillar. For example, our strategy on developing environmental and socially-friendly businesses under “New Economic Opportunities” is closely related to our innovation effort in water provision under “Sustainable Water and Energy” and preparing workforce for the job market under “Competitive Human Resources”. This interrelationship also presents in other pillars.

This image below shows the interrelationship between the strategies and pillars, describing the integrated and holistic view in building resilience. The straight line showing a stronger relationship between pillars.
<table>
<thead>
<tr>
<th>Pillars</th>
<th>Strategies</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Water and Energy</td>
<td>New Economic Opportunities</td>
<td>11 Initiatives</td>
</tr>
<tr>
<td>1. Enhancing the performance of basic water management</td>
<td>1. Promoting entrepreneurship to increase the competitiveness of trade and services</td>
<td>8 Initiatives</td>
</tr>
<tr>
<td>3. Promoting environmentally friendly behaviors</td>
<td>3. Improving coordination in disaster risk reduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preparedness for Disaster and Disease Outbreaks</td>
<td>7 Initiatives</td>
</tr>
<tr>
<td>1. Developing technology for disaster and disease management</td>
<td>1. Encouraging a change in behavior from using private vehicles to public transport</td>
<td>13 Initiatives</td>
</tr>
<tr>
<td>2. Enhancing the capacity of stakeholders in disaster and disease management</td>
<td>2. Improving coordination and institutional management of public transport</td>
<td>9 Initiatives</td>
</tr>
<tr>
<td>3. Improving coordination in disaster risk reduction</td>
<td>3. Integrating transportation planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integrated Mobility</td>
<td></td>
</tr>
<tr>
<td>1. Optimizing Musrenbang (development planning forum) in the planning process</td>
<td>1. Preparing the workforce for the current job market</td>
<td></td>
</tr>
<tr>
<td>2. Improving the integration of planning and city budgeting</td>
<td>2. Promoting the value of pursuing higher education qualifications</td>
<td></td>
</tr>
<tr>
<td>3. Optimizing the government’s coordination of data integration and public information</td>
<td>3. Improving non-formal education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transparent Public Information and Governance</td>
<td></td>
</tr>
<tr>
<td>1. Optimizing Musrenbang (development planning forum) in the planning process</td>
<td>1. Preparing the workforce for the current job market</td>
<td></td>
</tr>
<tr>
<td>2. Improving the integration of planning and city budgeting</td>
<td>2. Promoting the value of pursuing higher education qualifications</td>
<td></td>
</tr>
<tr>
<td>3. Optimizing the government’s coordination of data integration and public information</td>
<td>3. Improving non-formal education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Competitive Human Resources</td>
<td>5 Initiatives</td>
</tr>
<tr>
<td>1. Preparing the workforce for the current job market</td>
<td>2. Promoting the value of pursuing higher education qualifications</td>
<td></td>
</tr>
<tr>
<td>3. Improving non-formal education</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1st Pillar Strategy

Semarang will provide and use water and energy sustainably

LIST OF STRATEGIES AND INITIATIVES

How to read the strategy

Key initiative: This is the priority initiative(s) from each strategy. The key initiative is used to manage core issues of respective challenges, using a proactive manner, and not reactive, in dealing with shock and stresses.

Status: It shows whether the initiative is ongoing (already planned), advancing (improving current existing initiative) or inventing (new).

Target location: Location of the initiative implementation.

Target group: People who are affected directly by the initiative.

Proposed initiative owner: The institution that is responsible to lead and implement the initiative.

Proposed initiative supporter: Institutions that will support the initiative owner in the implementation phase.

Time period: Timeframe for the implementation of initiatives. It is divided into 3 terms: short (1 months to 1 year), medium (1 to 2 years), long (more than 2 years).

Resilience value: Multiple resilience benefits that can be gained from initiative implementation.
Strategies and initiatives on this pillar address the challenges in infrastructure and environmental dimension in Semarang.

The strategies focus on better community engagement, answering the abovementioned challenges, and also the challenges in strategy and leadership dimension.

**What can you do?**

- Report it if you see environmental violations
- Use water wisely
- Reduce the use of lights in daytime

**Initiatives:**

- **A1** | Improve Monitoring and Imposing Better Sanction for River Pollution
- **A2** | Watershed, Water Reservoir and Basic Water Source Conservation
- **A3** | Advocacy and Partnership with Provincial Government and Surrounding Regions
A1 | Improve Monitoring and Imposing Better Sanction for River Pollution

Sixty nine percent of the total amount of clean water in Semarang comes from the rivers. However, the quality of these rivers is decreasing due to pollution. Therefore, the initiative must be conducted immediately in order to maintain the quality of clean water for the community.

**Action:** Improving a sanction mechanism for river polluters and developing communal waste treatment that is aligned with the Regional Regulation No. 6/2012 on waste management and the Regional Regulation No. 13/2006 on environment control. Monitoring system must also be improved. The watershed area (DAS) from upstream to downstream potentially can become a major source of clean water. Coordination with neighbouring areas is also necessary.

**Target Location:** Twenty one rivers in Semarang, focusing on the rivers that have been utilized by the PDAM including Kreo, Garang and Kripik River.

**Time period:** Short term

**Resilience value:** River and environment that are conserved properly can improve the quality of water source as well as public health. Conservation will improve the quality of environment and livability, especially for the people who live near rivers.

**Initiative owner**
Semarang Environmental Office and Semarang Department of Water, Energy and Mineral Resources.

**Initiative supporter**
urban and environment communities, the police, district office, sub-district office, Central Java Water, Energy and Mineral Resources Office, Basin Pemali Juwana regional office, Semarang District, Kendal District, community, community groups

A2 | Watershed, Water Reservoir and Basic Water Source Conservation

challenges which Semarang must manage require comprehensive solutions. The upstream area provides water and requires special attention. Problems on the upstream area could affect downstream, where the city is functioning and activities mainly happen. Therefore, solutions to environmental problems should consider the problem source and does not only focus on the affected areas. The initiative also aims to ensure the quality of clean water sources. Some conservation efforts have been done in Semarang such as greening the river bank of West Flood Canal.

**Action:** Upstream area reforestation, involving local community and choosing species with economic value, promoting biopore method, controlling water loss in the supply system

**Resilience value:** Upstream area conservation can improve the rehabilitation of ground water. Besides environment quality improvement and the fulfilment of basic needs, the innovation will be able to improve community’s welfare by planting species with economic value.

**Target Location:** Upstream area of the watershed in Semarang

**Initiative owner**
Semarang Environmental Office and Agricultural Department

**Initiative supporters**
Semarang Water, Energy and Mineral Resources Office, environmental communities, Central Java provincial government, Basin Pemali Juwana regional office, surrounding regencies, community, community groups, private sector
A3 | Advocacy and Partnership with Provincial Government and Surrounding Regions

The municipal, provincial, national government must control and coordinate the excessive use of water sources (dams, rivers, ponds, ground water) by industry, trade and services. The initiative aims to secure adequate clean water sources.

**Action:** Develop an advocacy campaign to limit ground water consumption and maintaining the balance of ground water

**Location target:** Areas that are illegal for groundwater extraction, sources of surface water in Semarang

**Initiative owner:** Semarang Water, Energy and Mineral Resources Office

Climate change increases negative impacts of droughts, catastrophic events and the spread of diseases. Prolonged drought pushes the public and government to create an innovative alternative clean water supply, such as Rain Water Harvesting (RWH) and the development of gray water recycling process. Therefore, the strategy’s aim is ensuring the continuous provision of good quality clean water during the rainy and dry season.

**Initiatives:**

- **B1** | Extend the Utilization of Rain Water
- **B2** | Optimize Surface Water Utilization
- **B3** | Promote Grey Water Recycle Technology
- **B4** | Explore the Possibility of Sea Water Desalination
**B1 | Extend the Utilization of Rain Water**

Rain Water Harvesting/ RWH is collecting and storing rain water for later use. The initiative has been introduced in Semarang by some institutions for various purposes. Semarang Environmental Office initiated the installation of RWH at public and educational facilities, located at Kelurahan Tandang and Kelurahan Wonsari. The Semarang Water, Energy and Mineral Resources Office used this method to reduce the amount of runoff and manage floods. The Semarang Agricultural Office applied the method to irrigate agricultural land. The RWH has the potential to become an alternative water source in the city, especially water scarce areas.

**Action:** Promoting the concept of RWH and providing support for the initial construction which may include offering incentive and guidance for households that will be installing the RWH. The services will be extended, especially to meet household needs, in line with the target of the national and municipal government’s programs to provide clean water to every member of the community.

**Resilience value:** This initiative does not only support the provision of basic water need but also minimize the impacts of disasters. The main benefit of RWH is to provide alternative water source. It can also reduce the use of groundwater that contributes to land subsidence in Semarang and reduce runoff.

**Location target:** Public facilities, educational facilities, household, offices and commercials buildings

Time period: Short term.

**Initiative owner**
Semarang Environmental Office, Semarang Water, Energy and Mineral Resources Office, Semarang City Planning and Housing

**Initiative supporter**
Integrated Licensing Service Agency, business sector, sub-district office, kelurahan office

---

**B2 | Optimize Surface Water Utilization**

Excessive groundwater utilization can cause land subsidence and seawater intrusion, which can be seen from the high concentration of chloride in some areas in Semarang. The utilization of surface water from reservoirs can replace ground water. This method is expected to cover the majority of domestic and non-domestic needs. Currently, Semarang utilizes several sources of surface water, such as Jatibarang Dam.

**Resilience Value:** This initiative also aims to decrease runoff, land subsidence and seawater intrusion. So, it will become an alternative way to ensure the provision of basic needs for Semarang citizens and minimize the disaster impacts.

**Target Location:** Kelurahan without a pipeline service

**Action:** Building new water storage such as ponds/retention basin to help retain the surface water. This initiative is in line with the visions and missions of the current mayor of Semarang to build new ponds as a source of clean water.

Time period: Medium term

**Initiative owner**
PDAM (state-owned water company) Tirta Moedal

**Initiative supporter**
B3 | Promote Grey Water Recycle Technology

Grey water can be an alternative water source, especially for plantations. Grey water recycle technology requires simple methods and low budget. Simple filtering process can process grey water for non-human consumption use. Additionally, by reusing treated wastewater, environmental pollution and water use can be reduced.

**Action:** Treating and reusing grey water for non-human consumption purposes, such as irrigation; advocacy (by the government) on the standards and conditions of grey water recycle technology development; preparing installation guides of the grey water recycle system.

