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BUILDING HEALTHY CITIES

It's All Connected

Makassar Journey Map Series 2018-2021

About This Series

Building Healthy Cities (BHC) is a USAID-funded learning project in four Smart Cites in Asia – Indore, India; Makassar, Indonesia; Da Nang, Vietnam; and Kathmandu, Nepal. BHC is testing how to successfully apply urban planning approaches that improve the social determinants of health in complex systems.

BHC uses exploratory data collection, multisectoral engagement, and citizen participation. This systems approach informs project activities and the prioritization of city-funded workplans. The combined impact should improve the lives of all residents in these three cities and reduce preventable mortality.

BHC is using several tools and processes to create coalitions and organize its approach in each city. One key process is systems mapping to illustrate the key dynamics (patterns underlying problems) and define key entry (or 'leverage') points to address social and environmental determinants of health. Another way that BHC is documenting citizen experiences in each city is through Journey Maps.

The Journey Maps apply 'design thinking' approaches, which are often used to tailor products to intended customers; citizens are like customers in that they pay taxes or fees to use city services. BHC has adapted this tool to document the experience (or 'journey') of citizens who are trying to overcome one service issue in each city, over time, updated on a quarterly basis. The specific topics were identified during the first year of activities in each city and fit within the larger context shown in the systems maps. BHC is using these Journey Maps to track citizen and city official perspectives, and to document change at the neighborhood level.

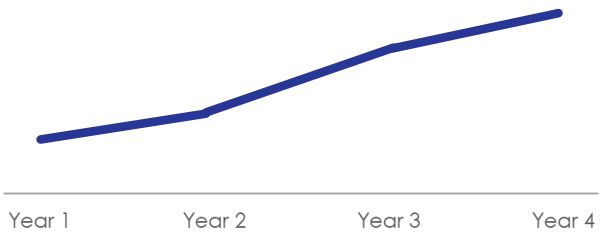
BHC is training people in each neighborhood to develop and use these Journey Maps and on grassroots advocacy techniques. By bringing the citizen experience directly to city planners, BHC hopes to better align municipal planning with community priorities such as safe water, clean air, hygiene, traffic safety, and other key components of healthy urban living.

Life of Project Journey Map Summary

BHC is concluding the Journey Maps in 2021. This process brought insights into day-to-day service availability for Makassar residents, and created a regular dialogue with the community and city offices about the causes, consequences, and potential solutions to persistent urban health-related issues.

After a slow start to this 4-year map focused on reducing flooding, an influx of funding and interest in years 2 and 3 resulted in positive structural and behavior changes in this neighborhood. BHC connected citizens and key city officers to help address neighborhood concerns. Flooding is now significantly decreased compared to the beginning of the map. Going forward, the city will need to continue to invest some funds and time to maintain the structural improvements as they age.

Journey Map Trajectory



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BUILDING HEALTHY CITIES

Makassar Journey Map #1 – It's All Connected

YEAR 1 Water is a multi-faceted issue in Makassar – dirty water overflows out of open drains in some neighborhoods, and this is often compounded by flooding in the rainy season. Clean water supply is hampered by outages and leak-ing infrastructure. The water pollution in Makassar is primarily from domestic wastewater, which is discharged to a network of open stormwater drains. Household behaviors are also a cause of over-flows, as common practice is to dispose of garbage in stormwater drains. When stormwater drains are blocked, rainwater has nowhere to go, and houses will flood with dirty water. The issue of flooding was a key topic of discussion in the BHC Health Needs Assessment focus groups - they said their biggest complaint re-garding city services was with flooding. According to information received from Smart City Makassar, the city had 21 flood-prone ar-eas and 7 critical hotspots for flooding (Technical Team Makassar Smart City 2017). This journey follows one heavily populated area, where the majority are informally employed in service sector and daily labor.

Photo credit: Kabar News

Flooding after one day of heavy rain in July 2018.

SMART CITY ALLOCATIONS
Drainage and flooding mitigation projects were allocated $3,034,985 as of 2018, 0.9% of total city budget.

