Implementation of Urban Health Equity Assessment and Response Tool: a Case of Matsapha, Swaziland

Kevin Makadzange · Zamahlubi Radebe · Nokuthula Maseko · Voyivoyi Lukhele · Sabelo Masuku · Gciniwe Fakudze · Tigest Ketsela Mengestu · Amit Prasad

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Abstract Equity in health implies that ideally everyone could attain their full health potential and that no one should be disadvantaged from achieving this potential because of their social position or other socially determined circumstances. Making cities and human settlements inclusive, safe, resilient and sustainable contributes towards ensuring healthy lives and promoting well-being for all at all ages in dignity, equality and in a healthy environment. This paper illustrates a case of applying the Urban Health Equity Assessment and Response Tool (Urban HEART) in a small town in Africa. It describes the process followed, facilitating factors and challenges faced. A descriptive single-case study design using qualitative research methods was adopted to collect data from purposively selected respondents. The study revealed that residents of the Matsapha peri-urban informal settlements faced challenges with conditions of daily living which impacted negatively on their health. There were health equity gaps. The

application of the tools was facilitated by the formation of an all-inclusive team, intersectoral collaboration and incorporating strategies for improving urban health equity into existing programmes and projects. Urban HEART is a simple and easy to use valuable tool for pursuing the goal of health equity towards attaining sustainable development through evidence-based approaches for intersectoral action and community involvement.

Keywords Equity · Social determinants of health · Universal health coverage

Introduction

Urban population is growing rapidly in Africa, including countries such as Swaziland. In Sub-Saharan Africa, estimates indicate that urban population is expected to grow by 3.83% per year between 2015 and 2020, 3.65% per year between 2020 and 2025 and 3.47% per year between 2025 and 2030 [1]. Rapid unplanned urbanization can lead to overcrowding, which can generate slums, shanty towns, or peri-urban informal settlements. These residential areas are characterised by poor housing, lack of fresh water and bad sanitation facilities [2]. All of these shortages can be a threat to the residents' health.

There are strong links between urban planning and health. Where people live affects their health and well-being as well as opportunities to lead healthy lives [3] The conditions of everyday living, social and economic

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K. Makadzange (✉)
World Health Organization, 2nd Floor Lilunga House,
P.O. Box 903, Mbabane, Swaziland
e-mail: makadzangek@who.int

Z. Radebe · N. Maseko · S. Masuku · G. Fakudze ·
T. K. Mengestu
Matsapha Municipality, Matsapha, Swaziland

V. Lukhele
Ministry of Health, Mbabane, Swaziland

A. Prasad
World Health Organization, Geneva, Switzerland

inequality and the extent to which a society assesses and acts on inequities in their health care access have a strong bearing on the health status of people [4]. Tackling health inequities is a political imperative that requires leadership, political courage, social action, a sound evidence-base and progressive public policy [5].

Urban health equity implies that everyone in urban areas could attain their full health potential and that no one is disadvantaged from achieving this potential because of their social position or other socially determined circumstances. It is therefore necessary that all urban residents have a fair opportunity to lead a healthy life. The social dynamics that cause urban health inequity can be modified to promote equity and to improve urban health conditions in general [6]. Local leaders are, therefore, urged to routinely assess urban health equity and to achieve a more equitable urban health environment through intersectoral and socially inclusive processes. Unfortunately, there are few studies exploring health inequities in small towns in Africa. In order to understand health equity gaps among people living in various parts of Matsapha or belonging to different socioeconomic groups within the town, the World Health Organization (WHO)'s Urban Health Equity Assessment and Response Tool (Urban HEART) was used [7, 8].

This study describes the use of Urban HEART in generating evidence for addressing urban health equity in Matsapha. Its objectives are to explore the experience of applying Urban HEART in Matsapha, describe the facilitating factors and challenges faced and determine the overall utility of the tool in achieving its stated goals.