**Target Location:** Households, plantations in Semarang

**Initiative owner**
- Semarang Environmental Office, Semarang Water, Energy and Mineral Resources Office, Semarang PDAM (state-owned water agency), Semarang City Planning and Housing Office, private water companies, housing developers, industrial estates/companies, commercial companies, community groups

B4 | Explore the Possibility of Sea Water Desalination

As a coastal city, Semarang has a great potential for developing desalination plant to meet domestic and non-domestic need of clean water. This initiative is in line with program planned in Long Term Plan of Semarang 2005-2025 and clean water system masterplan of Semarang. However, there are no cities in Indonesia that has developed this technology due to high cost of installment and production. Also, the implementation has possibility for resulting in detrimental environmental impact.

**Action:** Exploring the possibility of sea water desalination, assessing the feasibility and socio-environmental impacts to be taken as further input to the Semarang long-term development plan.

**Initiative owner**
- Semarang Water, Energy and Mineral Resources Office, Semarang PDAM (state-owned water agency), private water companies

Daily life is very much connected to energy and the utilization of electricity and fossil fuel. Considering that fossil fuel is not renewable, initiatives must be planned to prevent excessive consumption of fossil fuel. While the provision of fuel and electricity is under the national government’s authority, energy issues must be addressed at municipal level. The city should encourage energy-saving behaviors and the development of alternative energy to preserve the environment.

Other than identifying alternative water resources (explained in the previous section), it is also important to consume water wisely. Water conservation needs to be encouraged, minimizing water exploitation.

There are a lot of ways to conserve energy, such as turning lights off when not in use, using shower (instead of a bath) and minimizing the use of private vehicles. Such simple actions, when conducted collectively, can save water and energy.
C1 | Campaign for Public Awareness to Save Energy and Water

The WWF named Semarang energy-efficient city in 2014 for the efforts to reduce the effects of greenhouse gas emission and energy consumption. The high emission of greenhouse gases contributes to climate change. The citizens must adopt energy-saving behavior, reducing GHG emission. Similarly, people must be able to conserve water.

Saving energy and water can be performed by individual, companies and government. Some youth communities initiated a power-saving movement, such as the “turn power off for 1 hour” campaign. In addition to that, the government and business communities need to start the implementation of green building. Green building is an environmentally friendly structure with an efficient use of energy, water, and materials.

Action: Socializing energy- and water-saving behavior. Communities, government, business communities should have an awareness of and be willing to participate in conserving electricity, fuel and water; the municipal government and the business sector should start the implementation of green building.

Resilience value: Green building initiative is trying not only to reduce greenhouse gas emissions, but also the cost of building construction and maintenance. Furthermore, the initiative will be able to promote a cohesive and engaged community to reach a shared goal of a better environment.

Target location: Semarang citizens, offices and commercial buildings

C2 | Scale up of Waste to Energy Use

Solid waste has the potential to become an alternative energy source. There are two concepts in this idea: converting landfill waste into energy and organic waste utilization in biogas and bio digester production. The landfill waste conversion concept was initiated by the Sanitation and Landscaping Office and the organic waste utilization concept was initiated by the Environmental Office. The biogas pilot project was located close to the Jatibarang landfill.

This initiative might reduce electricity and other fuels consumption. In addition, it can also reduce the amount of urban waste. This initiative has the potential to be replicated on a household and neighborhood scale, such as for the kitchen’s energy source.

Action: Developing biogas and bio digester production; preparing procedures for installment; installing the biogas and bio digester in household.

Resilience value: The initiative aims not only to reduce the amount of waste, but also help meeting basic energy needs. Furthermore, in the process, this initiative will be able to promote a cohesive and engaged community by inviting members of the community to participate in waste recycling program.

Target location: Areas around the Jatibarang landfill, neighborhood-based communities
Semarang will create an economic climate that allows new opportunities to emerge.
Semarang used to have a strong industrial presence; however, its economy now shifts to the trade and service sector. In relation to that, the city must be able to see new economic opportunities. Semarang has a lot of potentials for local business and creative economy, such as batik production, special local food (Semarang spring rolls/lumpia) and milkfish-based culinary.

In order to create an advantageous business climate, it needs to be supported by infrastructure that facilitates the flow of production distribution, skill trainings to build the communities’ capacity of local entrepreneurship and the expansion coverage of social security.

Also, modern and traditional markets have an important role in commodity distribution, including products of SME’s products. Modern markets are more likely to survive due to better investment and managerial structure, stronger than traditional markets. Therefore, the city resilience strategy focuses on the traditional market improvement where many traders mostly come from low income background.

Strategies and initiatives under this pillar aim to boost prosperity and improve livelihood by increasing coordination and community involvement, taking into account the strategy and leadership dimension.

What can you do?

- Visit traditional markets
- Promote Semarang products and tourism attractions
- Sort out your trash collectively in your neighbourhood

Initiatives:

A1 | Enhance the Capacity of SME and Creative Economy
A2 | Development of Information Center for Products and Trade
A3 | Promote E-Commerce and E-Business
A4 | Expand Social Security Coverage to workers in SMEs
A5 | Provide Capacity Development for the Informal Sector
A6 | Rebrand Traditional Markets

Semarang used to have a strong industrial presence; however, its economy now shifts to the trade and service sector. In relation to that, the city must be able to see new economic opportunities. Semarang has a lot of potentials for local business and creative economy, such as batik production, special local food (Semarang spring rolls/lumpia) and milkfish-based culinary.
A1 | Enhance the Capacity of SME and Creative Economy

The potential of SME sector and creative economy should be promoted, especially for business that focuses on the specialties in Semarang. This is consistent with the vision of Semarang as a city of trade and services. SME products include milkfish products, batik handicraft, traditional food such as wingko and lumpia/spring rolls, traditional herbal medicines and other new innovative products.

Local products should be more promoted in anticipating the ASEAN Economic Community. Citizens should not just be consumers, but active marketers. Improving packaging and marketing quality can be encouraged to increase the attractiveness and competitiveness of their products.

**Target group:** SMEs and the actors of creative economy

**Action:** Doing a census of SMEs and creative economy sector; conducting a study of market needs; conduct training of packaging, marketing and managerial skill

**Resilience value:** This initiative will encourage the development of creative environment that can improve the local economy by inviting small businesses and low-middle income citizens to participate. This will improve the continuity of their business in Semarang, as well as increase livelihoods and employment. Moreover, it will enhance local identity and culture by encouraging unique SMEs in Semarang.

**Time period:** Medium term

A2 | Development of Information Center for Products and Trade

Trade and service sector in Semarang grows rapidly. In 2013, it contributed 28.72% to the GDP, higher than other sectors. However, the products of trade and services from the local businesses are not widely known.

**Target group:** SMEs and creative economy sector

**Action:** Developing an information center for products and trade which include a showroom/exhibition space and if possible to cooperate with the Semarang Public Information Center.

A3 | Promote E-Commerce and E-Business

Following the growing trade and service sector in Semarang, the business marketing approach is experiencing a transition as well. The advancement of digital and internet technology has also transformed the way of doing business. Internet-based infrastructure is used more and can be more effective as a campaigning tool. The emergence of e-commerce and e-business means the local businesses in Semarang must be able to adapt.

**Target group:** business sector

**Action:** Training on digital marketing and internet-based business (can work together with the Semarang Public Information Center); developing an internet-based information center for products and trade.
A4 | Expand Social Security Coverage to workers in SMEs

Social security and rights for employees, such as health insurance, maternity leave and retirement, have been generally well provided in the government and formal business sector. The government health care and social security scheme, locally known as BPJS, has encouraged formal companies to provide social security for their employees. However, the coverage of this type of social security has not reached the SME and informal sector. This is unfortunate since workers in SMEs and informal sector are more vulnerable to the dynamic economic market. Social security is the right of every worker, but it can become a burden for the employers, especially small business owners, while social security will provide safety for the workers and in result they can be more motivated and productive.

Action:
Expanding social security coverage by socializing the importance of social security for employees and preparing an incentive mechanism for SMEs who provide social security for their workers, providing equal rights for all workers in Semarang.

Initiative owner:
Manpower and Transmigration Office

Target group:
SME owners

A5 | Provide Capacity Development for the Informal Sector

The attractiveness of street vendors as part of the informal sector is a pull factor of why labor force comes to Semarang and finds work in this sector. However, as they are largely informal, many street vendors are not registered and doing business in prohibited areas.

Through this initiative, the informal sector management can be improved without the need to eliminate street vendors. It is necessary to improve the welfare of informal workers by ensuring the stability of the sector.

In the next stage, the informal sector can be directed to move to the formal sector. Informal sector has enough potential to be encouraged and to sustain urban economic development. Business tax can increase local revenue.

Action:
Doing a census of the informal sector; rearranging the physical side of informal sector; giving training to support the productivity and improve the quality of service

Initiative owner:
Semarang Cooperative and SMEs Office, Semarang Office of Market, private companies, financial institutions

Target group:
Informal economy sector
Local market conditions can reflect the level of economic activities in Semarang. The Semarang Office of Market is revitalizing traditional markets. However, the focus is placed mainly on physical improvements, for example in Bulu and Banyumanik market. Some of these traditional markets have historic buildings and careful planning should be made when they are going to be renovated, i.e. in Johar traditional market.

Ecologically, traditional markets contribute significant waste to the city. Waste management must be addressed, both at the temporary local landfill and during the distribution to the city landfill.

Besides the physical improvement, non-physical improvement is also critical. Traditional markets are encouraged to increase their coverage to regional and national scale but this has not been done optimally. Through this initiative, the role of traditional markets will be improved. Product quality must be maintained. High quality goods can be expected to meet consumer’s need in Semarang and its surrounding areas.

Semarang citizens must be encouraged to develop local businesses that have high value and fit the characteristics of the city. Local businesses may be advised to start environmentally friendly and socially conscious business. This can be separated from the local business opportunities and are integrated with daily activities. New economic opportunities must be encouraged to become an environmentally-friendly business environment and integrated with other strategies to maintain the quality of community’s living area. The business environment should also be socially oriented, involving women or disable people.

**Initiatives:**

- **B1 | Promote Urban Farming**
- **B2 | Promote Ecotourism and Edutourism Activity**
- **B3 | Improve Performances of Waste Bank And Upcycle**
Urban farming is still fairly new in Semarang, although some early efforts have been made. Kelurahan Krobokan is one area that has started urban farming. In other locations such as Pekunden and Tembalang, urban farming was initiated by the environmental community. However, the implementation scale of urban farming is still low. It should be more encouraged, especially on kampung neighborhood scale.