"According to one of the residents affected by seasonal flooding in Makassar, "At this rate, I have to evacuate, sir. Inside the house the water is thigh high."
— Kabar News, March 2018

NEGATIVE ACTION:
A broken dam further affected water supply.

"Flooding is regularly happening in rainy season. It reaches adult knee. Flooding is caused by garbage that clogs drainage."
— Resident, April 2018

"Street have open drains with a lot of plastic and other junk floating in the filthy drain water."
— Resident, April 2018

"The sanitary workers alert daily. Too much garbage and lowland cause garbage clogging."
— Lurah, Local government, April 2018

"One dam is leaking, in quantity water debit/supply decrease to 75%, and affect also water quality, so we totally stop the water supply. We urge customers to save on water use. Efforts made by PDAM today are opening other pipes and we will also distribute clean water tanks to affected area."
— Representative of PDAM (Water Supply Management), Makassar, May 2018

NO ACTION:
Village officer proposed to the city through Musrenbang to address open drainage and lowland issues

"We were involved by neighborhood officers to regularly keep our neighborhood clean including the garbage that potentially clogs the drainage. Due to open drainage, littering by kids still clogs the drainage."
— Resident, September 2018

"In Maccini Sombala, there are 5 drainage workers and 9 sanitary workers with 9 3-wheel motorcycles that 3 times a week collect garbage of residents."
— Neighborhood officer of Maccini Sombala, September 2018

"Water supply have been available all day but still less volume."
— Resident, September 2018

"We have proposed to the city through Musrenbang to address open drainage and lowland issues. Public works dept through Kotaku program did the assessments but no followed up anymore. Kotaku prioritized another neighborhood. We also engage residents to campaign of garbage."
— Village officer of Maccini Sombala,, September 2018

"Now, we are safe from Flooding. But I ensure that it will still happen in rainy season due to this neighborhood is lowland."
— Resident, September 2018

"We are still working on the leaking dam. Efforts made by PDAM are opening other pipes to ensure affected area including Maccini sumbala still get water supply, but Apologize with less volume."
— Representative of PDAM (Water Supply Management) Makassar, September 2018

Quarter 2 | Quarter 3 | Quarter 4

KEY: Action | Negative Action | No Action | Special Note | Citizen/ Resident | Media | Government Official | Service Provider | Data Point

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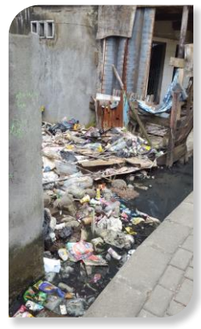
BUILDING HEALTHY CITIES

Makassar Journey Map #1 – It's All Connected

YEAR 2 Water is a multi-faceted issue in Makassar – dirty water overflows out of open drains in some neighborhoods, and this is often compounded by flooding in the rainy season. Clean water supply is hampered by outages and leaking infrastructure. The water pollution in Makassar is primarily from domestic wastewater, which is discharged to a network of open stormwater drains. Household behaviors are also a cause of overflows, as common practice is to dispose of garbage in stormwater drains. When stormwater drains are blocked, rainwater has nowhere to go, and houses will flood with dirty water. The issue of flooding was a key topic of discussion in the BHC *Health Needs Assessment* focus groups - they said their biggest complaint regarding city services was with flooding. According to information received from Smart City Makassar, the city had 21 flood-prone areas and 7 critical hotspots for flooding (Technical Team Makassar Smart City 2017). This journey follows one heavily populated area, where the majority are informally employed in the service sector and daily labor.



An open drain (left) in April 2018. A drain temporarily covered by boards (right) in April 2019.

ACTION: Public Works Department is building a water pump. Local government successfully encouraged communities to clean the drains every week.

ACTION: Local government covered the drains with temporary boards to prevent trash build up.

NO ACTION: No change to the physical situation.

NO ACTION: No change to the physical situation.

"Maccini Sombala is lowland prone to flooding every rainy season…A number of drainage workers in Maccini Sombala regularly clean the sedimentation and garbage in the drainage…Unfortunately, those workers do not wear Personal Protective equipment…Water pump is being built in this area that plan to be used in 2019."