**Action:** Providing training for the community on urban farming implementation, so that people can produce high quality organic products. Urban farming concept will be introduced by converting vacant land into an urban farming area and using simple technology so that the concept can be easily carried out by the community. In addition, building engagement and cooperating with local retail shops and markets for the distribution of the harvest.

**Resilience value:** Besides having good impacts on the environment and increasing the amount of urban green open space, urban farming can become a new opportunity to boost local economy. The concept can be promoted cohesively by involving the community in building urban farming and manage it continuously.

**Initiative owner**
Semarang Agricultural Office, agriculture companies, food companies, universities, NGOs

**Initiative supporters**
Semarang Environmental Office, Semarang Sanitation and Landscaping Office, Semarang Tourism and Culture Office, Semarang City Planning and Housing Office, Semarang Food Resilient Office, business sector, community groups, community

**B1 | Promote Urban Farming**

The diverse physical characteristics of Semarang hold the potential in developing ecotourism and edutourism, including river basins, mangroves and dams. Local communities must be involved to improve the economy and public education. Currently, Semarang has been developing the ecotourism and edutourism at Jatibarang dam and mangroves in Tugu district.

**Action:** Promoting tourism area and developing a network with the business sector. This is in line with the mission of the Semarang mayor to strengthen economy and create a supporting business climate by building on local excellences.

**Resilience value:** Ecotourism and edutourism in Semarang have the potential to become a major tourist attraction from the area and beyond and increase the local revenue.

**Initiative owner**
Semarang Tourism and Culture Office, tourism companies, NGOs

**Initiative supporters**
Semarang Environmental Office, Semarang Agricultural Office, Semarang Marine and Fisheries Office, business sector, urban and environment communities, community, community groups

**B2 | Promote Ecotourism and Edutourism Activity**
B3 | Improve Performances of Waste Bank And Upcycle

In addition to being an alternative energy source, recycled waste can be made into items that have economic value. Many kampung communities have established a waste bank that collects and upcycles their waste, for example Resik Becik in Krobokan sub-district. Besides reducing the level of urban waste production, this can improve the kampung environment. To further ensure business continuity, more updated training is required.

**Action:** Provisioning updated training, market study for identifying the product demand, creating standardization and quality control of products

**Target group:** Low-income communities

**Initiative owner:** Semarang Environmental Office, NGOs, Universities

---

**Initiatives:**

C1 | Strengthen the ABCG (Academic-Business-Community-Government) Coordination for Creating Job Opportunities

It is important to strengthen the cooperation between four major stakeholders in urban development, i.e. academics, private sector, government, and society or community to conduct an analysis of the workforce. The analysis will identify requirements of the current and future job market to help reducing the unemployment rate in Semarang and surrounding areas.
Forum for Economic Development and Employment Promotion (FEDEP) is an umbrella forum of economic activities that are based on locality in Semarang. Through cooperation with FEDEP, the Semarang Development Planning Agency provided some training for SMEs. The forum has a great potential to reduce the number of unemployment in Semarang. It is expected that the benefits of the program would cover a lot of communities.

**Action:** Improving FEDEP and increasing the engagement and cooperation of ABCG (Academic-Business-Community-Government) to capture the real situation of job availability and the market; encouraging the forum to identify of a new strategic economic sector; collecting labor demand and supply data of fresh graduates; preparing a coordination system within ABCG.

**Target group:** Labor force

**Time period:** Short term

**Resilience value:** The initiative invites stakeholders to collaborate and share resources to achieve shared beneficial results. It supports livelihood and employment by ensuring the labor force in Semarang will be able to have a better job and income. Furthermore, it promotes leadership and effective management by coordinating multi stakeholders for a better urban life.

**Initiative owner:** Semarang Development Planning Agency and Forum for Economic Development and Employment Promotion (FEDEP), private companies

**Initiative supporters:** Semarang City Office, high schools, universities, communities, business sectors, media, community groups

---

**C1 | Strengthen of ABCG Coordination for Creating Job**

3rd Pillar Strategy

**Preparedness for Disaster and Disease Outbreaks**

Semarang will improve public information system and public collaboration to prepare for disaster and disease outbreak.

---

**Key Initiative**

**Advancing**
The number of disasters increases annually. Climate change also causes more frequent outbreaks of diseases. Technology advancement can provide ways to face the rapid disasters and disease outbreaks. Thus, technology innovations that can reduce risks of disasters should be explored as soon as possible. The coordination between city stakeholders should also be improved.

Initiatives:

A1 | Raise Public Awareness in Areas Prone to Disasters
A2 | Explore Alternative Methods to Prevent Dengue Fever
A3 | Explore New Technology in Disaster Management

What can you do?

- Check mosquito larvae
- Improve knowledge on disaster risks in your area at http://bpbd.semarangkota.go.id
- Avoid using underground water
A1 | Raise Public Awareness on Disaster-Prone Areas

Disaster Preparedness Agency of Semarang developed an information system that can be accessed by the public to find out about locations of disaster, but the system is not optimal. The information system covers information such as the location of landslide, flash flood, tidal flood, coastal erosion, land subsidence, dengue outbreak and fire. It is expected that public knowledge will improve with the provision of disaster information and preventive actions can be taken to minimize risks of the disaster.

**Action:** Providing regular information update on disasters; developing a telecommunication for disaster information (SMS gateway); providing signs for evacuation routes and emergency shelters in public areas; conducting participatory disaster mapping. This initiative is in line with the visions of the governor to build Semarang into a cyber city with integrated information, accessible to the public.

**Resilience value:** This initiative will provide reliable information for citizens via improved emergency communication method. Furthermore, in order to achieve resilience, stakeholders must improve their coordination. Citizens will have better readiness in facing disasters and improved sense of belonging by better understanding the place where they live.

**Target location:** Areas that are prone to flash flood, tidal flood and landslide, land subsidence areas

**Time period:** Short term

**Initiative owner**
Disaster Preparedness Agency of Semarang, Semarang City Planning and Housing Office

**Initiative supporters**

A2 | Explore Alternative Methods to Prevent Dengue Fever

In 2015, Semarang was third for the highest number for dengue incidents in Central Java. Climate change and high humidity level increase the population of Aedes aegypti mosquito that carries the virus. Cooperation between the Health Office, communities and NGOs resulted in the development of a program to control dengue outbreak, for example educate students in dengue fever dangerous at Kalipancur, Sukorejo and Sumurejo Sub-Districts. This initiative should be supported and improved. A dengue early warning system that were preceived with modelling from university has also existed in six sub-districts and has the potential to be improved for all districts in Semarang. Most importantly, city stakeholders must improve their coordination in order to work effectively and efficiently when facing dengue outbreak.

**Action:** Identifying and further implementing new technologies, such as early warning system; identifying innovations in controlling dengue outbreak, such as repellent clothing and mosquito trap

**Resilience value:** improving the cooperation between universities in Semarang and conducting transfer of knowledge on disease outbreak between stakeholders. Providing responsive medical facilities and workers will ensure good public health service. Efforts in dengue prevention are closely related to the improvement of the surrounding environment.

**Target location:** Areas those are prone to dengue

**Time period:** Short term

**Initiative owner**
Health Office

**Initiative supporters**
Semarang City Planning and Housing Office, KSB, Semarang Disaster Preparedness Forum, Health Surveyor, Mosquito Larvae Surveyor Groups, universities, hospitals, puskesmas, private research and development institutions.

**Key Initiative**

**Advancing**
Semarang is currently facing more risks from both natural and anthropogenic disasters. Moreover, Semarang is divided into upper and lower area and each area faces different types of disasters. Landslide and flash flood happen in upper Semarang, while lower Semarang which includes the coastal area must face tidal flood, coastal erosion and land subsidence. Fire, however, occurs in both areas. The development of information and innovation technology has been explored, such as the Banger pilot polder project and dykes, but it still needs to be further developed and potentially scaled up.

**A3 | Explore New Technology in Disaster Management**

**Action:** Identifying new technology which may include developing floating and stilted house method in areas that are prone to flood, scaling up intensifying vetiver grass and building ponds and pumping houses in upstream and downstream area and applying other new innovative technology.

**Target location:** areas that are prone to flash flood and tidal flood, landslide, land subsidence area


Disaster and disease outbreak management cannot be separated from the capacity of stakeholders. The stakeholders' knowledge on disaster management must be improved. For example, there are communities that have inadequate understanding of disaster risks and responses to disasters.

**Initiatives:**

- **B1 | Replicate Disaster Preparedness Groups in Disaster-Prone Areas**
- **B2 | Improve A Community-Based Sanitation System**
- **B3 | Increase the Capacity of Stakeholders in Facing Disasters and Disease Outbreaks**
B1 | Replicate Disaster Preparedness Groups in Disaster-Prone Areas

Semarang has 22 Disaster Preparedness Groups (KSB) in disaster-prone kelurahan, for example in Kelurahan Wates and Kelurahan Wonasari (Beringin watershed). KSB aims to engage people in becoming aware of the shock and stresses in their area and improving their capacity to reduce disaster risks. KSB members are representatives of the sub-district community; they are expected to have more comprehensive knowledge on local physical and social conditions.

**Action:** Replicate KSB in all sub-districts, training the members to prepare for the disasters that likely happen in their areas

**Resilience value:** It will also help growing a sense of ownership in the community by actively participating in this initiative. The initiative will also conserve the quality of the environment.

**Target location:** Flash flood and tidal flood-prone areas, landslide-prone area, land subsidence area

**Time period:** Short term

---

**Initiative owner**
Disaster Preparedness Agency of Semarang

**Initiative supporters**

---

B2 | Improve A Community-Based Sanitation System

Sanitation and clean water are closely related to public health as health problems can be caused by poor sanitary condition. This especially prominent in the slum kampungs with low income residents. Sanitation infrastructure could become more critical after a disaster occurred. Stakeholders should integrate and coordinate to solve this challenge.

Improvement of participatory-based sanitation focuses on waste management, clean water provision and post-disaster toilets. Successful implementation of these improvements is expected to reduce the impacts after a disaster strikes. Hence, public participation is necessary in order to encourage ownership and ensure a long lasting result.

**Action:** Giving education and training on domestic waste management; conducting a participatory construction of communal portable toilets and water purifier; improving the local government’s waste management service

**Resilience value:** Sanitation is a critical asset; implementing this initiative will ensure continuous provision of important services to the citizens. Community-based sanitation system also enhances the participation of citizens in improving sanitation before and after disaster strikes. It is expected that this method will increase citizens’ sense of ownership of the sanitation infrastructure and that it will have a long-term effect in Semarang.

**Target location:** Flash flood and tidal flood-prone areas, landslide-prone area, land subsidence area

**Time period:** Medium term

---

**Initiative owner**
Sanitary and Landscaping Office

**Initiative supporters**
Semarang City Planning and Housing Office, Health Office, community groups, universities
It is important for stakeholders to give the correct responses to disasters. Knowing what to do before disaster happens, when it happens and after it happens could minimize the impacts of disasters. Similarly, for dengue case, the knowledge of curative, preventive and rehabilitation action is crucial. This initiative is targeted to increase coordination and responsibilities between stakeholders.

**Action:** Setting up a coordination forum for disasters preparedness; developing a disaster preparedness system

**Initiative owner:** Disaster Preparedness Agency of Semarang, Health Office, universities, NGOs

**Climate change affects cities in the world significantly, including Semarang. Disasters are harder to predict, which means that it is difficult to take preventive actions. However, optimizing the role and function of each stakeholder can be a way to increase our preparedness. Coordination between stakeholders can be encouraged by preparing a contingency plan.**
A contingency plan is an operational standard procedure when disasters happen. The formulation of a contingency plan is expected to increase awareness of all stakeholders in facing disasters and disease outbreaks. Furthermore, contingency plan can be considered as integrated disaster management. The plan must be disseminated widely and easily accessed. The preparation levels of a contingency plan include city level and community level.

Several agencies and offices in Semarang already have a disaster management program. However, the program is not integrated. This initiative can integrate every disaster management program, avoiding any social conflict in the coordination of disaster management, related to authority and execution.

**LEARNING FROM THE DUTCH**

Sixty percent of the cities in the 100RC network identified flood as the major shock, while 20% identified water shortage as the stress. Too much and too little water have presented various challenges in urban life. In Rotterdam, 9 cities with different water problems gathered to find solutions and explore holistic concepts in water management. By having multidisciplinary practitioners (urban designers, landscape architects, urban planners, academics and government officials), the discussion, named the Dutch dialogue, embraced an integrated approach to confront water management challenges in their cities; to live close to water and to recognize it as a central asset with a growing value.

Whether the city is grappling with too much or trying to cope with too little water, there is a great opportunity to apply better integrated and cost-effective solutions that meet multiple current needs and are poised to address unknown future challenges.

The Netherlands has been coping with floods for centuries considering their country is partly below sea level. They empower the citizens to work together by supporting, inspiring and encouraging the application of water resilience concept on every stage of life from classroom education to professional training. This encourages the people to implement initiatives related to water resilience. The country is a large laboratory that is trying to help citizens, particularly the new generation so that they understand the changing environment better and lead them to achieve water literacy.

Since 2006, the Dutch government began the implementation of a project called “Room for the River”. The idea was to make more room for the river to overflow, rather than building right on its banks. Also that river would no longer flow along the city, but through it instead. This created a city that is fully integrated with the water. It took 10 years for them to create a new waterfront, giving up urban and farm land. This increased the development potential and reduced the risk of damage and loss of life in the future.

Source: [http://100resilientcities.org](http://100resilientcities.org)
Semarang will improve the connectivity and institutional capacity of transportation service.

**4th Pillar Strategy**

**Integrated Mobility**

ENCOURAGING A CHANGE IN BEHAVIOR FROM USING PRIVATE VEHICLES TO PUBLIC TRANSPORT

IMPROVING COORDINATION AND INSTITUTIONAL MANAGEMENT OF PUBLIC TRANSPORT

INTEGRATING TRANSPORTATION PLANNING

What You can do?

- Download the BRT and ATCS application to monitor traffic conditions in Semarang
- Travel together with family and friends
- Use the BRT, walk and cycle

Strategies and initiatives under this pillar provide interventions to face challenges in infrastructure and environment dimension. Improvement of coordination and integration between city stakeholders is critical.
BRT integration management has not yet been optimized. For example, BRT routes have covered transportation nodes, such as airport and station. However, the location of the bus shelters is quite far, which made it less appealing to people. The transit options between routes and with non-BRT transport are limited. The tariff is not integrated, resulting in expensive fare when transit is needed despite the distance.

**Action:** Exploring the possibility of an integrated route and tariff for intermodal public transport; exploring more effective locations of public transport facilities.

**Resilience value:** An integral and affordable transportation system helps people in doing their activities which could foster economic prosperity. In addition, it helps reducing traffic jam and improves the environment by reducing pollution. Intermodal transport system which requires a strong collaboration can foster a long-term and integrated planning.
A2 | Expand the Coverage of BRT Corridors and Feeder Service

Transportation, Communication and Informatics Office is planning to add the current BRT routes into six routes. The additional routes include PRPP-Metesheh and UNNES-Diponegoro Park-UNDIP. The plan is expected to be fully implemented in two years to increase urban connectivity. Based on the current operational experience of BRT, new routes might improve the quality of BRT regarding its operational capacities and facilities. To increase efficiency, BRT must be supported by a feeder service.

**Action:** Exploring the efficacy of new BRT corridors and feeder service

**Initiative owner:** Transportation, Communication and Informatics Office

**Initiative supporters:** Toll Road Regulatory Agency, Semarang Development Planning Agency, private sector, the Organization of Land Transportation Owners

**Resilience value:** Expanding public transport’s coverage might reduce social isolation. It will also strengthen economic prosperity since people can have better access to their activities.

**Target Location:** Newly developed areas without a public transport service

A3 | Explore the Possibility of MRT Development and Its Alternatives

Semarang has not achieved the full potentials of BRT. It is recommended to study this issue, in addition to the MRT study.

**Action:** Evaluating the current BRT; conducting a study on MRT and other alternatives

**Initiative owner:** Transportation, Communication and Informatics Office and private sector

**Initiative supporters:** Action: Evaluating the current BRT; conducting a study on MRT and other alternatives

A4 | Introduce BRT-Integrated School Bus Service

Students can be classified as vulnerable group regarding mobility since they have limited financial ability to pay for transport service. They are not old enough to drive their own motor vehicles. There should be a transportation mode allocated for students, i.e. school bus. This initiative will likely have an indirect impact, reducing number of traffic accident involving students.

**Action:** Identifying routes from settlement areas to education facilities; allocating some BRTs for students and it can be supported by a feeder service to increase efficiency; providing new school buses that can be conducted under a CSR program.

**Initiative owner:** Transportation, Communication and Informatics Office, Semarang Education Office

**Initiative supporters:** Save The Children (Collaboration with the Future Cities Laboratory - ETH Singapore Centre)

**Target group:** Students

**Target Location:** Newly developed areas without a public transport service
A5| Improve Public Transportation Facility to be More Disabled People and Environmentally-Friendly

The design of some elements of Semarang’s BRT program (i.e. shelters) could be improved to accommodate the needs of a wider range of passengers, including people with disability. This would not only increase accessibility to essential goods and services, but also have a positive effect on the environment. There are also ongoing discussions around reforms such as fuel switching program to CNG for BRT that have to be implemented.

**Action:**
Evaluate the potential benefits of improvements to public transportation facilities and fuel used for BRT; and to recommend pragmatic options for overcoming implementation barriers

**Target group:**
Public transportation management, all Semarang citizens including people with disabilities

**Initiative owner**
Transportation, Communication and Informatics Office

**Initiative supporters**
IGES (Institute for Global Environment Strategies)

A6| Improve Pedestrian and Bicycle Path

Pedestrian and bicycle path are in poor quality and have not been used optimally. The path is interrupted, slippery; often occupied by street vendors and used for parking. This initiative aims to restore the original function of the paths by evaluating and improving the quality.

Walking and cycling campaign can help increasing people’s interest to use pedestrian and bicycle path. Some communities have started to show interest, such as the Semarang pedestrian coalition (KPKS). This type of campaign needs to be supported and has the potential to be improved.

**Action:**
launching a walking and cycling campaign; designing pedestrian and bicycle path; conducting a participatory design evaluation of the path; coordinating between stakeholders in preparing regulations for pedestrians and cyclists

**Initiative owner**
Toll Road Regulatory Agency and Transportation, Communication and Informatics Office

**Target group:**
Public transportation management, all Semarang citizens including people with disabilities
Semarang is trying to develop an integrated mobility under a better management, especially because transportation is a regional issue and involves various stakeholders. Currently, some public vehicles are still managed individually. It is a challenge to reach integrated mobility with an affordable cost and high quality service. The improvement of coordination and quality management is necessary.

**Initiatives:**

- **B1 | Strengthen Institutional Management of Public Transportation**
  - **Action:** Developing an improved organizational mechanism between the government and private sector in managing and operating BRT
  - **Initiative owner:** Transportation, Communication and Informatics Office
  - **Initiative supporters:** Semarang BLU-UPTD (Public Service Agency-Technical Implementation Unit for Regional Agency), Semarang Development Planning Agency, private sector

- **B2 | Establish a Public Transport Consortium**

- **B3 | Establish Kedungsepur Coordination Forum**

**B1 | Strengthen Institutional Management of Public Transportation**

This initiative aims to strengthen the institutional management of public transport, therefore, a reliable public transport system can be provided. The BLU-UPTD currently manages both BRT and Mangkang regional terminal with limited human resources. The current system requires an evaluation and must considers the business plan related to the BRT expansion plan.

Coordination mechanism between the government and private sector (operator and regulator) should be clarified to ensure professionalism of BRT management. It includes a bidding process to ensure the management meets the necessary quality.

**Resilience value:** Reorganizing BRT management to create a more effective system which will improve the service quality. The government will be able to provide reliable mobility and improve citizens' access to their activities.
Apart from BRT, which is managed by the local government, other public transport vehicles are managed by individuals. The individual owners of public vehicles provide a subsidy for public transport users without any assistance from the government. However, the individual ownership of many public transport vehicles complicates monitoring of many things including safety. The establishment of a public transport consortium will help organizing, overseeing the operation of traditional public transport and coordinating the integration of BRT with traditional public transport, functioning as the feeder service.

Moreover, the consortium will allow the government to subsidize individual management of public transport which will help the feeder service to have a more punctual schedule and to be safe and comfortable. This initiative can be implemented properly when the BRT institution is independent and competent.