— Drainage Division of Public Works Department, Dec. 2018

"In this rainy season, we are suffering by flooding that risk for water borne disease such as diarrhea and skin symptoms…We have been proposing this alley to be repaired in Musrenbang since 2005."

— Resident of Maccini Sombala, Dec. 2018

"The government have worked on lowland in my neighborhood, except the road in front of my house…They did assessment but nothing change."

— Resident of Maccini Sombala, Dec. 2018

"Monthly, we have health promotion on healthy behavior for residents…We also build posts in the flooding area to prevent related health impact such as itch and diarrhea…Regular health promotion is also conducted in the school…Drinking water and water supply are quarterly lab checked."

— Sanitarian at a Puskesmas, Dec. 2018

"In January-March 2019, there are 9 cases of dengue, and 84 diarrhea in Maccini Sombala. I engage communities every month through Posyandu program to deliver health promotion on environmental related disease."

— Sanitarian at a Puskesmas, Apr. 2019

"Still children throw garbage on the road and come to drainage. It leads flooding when raining. Fortunately, every Sunday, RT/RW…clean up trash clogging drains. I saw public works through Kotaku program is working in Maccini Sombala RW 06, while in my RW [03] is not. I hope in my area, public works also address lowland first then close the drainage with openable cover…so people/drainage worker can open and clean drainage."

— Resident of Maccini Sombala, Apr. 2019

"No trash bin available, garbage collector only come to bigger alley. Sometimes we miss them that comes only once a week without any sign/sound. Better if government provide us trash bin and garbage collectors give any sign or music when coming to communities."

— Resident of Maccini Sombala, Apr. 2019

"Nice idea, we will try to provide any sign like certain music when garbage collectors coming to communities every day. We have spread letter to communities that garbage collectors come at 06:00 to 09:00. In addition, let me check my staff to ensure they engage communities every day not every week."

— Village Officer, Apr. 2019

SMART CITY ALLOCATIONS
In 2019 Makassar city allocated $2,599,146 for building drainage and $2,885,512 for drainage rehabilitation. No funds were allocated specifically for Maccini Sombala.

"In 2019, we will cover 18 villages in Makassar including Maccini Sombala to address slum area issues with $35,280 to $141,193 per village. Specifically, there are 41 RTs in Maccini Sombala addressing poor street and drainage issues.

— Kotaku Program (city without slum), June 2019

"Ideally, sanitary worker have to come every day. Due to they cover large zone…they sometimes only come once in 2-3 days. But I will check in further in empty land you mentioned. Thanks also for suggestion to cover open drainage temporarily by boards. I will encourage village officers, RT, and RW to do that.

— Sub-district officer, May 2019

"In the rainy season, some children suffered Dengue and Diarrhea. Puskesmas came and gave us Abate powder and did fogging in the Dengue case area."

— Resident of Maccini Sombala, May 2019

"Sanitary worker come once in 2-3 days, so our garbage is getting rotten. Some residents throw their garbage in the empty land. Children still littering. I suggest to close the drainage even by boards as I saw in some areas. At least we can reduce garbage come to drainage."

— Resident of Maccini Sombala, May 2019

OTHER RELATED PROGRAM (KOTAKU) ALLOCATIONS
In 2019, the Kotaku Program included $141,193 to address slum area issues in Maccini Sombala.

"We have coordinated to Kotaku for better planning on addressing poor street and drainage issues. Hopefully, some areas can be started in the beginning of 2020. Regarding, sanitary worker, Ideally it should be every day, but they have large area, so they cannot collect garbage daily in every spot. Hope, people can understand."

— Villlage officer, Maccini Sombala, Sept. 2019

"Residents came to Puskesmas with suspect dengue. We did a fogging and gave abate powder (larvicide) in the some areas."

— Puskesmas Sanitarian, Sept. 2019

"The trash becomes rotten … pet cats [go through it and move it into the street] … then goes into drainage. I complained to RT and also to garbage collector that only come once a week. They told me that sanitary workers have many alleys to be served, so they cannot come every day."

— Resident of Maccini Sombala, Sept. 2019

"After flooding was receded, we were suffered by many mosquitos. No prevention like health promotion by Puskesmas. They came for fogging and giving abate (larvicide) after my colleague complaint on his sickness."

— Resident of Maccini Sombala, Sept. 2019

Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4

KEY: Action · Negative Action · No Action · Special Note · Citizen/Resident · Media · Government Official · Service Provider · Data Point

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BUILDING HEALTHY CITIES

Makassar Journey Map #1 – It's All Connected

YEAR 3 Water is a multi-faceted issue in Makassar – dirty water overflows out of open drains in some neighborhoods, and this is often compounded by flooding in the rainy season. Clean water supply is hampered by outages and leaking infrastructure. The water pollution in Makassar is primarily from domestic wastewater, which is discharged to a network of open stormwater drains. Household behaviors are also a cause of overflows, as common practice is to dispose of garbage in stormwater drains. When stormwater drains are blocked, rainwater has nowhere to go, and houses will flood with dirty water. The issue of flooding was a key topic of discussion in the BHC *Health Needs Assessment* focus groups - they said their biggest complaint regarding city services was with flooding. According to information received from Smart City Makassar, the city had 21 flood-prone areas and 7 critical hotspots for flooding (Technical Team Makassar Smart City 2017). This journey follows one heavily populated area, where the majority are informally employed in the service sector and daily labor.

In 2020 Kotaku completed work to prevent flooding, including a concrete fence (left), closed drainage, and a better road (right).

Quarter 1

ACTION:
Kotaku is using 2019 funds to improve septic tanks, drainage, and poor roads in Maccini Sombala. The Puskesmas formed a community based-team to prevent waterborne diseases like dengue.

"Two weeks ago, together with local communities, the government initiated to clean the drainage. We also got water pump from the government to deal with flooding."
— Resident of Maccini Sombala, Dec. 2019

"Kotaku is working in one RW of Maccini Sombala. Mostly concerning on septic tank, drainage and poor road with progress 97%."
— Kotaku, Dec. 2019

"To prevent environmental related disease like dengue, we initiated to form a Jumantik [community based-team] that is responsible to monitor mosquito larva in their area."
— Sanitarian at a Puskesmas, Dec. 2019

"We got funding from Kotaku to address slum issues. In addition, village officer told us that we will have additional funding from the city for another spot in Maccini Sombala next year."
— Resident of Maccini Sombala, Dec. 2019

CITY FUNDING ALLOCATIONS
A village officer indicated that additional funding from the city will cover 2 RWs in 2020. Approximately $32,142 USD of village funding will address maintenance issues and provide paving blocks in 2020.

Quarter 2

ACTION:
Kotaku has completed its project in Maccini Sombala to improve septic tanks, drainage and poor roads.

"We got flooding in early March. So we were exposed by dirty water causing itch"
— Resident of Maccini Sombala, Mar. 2020
They also mentioned that they have raised drainage issues to village officer in their alley but no response yet.

"Kotaku has completed a project concerning septic tanks, drainage and poor roads in RW 6 of Maccini Sombala."
— Kotaku, Mar. 2020

"We have talked to RW and RT regarding garbage causing clogs drainage in this alley, but no response yet...so we initiated cleaning up drainage and covering it using boards with a flowerpot above."
— Resident of Maccini Sombala, Mar. 2020
She also mentioned that garbage collectors sometimes come every 3-7 days, so residents throw their garbage into the unused land.

Quarter 3

ACTION:
In March 2020, Kotaku completed projects addressing open drainage and poor roads in RW 8 and RW 6. This will significantly improve water waste management and prevent flooding.

CITY FUNDING ALLOCATIONS
The village allocated additional ~$20,837 USD through the city budget for 2021 to address poor roads and open drainage.