Transportation in Semarang is a regional issue that impacts the Kedungsepur area (a group of neighboring regions that include Kendal, Demak, Ungaran, Semarang and Purwodadi). It is necessary to establish a forum for regional transportation service to discuss and coordinate the provision of regional transportation service. The upcoming challenge is the planned provision of BRT service by the provincial government. This route should be integrated to the local BRT to avoid any overlapping.
The urban sprawl is not supported by expanding transportation network, so some areas lack any form of public transport, especially in unplanned locations of settlement, industry and commercial area. It is necessary to integrate the regional transportation master plan with the land use plan. This strategy aims to create an effective transportation planning.

Initiatives:

C1 | Intensify Development in the Allocated Areas
C2 | Promote the Regional Transportation Master Plan
C3 | Improve Public Transport Access to Tourism Attractions
C4 | Improve Accessibility to Newly Developed Areas

To prevent future urban sprawls, new development should be directed to the planned growth center stated in the Semarang spatial plan by considering high risk areas. Provision of new transportation service can be focused in these areas. The new transportation service can be built effectively with less cost. Moratorium for development in non-allocated areas is encouraged to reduce conversion of land use.

Action:

Directing new development to planned growth center in accordance to the city's spatial plan

Resilience value: The initiative will have a big impact in reducing people's movement which will lead to less traffic jam. Furthermore, the city can reduce the rate of urban sprawling and eventually decrease the need to construct infrastructure and enable a more affordable transportation service for the citizens. It could improve welfare by significantly decline the operational transportation costs. In a bigger economic context, having less transportation time can increase the income.

Initiative owner: Semarang Development Planning Agency and Semarang Planning and Housing Office

Initiative supporters: Digital Globe
C2 | Promote the Regional Transportation Master Plan

Semarang is growing to its neighboring regions in the Kedungsepur area. Most citizens live in the hinterland and work at Semarang city center. There is hence a demand for a regional transportation system which consider newly developed area, as well as existing spatial plan. The regional transport masterplan for regional and integrated development has not developed yet. There is also a need for a better coordination and sharing responsibilities across-cities within the region. A platform to strengthen regional coordination among Kedungsepur governments is required.

Action:
- Coordinating between Kedungsepur authorities and the provincial government in preparing the regional master plan

Resilience value:
- Regional coordination will generate an effective transportation service plan and ensure the regional transport link. In addition, it will improve stakeholder capacity by preparing the plan. The good transportation performance, especially the regional one, will boost economic prosperity as distribution route from and to the city will be smooth.

Initiative owner: Transportation, Communication and Informatics Office, Ministry of Transportation

Initiative supporters: Toll Road Regulatory Agency, Semarang City Planning and Housing Office, Kedungsepur authorities, private sector, IGES, Digital Globe.

C3 | Improve Public Transport Access to Tourism Attractions

The transition of strategic sector from industry to trade and service also includes the development of tourism sector. Semarang has tourism destinations that attract both domestic and non-domestic tourists, including religious places and agro and cultural areas, such as the Old Dutch quarter, Watu Gong temple and Lawang Sewu. These attractions should be supported by easy access.

Action:
- Exploring opportunities of public transport alternatives; identifying opportunities of integrated public transport; providing tourism attraction signs

Resilience value:
- This initiative can increase the number of tourists and the city income. This initiative can also minimize traffic jam and pollution from private vehicles.

Initiative owner: Transportation, Communication and Informatics Office


C4 | Improve Accessibility to Newly Developed Areas

The city is growing to the city outskirt, such as Tembalang and Pedurungan district due to the higher cost in the city center. Citizens prefer to live in these areas. New settlements grow with a sprawling pattern and not supported by good accessibility. This initiative aims to increase mobility, especially in areas without a public transport service as citizens are entitled to public service. However, transportation service and its routes must be carefully designed to enable the development of effective infrastructure and service planning.

Action:
- Developing the possibility of new routes and transportation nodes that are integrated to the newly developed areas; exploring a smart feeder system which allows minimum investment and integration with the BRT system; exploring new public transport route possibilities to connect the city center to the developed areas

Initiative owner: Semarang Development Planning Agency and Transportation, Communication and Informatics Office

Initiative supporters: Digital Globe.
5th Pillar Strategy

Transparent Public Information and Governance

Semarang will increase information transparency and governance to improve the quality of the program and its performance.

What You can do?

- Find the Musrenbang schedule and location
- Monitor government performance at www.semarangkota.go.id
- Visit www.100rcsemarang.org and follow FB Semarang Tangguh and Twitter @resilientsmg

Strategies and initiatives of this pillar give answer to challenges in strategy and leadership dimension which becomes foundation in building resilient city.
Musrenbang is a development planning forum that uses participatory approach. Musrenbang is required by law to be conducted on every government level, i.e. from neighborhood, to sub-district and district and ultimately on municipal level. However, the implementation of this forum is not effective as it is currently limited by time and communal participation.

Musrenbang as a participatory budgeting forum has a strict and limited schedule. There are only two to three months to conduct stakeholder meetings on every administrative level, from the neighborhood to the municipal level. The time limitation is a challenge to conduct a good participatory process and propose high quality programs. The citizens also tend to have a wish list during Musrenbang. It is usually focused on neighborhood-scale infrastructure that affects them directly such as the sidewalk pavement in their area. The citizens must be made aware of the overall visions and strategy of the city so they can provide a relevant and better proposal that can affect city widely.

To better improve the Musrenbang, there should be a series of pre-Musrenbang. They can support the compulsory Musrenbang by providing additional forums for stakeholders. This can increase the participation of all citizens, including elderly, disabled and poor people. Both the Musrenbang and pre-Musrenbang should also be supported by properly trained and skilled facilitators.

Therefore, the Semarang Development Planning Agency needs to prepare a guideline of improved Musrenbang process and provides intensive technical assistance to facilitators in order to conduct an effective Musrenbang.

**Key Initiative**: Improving Musrenbang (Development Planning Forum) in the Planning Process

**Target group**: Semarang citizens, Musrenbang facilitators

**Action**: Informing citizens of the city’s vision and Musrenbang process; promoting and supporting wider implementation of pre-Musrenbang; training for trainers for Musrenbang facilitators

**Resilience value**: A well designed and executed Musrenbang can improve the quality of city development program. It also promotes cohesiveness and increases the sense of ownership of local citizens by actively participating in development programs. Furthermore, it will also improve communication between the government and public, and eventually reduce social conflict.

**Initiatives**:

A1 | Improve Mechanism for Pre-Musrenbang

A2 | Increase Accessibility to E-Musrenbang

---

**A1 | Improve Mechanism for Pre-Musrenbang**

Musrenbang as a participatory budgeting forum has a strict and limited schedule. There are only two to three months to conduct stakeholder meetings on every administrative level, from the neighborhood to the municipal level. The time limitation is a challenge to conduct a good participatory process and propose high quality programs. The citizens also tend to have a wish list during Musrenbang. It is usually focused on neighborhood-scale infrastructure that affects them directly such as the sidewalk pavement in their area. The citizens must be made aware of the overall visions and strategy of the city so they can provide a relevant and better proposal that can affect city widely.

To better improve the Musrenbang, there should be a series of pre-Musrenbang. They can support the compulsory Musrenbang by providing additional forums for stakeholders. This can increase the participation of all citizens, including elderly, disabled and poor people. Both the Musrenbang and pre-Musrenbang should also be supported by properly trained and skilled facilitators.

Therefore, the Semarang Development Planning Agency needs to prepare a guideline of improved Musrenbang process and provides intensive technical assistance to facilitators in order to conduct an effective Musrenbang.

**Action**: Informing citizens of the city’s vision and Musrenbang process; promoting and supporting wider implementation of pre-Musrenbang; training for trainers for Musrenbang facilitators

**Resilience value**: A well designed and executed Musrenbang can improve the quality of city development program. It also promotes cohesiveness and increases the sense of ownership of local citizens by actively participating in development programs. Furthermore, it will also improve communication between the government and public, and eventually reduce social conflict.

**Target group**: Semarang citizens, Musrenbang facilitators

**Action**: Informing citizens of the city’s vision and Musrenbang process; promoting and supporting wider implementation of pre-Musrenbang; training for trainers for Musrenbang facilitators

**Resilience value**: A well designed and executed Musrenbang can improve the quality of city development program. It also promotes cohesiveness and increases the sense of ownership of local citizens by actively participating in development programs. Furthermore, it will also improve communication between the government and public, and eventually reduce social conflict.

**Initiative owner**: Semarang Development Planning Agency

**Initiative supporters**: Neighborhood, sub-districts, districts, city agencies and offices, private sector
A2 | Increase Accessibility to E-Musrenbang

Musrenbang needs to be supported by an electronic information system for enhancing the effectiveness of recapitulation and prioritization of proposals. In addition, this initiative improves the transparency of information that allows the public to monitor development process in the city, including improving effectiveness of budget use.

However, the current system of E-Musrenbang can only be accessed by the government. People should be able to access it as well so they will be informed about selected programs and participate actively in supporting and monitoring the programs.

**Action:** Extending access of E-Musrenbang to the public

**Initiative owner**
Semarang Development Planning Agency

**Initiative supporters**
Electronic Data Management Division

**LEARNING FROM PORTO ALEGRE**

Rapid population growth in Porto Alegre resulted in urban challenges. Housing need pushed the population to occupy every available space in the city, even without infrastructure and property right. Conservation areas were turned into new residential buildings, which created a dangerous situation as some parts of the areas are prone to flood and landslide. About 13.7% of the total population lives in this area. Basic services such as electricity, clean water, sanitation, waste collection and public transport cannot be provided easily. However, the major challenge is the ambiguous regulation. The administration process is ineffective and inefficient, creating a complex situation. Moreover, it is difficult to create a dialogue between different sectors that are involved in the development process, resulting in lack of trust and cooperation.

In solving this issue, Porto Alegre established a working group that included multi-background stakeholders to build an urban resilience plan that identified risk areas and educated and alerted residents. One of the strategic objectives to achieve a resilient Porto Alegre was to have local governance that promoted resilience in every action and to design a participatory budget that contributed to the increased resilience of the city.

Porto Alegre is known as the pioneer on participatory budgeting. By applying resilience perspective in participatory budgeting, the city will improve social cohesion and strengthen people’s understanding of resilience. The goal is to create and implement the Index Development of Resilience Urbana (IDRU) in an action management model for Porto Alegre and increase budget 10% from current index; 59.4 points and also invest at least 10% of the annual budget for resilience. This goal requires a transparent implementation and control mechanism. Transparency will enable communication between stakeholders and encourage participation which in return will affect resilience significantly and reduce losses and damage.

Source: [http://100resilientcities.org](http://100resilientcities.org)
There is an increase in the city revenue although most of it comes from the national budget. However, the budget is not matched by an effective implementation, with high value of unspent budget at the end of year. This reflects the weakness in the management of human resources. Underspent budget equals not optimized service for the citizens. It can be solved by encouraging the integration of planning and city budgeting. It also requires some improvement in leadership.

Initiatives:

- **B1 | Improve the Capacity of City Planning and Budgeting Personnel**
- **B2 | Integrate Planning and City Budgeting**
- **B3 | Improve the Documentation and Publication of City Program**
- **B4 | Improve Budget Administration, Monitoring and Evaluation**

### B1 | Improve the Capacity of City Planning and Budgeting Personnel

Planning and city budgeting play an important role in determining the quality of city programs. The effectiveness and quality of program implementation depend on the quality of the planning and city budgeting.

It is necessary to provide regular training and technical assistance for government officials to arm them with better knowledge in managing the city budgeting process from the start up to the evaluation. The training and technical assistance includes managing, monitoring and evaluation. The management training is required in order to prepare the government.

**Action:**

Regular training, technical assistance and evaluation, involving some national institutions. It will motivate government to ensure their job quality.

**Resilience value:**

The regular training will improve the government’s capacity and prepare them to be more responsive to new challenges. Qualified personnel will lead to a better strategy planning and foster a long-term integrated planning.

**Target group:**

Local government

**Initiative owner**

Regional finance agency

**Initiative supporters**

Semarang Development Planning Agency, universities, national training institutions
B2 | Integrate Planning and City Budgeting

Internal communication between all city agencies and offices must be improved to harmonize city budget planning. It requires having representatives from all city agencies and offices. Coordination between different agencies and offices is part of efforts to achieve the city’s vision and avoid any abuse of authority and encourage resource sharing. Citizens’ input should be considered in planning and city budgeting.

Integrated information system should include a citizen report mechanism. This system will encourage a good coordination between stakeholders. Citizen report mechanism has been developed by platform partner Ushahidi working together with Hysteria, a local community that deals with city issues. It has a potential to be integrated into the current information system developed by the local government.

Action:
- Strengthening the local government forum; developing an online information system on planning and city budgeting; developing a filter platform of citizen report

Resilience value:
The improvement in the coordination will encourage integration between stakeholders and enable resource sharing. Integrated planning that implemented properly in the city will ensure people’s wellbeing, social and economic stability and better living quality.

Target group:
- All city agencies and offices

Initiative owner
- Semarang Development Planning Agency

Initiative supporters
- City Public Relation Division, Electronic Data Management Division, Hysteria

B3 | Improve the Documentation and Publication of City Program

Citizens must be well informed on their tax allocation in public service. Transparency and accountability will improve government performance. Annual government program should be socialized to the citizens regularly, for example every four months. The information is not limited to the type of program, but also budget and details such as physical design if it is related to construction. Thus, citizens can participate in the monitoring mechanism.

This initiative requires coordination between all city agencies and offices, and it is possible to involve platform partners. This initiative can be expanded by collaborating with provincial and national government in order to have integrated monitoring mechanism, minimizing social conflict.

Action:
- Collecting, identifying and socializing programs in Semarang

Target group:
- Semarang citizens

Initiative owner
- Semarang Development Planning Agency, City Public Relation Division
Improvement of monitoring system is required to ensure a more effective budget performance and avoid a lower target. Sanction mechanism for programs fail to be implemented properly or reward mechanism for well-performed city agencies can be arranged. For example, improving the quality of human resources is important and the Education Office allocates a large portion of the city budget. However, the implementation and budget spending are not optimal. Encouraging the stick-and-carrot mechanism can help city agencies to be more selective in allocating program and to better motivate them.

**Initiatives:**

- C1 | Increasing the Quality and Capacity of City Information System
- C2 | Enhancing the Performance and Utilization of Internet-Based Participatory Reporting
- C3 | Improving Public Information on City Permit Process
### C1 | Increase the Quality and Capacity of City Information System

**Semarang has PPID structure that is coordinated by the Regional Secretary Office and involves representatives of all agencies and offices. A regular meeting and coordination forum should be held to prepare mechanism details on integrated data collection, as well as citizen reports. The forum needs to have a more detailed explanation on how to integrate public information, considering the current one is still minimal. This forum enhances the already established PPID and improves the effectiveness of information delivery mechanism.**

**Action:** Conduct a regular coordination forum for data and information management; improving reporting procedures in city administration

**Resilience value:** Transparent information and documentation will improve the sense of ownership of the citizens to the city. It will improve communication between the government and public. Furthermore, it can promote cohesiveness and citizens can participate in the development program planned by the local government. Transparency will also encourage government to have a better leadership and more effective management.

**Target group:** Semarang Information and Documentation Managing Officers (PPID), universities

**Initiative owner**
Semarang Information and Documentation Managing Officers (PPID), universities

**Initiative supporters**
All agencies and offices, communication companies

### C2 | Enhance the Performance and Utilization of Internet-Based Participatory Reporting

**The local government developed a digital information system by building a website for every agency and office that will enable the citizens to easily access all information about city development. Semarang is also keen to progress into becoming a smart and cyber city. The mayor has also initiated an online reporting platform. However, some of these websites are often hacked and have problems due to their limited capacity. The transition towards digital system requires capacity improvement of both the system and server. This will accommodate all relevant information. It is also recommended to improve the website’s security.**

**Action:** Increasing the capacity of city websites and server; enhancing the city website’s security; integrating the website with citizen reporting features

**Resilience value:** This initiative strengthens information plan and prepares Semarang facing the digital world. Transparent information that is accessible by everyone will lead to better urban condition. For example, citizens can report a crime, which means the law can be enforced and the crime can be reduced; citizens can report environmental damages and this can reduce accidents and disaster impacts. This initiative can raise awareness since citizens can participate actively in creating a better place to live.

**Target group:** Semarang citizens

**Initiative owner**
City Public Relation Division, Electronic Data Management Division

**Initiative supporters**
Universities, Semarang Development Planning Agency, all agencies and offices
Semarang Permit and Capital Investment Agency has commissioned a service center that provides information on city permit process. This information must be disseminated more widely through websites, social media and traditional media. Clear information will help the community to understand permit requirements so they can proceed with the application more effectively.

Currently, it is not possible to make all permits online and only limited numbers of permit are online. The development of online system will allow people to apply a permit from anywhere and at any time which will reduce process time. Simple permit process will allow more investors to come to Semarang and enhance city development. In addition, the system ensures information transparency.

**C3 | Improve Public Information on City Permit Process**

**Action:**
Developing an online permit system

**Resilience value:**
Expanding development opportunities by attracting more investors while enforcing the requirements to prevent negative consequences. Permit tax can increase the city income. However, it should be supported by improved capacity and coordination of stakeholders in approving permits and following the land use plan. This effort can improve the leadership and strategy in Semarang.

**Target kelompok:**
Semarang citizens

**Initiative owner**
Semarang Permit and Capital Investment Agency

**Initiative supporters**
Semarang Development Planning Agency, P3KM, Digital Globe

Semarang will connect the citizens to new skills and knowledge.
Strategies and initiatives under this pillar is expected to improve people’s prosperity and life. With a good coordination between city stakeholders, the leadership dimension, which is the basis of the city development can be strengthened.

**What can you do?**

Renew your knowledge by
- visiting library and Public Information center.
- Pantau jalannya pelayanan pendidikan dari Pemerintah Kota
  - Perhatikan sekitar Anda, lapor antara Pemerintah Kota jika ada usia wajib belajar yang tidak sekolah

Semarang has a higher unemployment rate than the provincial and national level. One cause is the skill gap between job seekers and job requirements. Semarang is also changing their economic direction to trade and service sector, while industrial area migrated to the outskirt. Semarang workforce must be ready and become more responsive in facing this situation. They need to be aware of market needs and required skills set by the employers. The other issue is the workforce capacity. Most job seekers are high-school graduates or lower. Low qualifications create less competitive workforce in Semarang. Therefore, workforce capacity must be improved.

**Initiatives:**

A1 | Establish Career Centers
A2 | Align Education and Training with Labor Demand
A3 | Provide Vocational Training for Elementary and Junior High School Graduates
A1 | Establish Career Centers

**Action:**
Developing an online database of employment including job opportunities and information on job seekers

**Resilience value:**
Integrated career centers can decrease the number of unemployment in Semarang. In addition, it can reduce crime and other indirect negative social impacts.

**Target group:**
Job seekers, business owners

**Initiative owner**
Semarang Manpower and Transmigration Office

**Initiative supporters**
Private sector, universities, private companies

An online or offline career center which can be accessed easily will help connecting job seekers to institutions in need of labors. Data update must be conducted regularly working closely with the business sector.

Labor force is a regional issue. Most labor force in Semarang is based in the hinterland, although some people living in the center work in the outskirt. Hence, information on career opportunity has to be collected from the city and its surrounding areas and provide more working opportunities.

A2 | Align Education and Training with Labor Demand

**Semarang Education Office should prepare a roadmap of future employment opportunities. This will prepare graduates to the working world. By using employment market study and the results of stakeholder coordination meetings, the strategic economic sector can be identified. Then, training institutions can provide training, especially specific skills that meet qualifications of industry sector. This initiative could be coordinated by Semarang Manpower and Transmigration Office.**

**Initiative owner**
Semarang Education Office and Semarang Manpower and Transmigration Office

**Initiative supporters**
Semarang Education Office, Community, Women Empowerment and Family Planning Agency, Central Java Education Office, private sector, universities, NGOs, Save The Children

**Action:**
Providing consultation sessions or seminars on future career and higher education; providing training according to what the market needs for high school students.

**Target group:**
Labor force, high school students

In addition, career sessions or seminars for high school students can also be provided. This is important since the early years of high school can provide an overview of the students' future and it can increase students' motivation in planning their future. Representatives from both business sector and academics should be invited to give a clearer picture to the students.
A3 | Provide Vocational Training for Elementary and Junior High School Graduates

The shifting trend towards trade and service sector requires the workforce to have a higher qualification. Unemployment percentage of elementary and junior high school graduates tends to decline. However, the number is still quite high, above 30% in 2013. Most of these people work in the informal sector due to their limited skills.