"I would like to confirm that Kotaku has completed projects in some areas in Maccini Sombala … For this year, the village, through the city budget (around $20,837), will also work in some areas such as RW 3, RW 2, and RW 8 on poor roads and drainage. Due to the current pandemic, some training, meeting, and empowerment budget were also reallocated to infrastructure."
— Village officer of Maccini Sombala, June 2020
He also mentioned that the village (kelurahan) still encourages community healthy environment efforts.

"Kotaku completed a project on poor roads and open drainage in my neighborhood on January, 2020."
— Resident of Maccini Sombala, June 2020
She also suggested that garbage collectors could pick the garbage up at her house instead of waiting for people bring their trash.

"I appreciate that Kotaku completed their project in our neighborhood (RW 8) by March, 2020. Kotaku is concerned on open drainage and poor roads."
— Resident of Maccini Sombala, June 2020
She also mentioned that road and drainage construction has improved water waste management and prevented flooding. She suggested Kotaku should also plan to address another poor road in their RW.

Quarter 4

ACTION:
There was reduced flooding in RWs with completed improvement. Where flooding occurred, puskesmas responded to dengue fever concerns with epidemiology investigations and fogging.

"Supported by Kotaku, flooding spots, especially in RW 8 and RW 6 have decreased. We will try to collaborate with sub-district office, communities and NGOs to address the remained open drainage."
— Village Officer, Sept. 2020

"This alley still has an open drainage. It affects clogs drainage and puddle in my neighborhood."
— Resident of Maccini Sombala, Sept. 2020
She also mentioned that she got itch and diarrhea in the rainy season. She appreciated that the Public Works Department sometimes cleans the drainage.

"I appreciate that government has worked on the poor road and open drainage in my neighborhood. Previously, every rainy season, there were accidents and puddles here."
— Resident of Maccini Sombala, Sept. 2020
He also mentioned that there was no different service for garbage collection due to COVID-19. He also suggested that Puskesmas should routinely conduct large campaigns on hygiene issues.

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BUILDING HEALTHY CITIES

Makassar Journey Map #1 – It's All Connected

YEAR 4 Water is a multi-faceted issue in Makassar – dirty water overflows out of open drains in some neighborhoods, and this is often compounded by flooding in the rainy season. Clean water supply is hampered by outages and leaking infrastructure. The water pollution in Makassar is primarily from domestic wastewater, which is discharged to a network of open stormwater drains. Household behaviors are also a cause of overflows, as common practice is to dispose of garbage in stormwater drains. When stormwater drains are blocked, rainwater has nowhere to go, and houses will flood with dirty water. The issue of flooding was a key topic of discussion in the BHC *Health Needs Assessment* focus groups - they said their biggest complaint regarding city services was with flooding. According to information received from Smart City Makassar, the city had 21 flood-prone areas and 7 critical hotspots for flooding (Technical Team Makassar Smart City 2017). This journey follows one heavily populated area, where the majority are informally employed in the service sector and daily labor.

In 2020 Kotaku completed work to prevent flooding, including closed drainage and a better road (left). In 2021, people stopped leaving trash in empty land where they did so previously (center), and residents placed wood boards to temporarily fix damaged drain covers (right).

NO ACTION:
Garbage remains an issue, clogging drains and causing flooding.

"During pandemic, sanitary worker is still active, taking our garbage every two days…I suggest that they can also clean garbage in the drainage, so we will not experience of puddle due to garbage clogs the drainage."
— Resident of Maccini Sombala, Dec. 2020

"We have additional budget from DFAT for slum area in Makassar city, unfortunately, Maccini Sombala is no longer included for 2021, as we have worked in this village for the last two years."
— Kotaku, Dec. 2020

"No, sanitary workers are not responsible for the garbage in the drainage. It is the drainage worker's concern. I will request them through the sub-district office."
— Village Officer, Dec. 2020

"Yes, I agree that this closed drainage better than previous road with open drainage…however, previously we can clean the open drainage if garbage clogged the drainage, now, it is difficult to clean the closed drainage where garbage still clogs the drainage leading to medium flooding during this rainy season."
— Resident of Maccini Sombala, Dec. 2020
He also suggested that the government should build a better design for repairing roads and closed drainage, to effectively prevent garbage going into the drainage.