This initiative attempts to help elementary and junior high school graduates who are not able to continue their education. Based on age, they are in the active work force category. Skill training based on the economic trend can be provided, which then provide them with more employment options.

**Action:**
Training and technical assistance based on the market needs, work ethic training

**Target group:**
Graduates of elementary school and junior high school

**Initiative owner**
Semarang Manpower and Transmigration Office, Community, Women Empowerment and Family Planning Agency

**Initiative supporters**
NGOs, Save The Children, private companies

Most of the labor force in Semarang is high school graduates. The elementary and junior high school graduate number is also significant. Meanwhile, the number of labor force with a bachelor’s degree and diploma qualification is low. The condition requires an improvement in the education quality of Semarang citizens. This strategy aims to help students in anticipating future challenges.

**Initiatives:**

**B1 | Increase Access to Scholarships**
The capacity of human resources can be measured by the quality of education. Good education system could provide productive and qualified labor. Most of Semarang citizens are high-school graduates or lower, which means there should be alternative ways to continuously improve their skills. Education does not only come formally, but it can also be obtained outside the formal system. This will enable people who do not have access to the formal system to build their capacity and maintain their skills.
C1 | Promote continuous education service for people of all ages

Providing training and technical assistance for people in sub-districts and districts of Semarang, and “smart house” and library will encourage them to always build their capacity more. Smart house is a learning hub on the neighborhood level where people can gather and learn from the available shared materials, such as books.

By providing books at the “smart house” and library, people will have access to information and knowledge. It is expected that the reading interest can be increased and eventually achieve capacity improvement of Semarang citizens. The “smart house” and library development can be conducted by different levels of government, through private sector’s CSR program and local community, while the facility can be managed by the city to allow book rotation system.

**Action:** Developing “smart house” and library and providing technical assistance by students and volunteers

**Resilience value:** Good education service for people of all ages will encourage them to always improve their capacity and be more ready to face challenges. The side advantage of this initiative is improved social cohesion by placing the facilities on the neighborhood level.

**Target group:** Sub-districts and kelurahan in Semarang

**Initiative owner**
Semarang Education Office

**Initiative supporters**
Office of Library and Regional Archives, sub-districts and kelurahan in Semarang, universities
REALIZING RESILIENT CITY

Semarang is still facing many urban challenges before it can be resilient. The key to strengthen our resilience is by building our capacity. It will only be successful with the participation of everyone.

This document acts as the initial plan to strengthen our city resilience and also in line with the Semarang mid-term and long-term development plan. The CRS enriches the city’s efforts in building resilience by creating multiple resilience benefits from each initiative.

This city resilience strategy is an ambitious plan. Urban challenges are increasing in number and business-as-usual efforts cannot manage these unprecedented challenges. The identification of these challenges is a result of a thorough and inclusive process which captured stakeholders’ concern and aspiration.

We will work on meeting the water and energy demand in a sustainable manner, creating business climate for new opportunities, preparing for disaster and disease outbreaks better, integrating our mobility system, increasing transparency of public information and governance as well as increasing the competitiveness of our human resources. Therefore, Semarang can achieve its adequate security, efficient mobility and good capacity.

ACTION PLANNING

To further implement our resilience building, together with the CRO, the working groups could safeguard the implementation of our initiatives. In the following months, more detailed action plan will be prepared. In parallel, the scoping of work with potential Platform Partners is initiated. During the strategy development process, initial listing of potential platform partners has been listed for each pillar strategy. The detailed scoping will begin by organizing workshop on New Economic Opportunities by the end of 2016.

The monitoring and evaluation mechanism should also be regulated under a guidance from the Resilience Steering Committee. Taking into account of our resilience assessment and diagnostic study, the early assessment which adopted the CRF can serve as the baseline study for the resilience status. This will guide our assessment for future interventions in building city resilience as well as to help adjust and regularly update our strategy.

The regular update is planned to follow the five year mid-term planning cycle, similar with the current CRS. Therefore, the future CRS will also has the great opportunities to be streamline and complement the overall city development strategy.

MOVING TOGETHER FOR SEMARANG RESILIENCE

Ideas and initiatives in this strategy are expected to inspire the city government, citizens, business sector and all elements in Semarang in acknowledging urban challenges and taking part in achieving a resilient city.

Let’s move together to build Resilient Semarang!
ACKNOWLEDGMENT

RESILIENT STEERING COMMITTEE
Adi Tri Hananto - Regional Secretary of Semarang
Ayu Entys – Assistant for Economic, Environmental, and Social Welfare in Semarang
Bambang Haryono - Head of Development Planning Agency
Budi Prakosa - Sanitation and Landscaping Office
Dr. M. Agung Wibowo - Dean of Engineering Faculty, Diponegoro University
Sucahyo Kuswirantono - Development Planning Agency
Teguh Kismarjanto – Head of Semarang Tourism Group
Dr. Adi Ekopriyono – Suara Merdeka Newsletter
Nanang Agus K - Jateng Bank
Dwi Arti Handayani - Development Planning Agency

WORKING TEAM
Gunawan Wicaksono - Environment Office
Jawoto Sih Setyono - Urban and Regional Planning, Diponegoro University
Rukuh Setiadi - Urban and Regional Planning, Diponegoro University
Sahrin Sofandi - Development Planning Agency

WORKING GROUP
Sri Hartono - Development Planning Agency
Saiful Anam - PDAM
M. Irwansyah - City Planning and Housing Office
Pujo Karya - Agriculture Office
Ali Rosyidi - Health Office
Adi Jatmiko - Sanitation and Landscaping Office
Indra Hanafi - Industry and Trade Office
Murni Ediati - Toll Road Regulatory Agency
Joko Hartono - Social Unity and Stability Office
Dr. Liliin Budisti - Education and Training Office of Central Java Province
Mardwi Rahdriawan - Urban and Regional Planning, Diponegoro University
Dr. Prihadi Nugroho - Urban and Regional Planning, Diponegoro University
Moh. Mukti - Urban and Regional Planning, Diponegoro University
Anang Wahyu Sejati - Urban and Regional Planning, Diponegoro University
Nana Kania Tam - Community Research Group, Semarang National University
Untoro Nugroho - Civil Engineering Department, Semarang National University
Bintang Septiari - BINTARI Foundation
Dini Inayati - PATTRO Foundation
Wahyuni Lasniah - PATTRO Foundation
M. Edi Waluyo – Steering Committee of Disaster Mitigation Agency

THE CITY WORKING TEAM ON CLIMATE CHANGE ADAPTATION
THE CITY DEVELOPMENT ADVISORY BOARD (DP2K)
THE CONTRIBUTORS ON 100 RC-SEMARANG WORKSHOP SERIES

THE CONTRIBUTORS ON 100RC-SEMARANG SOCIAL MEDIA
THE WINNERS AND PARTICIPANTS OF 100RC BLOG AND TWITTER COMPETITION
CITIZENS OF SEMARANG
100 RESILIENCE CITIES

CHIEF RESILIENCE OFFICERS
Purnomo Dwi Sasongko – Chief Resilience Officer
Dr.-Ing. Wiwandari Handayani - Technical Coordinator
M. Lutfi Eko Nugroho - Technical Staff
Mega Anggraeni - Communication Manager

STRATEGIC PARTNER, MERCY CORPS INDONESIA
Anissa Delima Sari
Lusia Nini Purwajati
Aurora Dias Lokita
Hardiyanto

ASSISTANTS
Anggieti Dwi Septiani
Restu Sita Harsiwi
Nisakhaira Rahmaininglyas
Sri Febriharjati
Tya Dewi Pamungkas
Elirzky Jazwan
Indra Jumanta
Pahlawarni Ginsang
Ilman Naafa
M. Bugi Ardhiyo

EDITOR AND TRANSLATOR
Cynthia Ratih Susilo
Ami Dwi Nidyga
Ariyanti Eddy Tarman

DESIGN & LAYOUT
Muhammad Fachrurofi

PHOTOGRAPHY
Randdy Tama
Aditya Pradana Putra
## APPENDIX: SUMMARY OF SEMARANG RESILIENCE INITIATIVES

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A1</td>
<td>Improve Monitoring and Requiring Better Sanitation for River Pollution</td>
<td>Semarang Environmental Office, Semarang Department of Water, Energy and Mineral Resources</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>2</td>
<td>A2</td>
<td>Watershed, Water Reservoir and Basic Water Source Conservation</td>
<td>Semarang Environmental Office, Agricultural Department</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>3</td>
<td>A3</td>
<td>Advocacy and Partnership with the Provincial Government and Surrounding Regions</td>
<td>Semarang Water, Energy and Mineral Resources Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
</tbody>
</table>

### Strategy B. Promoting innovation on water provision

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>B1</td>
<td>Extend the Utilization of Rain Water</td>
<td>Semarang Environmental Office, Semarang Water, Energy and Mineral Resources Office, Semarang City Planning and Housing</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

### Strategy C. Promoting environmentally friendly behavior

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>B2</td>
<td>Optimize Surface Water Utilization</td>
<td>PDAM (state-owned water company) Tria Moejib</td>
<td>Ongoing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td>6</td>
<td>B3</td>
<td>Promote Grey Water Recycling Technology</td>
<td>Semarang Environmental Office, Semarang Water, Energy and Mineral Resources Office, Semarang PDAM, Semarang City Planning and Housing Office, private water companies, industry developers, industrial estates/companies, commercial companies, community groups</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>B4</td>
<td>Explore the Possibility of Sea Water Desalination</td>
<td>Semarang Water, Energy and Mineral Resources Office, Semarang PDAM, private water companies</td>
<td>Inventing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>C1</td>
<td>Campaign for Public Awareness of Saving Energy and Water</td>
<td>The municipal government, private companies, industry and commercial, NGOs, universities</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>No</td>
<td>CODE</td>
<td>Initiative</td>
<td>Proposed initiative owner</td>
<td>Status</td>
<td>Type</td>
<td>Time Period</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>------------</td>
<td>---------------------------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>9</td>
<td>C2</td>
<td>Scale Up of Waste To Energy Use</td>
<td>Semarang Sanitation and Landscaping Office</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Semarang Environmental Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>private energy companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NGOs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>universities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2nd Pillar: New Economic Opportunities

Strategy A. Promoting entrepreneurship to increase the competitiveness of trade and services

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>A1</td>
<td>Enhance the Capacity of SME and Creative Economy</td>
<td>Semarang Cooperative and SMEs Office</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>private companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chamber of Commerce and Industry</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>A3</td>
<td>Promote E-Commerce and E-Business</td>
<td>Semarang Cooperative and SMEs Office</td>
<td>Inventing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Forum for Economic Development and Employment Promotion (FEDEP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chamber of Commerce and Industry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>financial institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>A4</td>
<td>Expand Social Security Coverage to workers in SMEs</td>
<td>Semarang Cooperative and SMEs Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manpower and Transmigration Office</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>A5</td>
<td>Provide Capacity Development for the Informal Sector</td>
<td>Semarang Cooperative and SMEs Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Semarang Office of Market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>private companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>financial institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>A6</td>
<td>Rebrand Traditional Markets</td>
<td>Semarang Office of Market</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Semarang Office of Market</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Strategy B. Developing environmentally-friendly and socially oriented innovative businesses

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>B1</td>
<td>Promote Urban Farming</td>
<td>Semarang Agriculture Office</td>
<td>Inventing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>agriculture companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>food companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NGOs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>CODE</td>
<td>Initiative</td>
<td>Proposed Initiative owner</td>
<td>Status</td>
<td>Type</td>
<td>Time Period</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>------------</td>
<td>---------------------------</td>
<td>--------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>17</td>
<td>B2</td>
<td>Promote Ecotourism and Ecotourism Activity</td>
<td>• Semarang Tourism and Culture Office • Tourism companies • NGOs</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td>18</td>
<td>B3</td>
<td>Improve Performance of Waste Bank and Bins</td>
<td>• Semarang Environmental Office • NGOs • Universities</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
</tbody>
</table>

**Strategy C. Strengthening multi stakeholder (Academic- Business- Community- Government) partnerships to create job opportunities**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed Initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>C1</td>
<td>Strengthen the ABCG (Academic- Business- Community- Government) Coordination for Creating Job</td>
<td>• Semarang Regional Planning Agency • Forum for Economic Development and Employment Promotion (FEDOPEP) • private companies</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

**Strategy A. Developing Technology for disaster and disease management**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed Initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>A1</td>
<td>Raise Public Awareness in Areas Prone to Disasters</td>
<td>• Disaster Preparedness Agency of Semarang • Disaster Preparedness Agency of Semarang City Planning and Housing Office Platform Partner: Supporter: Digital Office</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

**Strategy B. Enhancing the capacity of stakeholder in disaster and disease management**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed Initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>A2</td>
<td>Explore Alternative Methods to Prevent Dengue Fever</td>
<td>• Health Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>22</td>
<td>A3</td>
<td>Explore New Technology in Disaster Management</td>
<td>• Disaster Preparedness Agency of Semarang • Water, Mineral and Energy Resources Management Office • Semarang Development Planning Agency • private sector • universities • Environment Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>B1</td>
<td>Replicate Disaster Preparedness Groups in Disaster-Prone Areas</td>
<td>Disaster Preparedness Agency of Semarang</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Advancing</td>
</tr>
<tr>
<td>24</td>
<td>B2</td>
<td>Improve Community-Based Sanitation System</td>
<td>Sanitary and Landscaping Office</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td>No</td>
<td>CODE</td>
<td>Initiative</td>
<td>Proposed Initiative Owner</td>
<td>Status</td>
<td>Type</td>
<td>Time Period</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>25</td>
<td>B5</td>
<td>Increase the Capacity of Stakeholders in Facing Disasters and Disease Outbreaks</td>
<td>- Disaster Preparedness Agency of Semarang - Health Office - Universities - NGOs</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
</tbody>
</table>

**Strategy C. Improving coordination in disaster risk reduction**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed Initiative Owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>C1</td>
<td>Prepare Participatory Contingency Plan</td>
<td>- Disaster Preparedness Agency of Semarang</td>
<td>Inventing</td>
<td>Key Initiative</td>
<td>Long Term</td>
</tr>
</tbody>
</table>

**4th Pillar. Integrated Mobility**

**Strategy A. Encouraging a change in behavior from using private vehicles to public transport**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed Initiative Owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>A1</td>
<td>Optimize Intermodal Transport</td>
<td>Transportation, Communication and Informatics Office</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>28</td>
<td>A2</td>
<td>Expand the Coverage of BRT Corridors and Feeder Service</td>
<td>Transportation, Communication and Informatics Office</td>
<td>Ongoing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>29</td>
<td>A3</td>
<td>Explore the Possibility of MRT Development and Its Alternatives</td>
<td>- Transportation, Communication and Informatics Office - private sector</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
</tbody>
</table>

**Strategy B. Improving coordination and institutional quality management of public transportation**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed Initiative Owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>A5</td>
<td>Improving Public Transportation Facility to be More Disabled People- and Environmentally-Friendly</td>
<td>- Transportation, Communication and Informatics Office - Partner Supporter: KIES</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>A6</td>
<td>Improve Pedestrian and Bicycle Paths</td>
<td>- Toll Road Regulation Agency and Transportation - Communication and Informatics Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>B1</td>
<td>Strengthen Institutional Management of Public Transportation</td>
<td>Transportation, Communication and Informatics Office</td>
<td>Ongoing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>No</td>
<td>CODE</td>
<td>Initiative</td>
<td>Proposed initiative owner</td>
<td>Status</td>
<td>Type</td>
<td>Time Period</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>------------</td>
<td>---------------------------</td>
<td>---------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>34</td>
<td>B2</td>
<td>Establish a Public Transport Consortium</td>
<td>Transportation, Communication and Informatics Office</td>
<td>Inventing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td>35</td>
<td>B3</td>
<td>Establish a Public Transport Consortium</td>
<td>Transportation, Communication and Informatics Office</td>
<td>Inventing</td>
<td>Support Initiative</td>
<td>Support Initiative</td>
</tr>
</tbody>
</table>

**Strategy C. Improving Integration in Transport Planning**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>C1</td>
<td>Intensify Development in the Planned Growth Center</td>
<td>Semarang Development Planning Agency, Semarang Planning and Housing Office, Digital Globe</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Long Term</td>
</tr>
<tr>
<td>37</td>
<td>C2</td>
<td>Promote the Regional Transportation Master Plan</td>
<td>Transportation, Communication and Informatics Office, Ministry of Transportation, and Ministry of Digital Globe</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>38</td>
<td>C3</td>
<td>Improve Public Transport Access to Tourist Attractions</td>
<td>Transportation, Communication and Informatics Office</td>
<td>Inventing</td>
<td>Support Initiative</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
</table>

**Strategy A. Optimizing masyarakat (development planning forum) in the planning process**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>A1</td>
<td>Improve Mechanism for Pre-Masyarakat</td>
<td>Semarang Development Planning Agency</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td>41</td>
<td>A2</td>
<td>Increase Accessibility to E-Masyarakat</td>
<td>Semarang Development Planning Agency</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Support Initiative</td>
</tr>
</tbody>
</table>

**Strategy B. Improving the Integration of Planning and City Budgeting**

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>B1</td>
<td>Improve the Capacity of City Planning and Budgeting Personnel</td>
<td>Regional Finance Agency</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>43</td>
<td>B2</td>
<td>Integrate Planning and City Budgeting</td>
<td>Semarang Development Planning Agency</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Support Initiative</td>
</tr>
<tr>
<td>44</td>
<td>B3</td>
<td>Improve the Documentation and Publication of City Program</td>
<td>Semarang Development Planning Agency, City Public Relations Division</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Medium Term</td>
</tr>
<tr>
<td>No</td>
<td>CODE</td>
<td>Initiative</td>
<td>Proposed initiative owner</td>
<td>Status</td>
<td>Type</td>
<td>Time Period</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>------------</td>
<td>---------------------------</td>
<td>--------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>45</td>
<td>B4</td>
<td>Improve Budget Administration, Monitoring and Evaluation</td>
<td>Semarang Development Planning Agency</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Strategy C: Optimizing the government’s coordination of data integration and public information</td>
</tr>
<tr>
<td>46</td>
<td>C1</td>
<td>Increase the Quality and Capacity of City Information System</td>
<td>Semarang Information and Documentation Managing Officers (polic) - universities</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>47</td>
<td>C2</td>
<td>Enhance the Performance and Utilization of Internet-Based Participatory Reporting</td>
<td>City Public Relation Division - Electronic Data Management Division</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>C3</td>
<td>Improve Public Information on City Permit Process</td>
<td>Semarang Permit and Capital Investment Agency - Platform Partner Supporter: Digital Globe</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td>Medium Term</td>
</tr>
</tbody>
</table>

6th Pillar: Competitive Human Resource

Strategy A: Preparing the workforce for the current job market

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>A1</td>
<td>Establish Career Centers</td>
<td>Semarang Manpower and Transmigration Office</td>
<td>Inventing</td>
<td>Key Initiative</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

Strategy B: Promoting the value of pursuing higher education qualifications

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>A2</td>
<td>Align Education and Training with Labor Demand</td>
<td>Semarang Education Office - Semarang Manpower and Transmigration Office - Platform Partner Supporter: Save The Children</td>
<td>Inventing</td>
<td>Support Initiative</td>
<td>Short Term</td>
</tr>
<tr>
<td>51</td>
<td>A3</td>
<td>Provide Vocational Training for Elementary and Junior High School Graduates</td>
<td>Semarang Manpower and Transmigration Office - Community - Women Empowerment and Family Planning Agency - Platform Partner Supporter: Save The Children</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
</tbody>
</table>

Strategy C: Improving non-formal education

<table>
<thead>
<tr>
<th>No</th>
<th>CODE</th>
<th>Initiative</th>
<th>Proposed initiative owner</th>
<th>Status</th>
<th>Type</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>B1</td>
<td>Increase Access to Scholarships</td>
<td>Semarang Education Office</td>
<td>Advancing</td>
<td>Support Initiative</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>C1</td>
<td>Promote Continuous education service for people of all ages</td>
<td>Semarang Education Office</td>
<td>Advancing</td>
<td>Key Initiative</td>
<td>Medium Term</td>
</tr>
</tbody>
</table>
Semarang must have a preparation in facing these continuous changes and challenges. With the support from the 100 Resilient Cities (100RC) program initiated by the Rockefeller Foundation, Semarang started the preparation of a city resilience strategy. The 100RC program has a comprehensive view of city resilience that is based on four dimensions, which include (1) Health and Wellbeing, (2) Social and Economic Development, (3) Environment and Infrastructure and (4) Leadership and Strategy. All process is conducted in inclusive manner to ensure ownership of the program by various elements of city stakeholders.