ACTION:
The city allocated additional funds to address poor road and open drainage issues in 3 RWs in Maccini Sombala

"We have encouraged the RT and RW to place nets in some areas to prevent trash clogs the drainage… Also, the city have allocated $6,322 in RW 8, $12,363 in RW 2, and $7,667 in RW 4 for poor road and open drainage issues in Maccini Sombala."
— Village Officer, March 2021

"We have better condition after village office and Kotaku program covered the drainage…puddle dries up quicker as rain stop. However, sometimes it has full of garbage and we cannot clean it due to it is permanently covered..."
— Resident of Maccini Sombala, March 2021
He also suggested to place a garbage net in some spots so garbage will not clog the drain.

"By first week of March, we suffered a flooding with about 30 cm high, but it dried up for 2-3 hour after rain had stopped…As the result trash scattered everywhere."
— Resident of Maccini Sombala, March 2021
She also mentioned that some people place their trash in empty areas, and village officers have to reprimand residents.

ACTION:
Youth groups were engaged to prevent littering. No one left trash in empty land where littering has been common.

"We saw no one leaving their garbage in the empty land anymore..."
— Resident of Maccini Sombala, June 2021
She also mentioned that the RW and RTs encouraged the youth group to watch and report people who leave their garbage in empty land.

"We have encouraged young group like "the Karang Taruna" to participate on garbage issues…They can watch and report it if people still leave their garbage in the empty land."
— Village Officer, June 2021
The village officer also stated that he would brief the sanitation collector and give sanctions if they are not responsible in their duties.

"During this month, the sanitation worker did not come in this Alley…I think, the village officer should remind them or recruit additional workers for better service."
— Resident of Maccini Sombala, June 2021

ACTION:
Public Work Department covered open drains and raised the road in some RWs in Maccini Sombala.

"We thank to the government especially public work department and village office that have invested to close drainage and raise the road...we are not suffering a lot of flooding anymore."
— Resident of Maccini Sombala, Sept. 2021
He also suggested that public works cover open drains in another RW.

"Public work department has covered all drainage in this RW, however, in some spots, those closed drainage have been damaged…we temporary covered it using wood boards to prevent garbage from entering the drainage…I hope public work would repair it."
— Resident of Maccini Sombala, Sept. 2021

""We have worked in some RWs in Maccini Sombala for this year…thanks for informing us regarding damaged drainage…we will discuss it internally and provide a separated effort to response that issues."
— Public Work Department, Sept. 2021

Journey Map Summary
After a slow start to this 4-year map, an influx of funding and interest in years 2 and 3 resulted in positive structural and behavior changes in this neighborhood. BHC connected citizens and key city officers to help address neighborhood concerns. Flooding is now significantly decreased compared to the beginning of the map. Going forward, the city will need to continue to invest some funds and time to maintain the structural improvements as they age.

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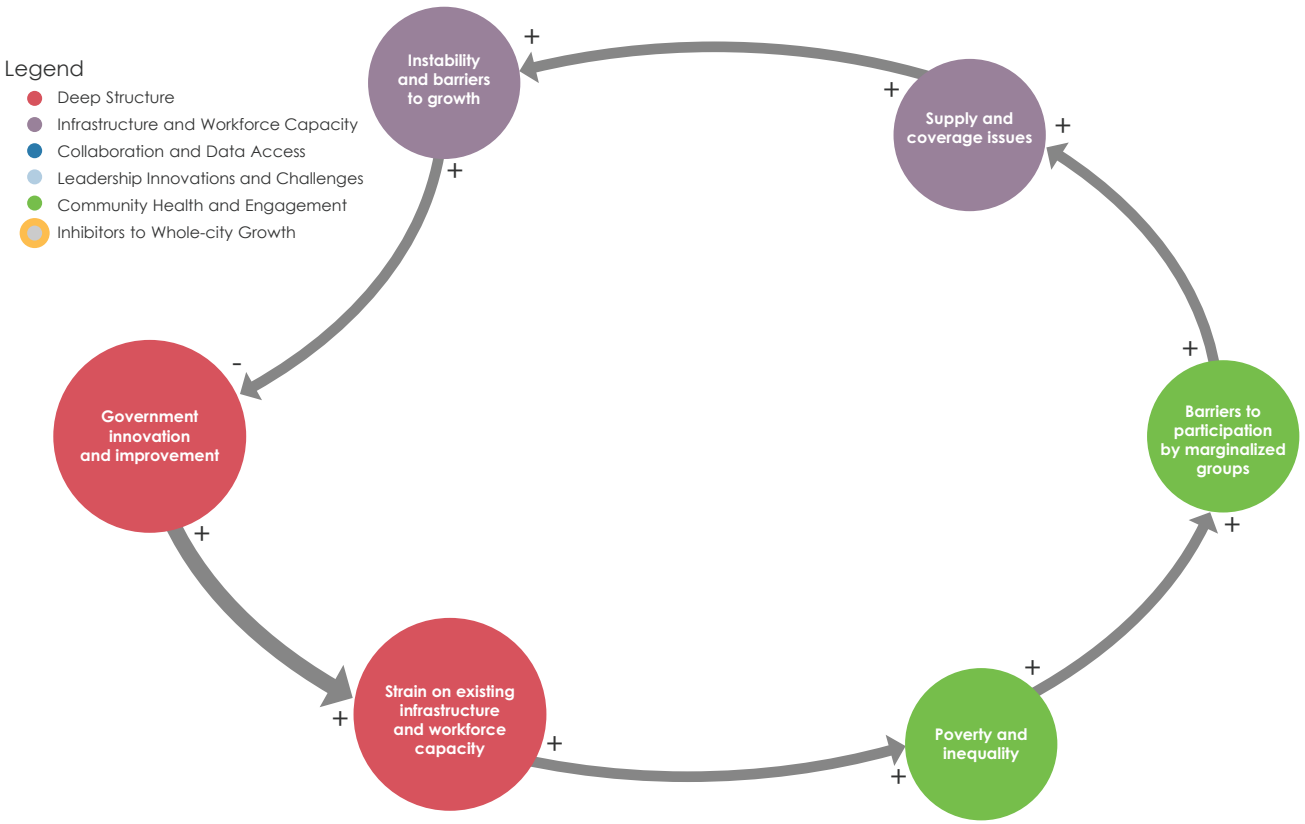
How Does This Story Connect to the Makassar Systems Map?

Systems Map Loop: It's All Connected

When individuals and communities experience high levels of poverty and inequality, the level of barriers they face to participating in public programs and accessing basic infrastructure is increased. These barriers include cost, transportation, mobile service, stable housing, and a city identification card, to name a few. As a result of low utilization and support, these services are not prioritized for funding and experience increased supply and coverage issues. The deterioration of critical infrastructure and services causes increased instability and barriers to positive growth across the city. This, in turn, undermines government efforts to innovate and foster improvements to health and quality of life.

Example 1: During a focus group discussion with residents of Maccini Sombala, a designated slum area, participants mentioned that people there face significant water supply issues - water service is only provided from midnight to 6am. Many areas of Makassar also experience difficulties in access to clean water supply which has encouraged people to use privately drilled water sources. This decreases utilization of PDAM (water supply provided by the city) which reduces the available resources to support water infrastructure improvement efforts. In addition, these private water sites cost money and are not monitored for water quality, often leading to unsafe conditions.

Example 2: Makassar is home to many local migrants, many of whom live in slum areas. They cannot access a number of service or enroll in subsidized programs because they are not identified as Makassar citizens. They experience many barriers to securing the necessary documentation (a Makassar identification card) to become registered as such. This leads to a decrease in public service utilization in Makassar, but increases demand for "creative" solutions which are often lacking in health and safety measures.



For additional information on the Makassar Systems Map and BHC's activities, visit jsi.com/buildinghealthycities