The Urban Health Equity Assessment and Response Tool

The Urban HEART developed by the WHO Centre for Health and Development located in Kobe, Japan and launched in 2010 is a cost-effective way of achieving urban health equity using a social determinants of health approach. The Urban HEART is a user-friendly guide for policy and decision makers at national and local levels. It is used to identify and analyse inequities in health between people living in various parts of cities or belonging to different socioeconomic groups within and across cities and facilitates decisions on viable and effective strategies, interventions and actions that should be used to reduce inter- and intra-city inequities [4, 5].

The tool helps national and local governments to systematically use evidence to address health equity gaps in urban settings. It helps to identify the differences between the health, health determinants and well-being of people living in disadvantaged urban areas and the general population. It also assist in determining appropriate, feasible, acceptable and cost-effective strategies, interventions and actions which should be used to reduce gaps between people living in the same city [6].

The Urban HEART has an assessment component and a response component which can be implemented in six simple steps. In addition to health outcomes, the tool suggests reviewing evidence within four major policy domains, namely, Physical environment and infrastructure; Social and human development; Economics; and Governance [4–6]. The implementation of the tool achieves the following:

- Improved health and social status of people living in urban poor disadvantaged areas
- Stimulating communities mobilised to promote health and its equity determinants
- Acknowledgement of the Importance of the Social Determinants of Health (SDH) in Health Equity
- Promotion of intersectoral action to reduce inequity in health and development at the city level
- Appreciate comparable equity data and analysis
- Priority interventions/response planned and implemented [7]

Methods

Research Design

A descriptive single-case study design using qualitative research methods was adopted for the study.

General Settings

Swaziland is a landlocked country located in south-eastern Africa, between Mozambique and South Africa with an estimated population of 1.2 million, and Matsapha is a small industrial town in the Manzini region of Swaziland. Matsapha is mainly comprised of the industrial and small medium to low density residential area home to about 6100 residents. However, there is an extensive peri-urban informal settlement with a

population of over 35,000 people. These people rely on the municipality of Matsapha for employment and basic services, including health. This arrangement has impacts on health in particular health equity.

There is a relatively high concentration of industries as well as training institutions; hence it is regarded as the core industrial area for the country and an important engine for creation of national wealth. An estimated 700 business entities exist within 1150 ha which is the current size of Matsapha. Moreover, Matsapha constitutes a large workforce particularly in the lower income bracket who resides predominantly in the fringe areas of the town hence the high daytime population that declines rapidly as the night sets in. The daytime population also includes a large number of job seekers who flock into the town on daily basis in pursuit of employment opportunities in the industries.

Determinants of health equity in Matsapha include a wide range of factors in the political/economic, physical and social environment. The growing urban migrants and unemployed population of Matsapha resides in the peri-urban area with poor housing conditions, limited access to safe water, sanitation and hygiene, safety and security, health services, education and social support networks.

Study Site, Population and Period

The case of Matsapha was considered as a small town in Africa applying the Urban HEART. A non-random purposive sampling scheme was employed to stakeholders and Matsapha municipality staff who were likely to provide the most valuable data addressing the research objectives. The stakeholders included health workers, police, local leaders and community members. Some of these were members of the inclusive team that was assembled for the implementation of Urban HEART. The number of participants in the sample was not predetermined. Sampling was carried out until data saturation, when no further new themes emerged from the data.

Data Collection and Analysis

Data collection was undertaken through in-depth individual interviews, group interviews and document review. The interview guide focused on stakeholder experience in applying the Urban HEART. The questions focused on the participants understanding of Urban

HEART, their contribution in the application of the tool, their perception on the benefits of applying the tool, enabling factors and challenges faces, as well as suggestions for improving the application of the tool. All interviews were done in IsiSwati and English languages and were recorded, transcribed and translated, and interview scripts were produced using Microsoft Word 2010.

Review of documentary sources describing the implementation of Urban HEART in Matsapha, that mostly included reports and documents of the programme, articles and media reports, and statistics including direct observation, were undertaken. Data collection was done in phases and simultaneously with analysis so that the researcher could go back to respondents or new respondents in order to clarify or verify certain issues or validate the emerging findings and explanatory framework. The interview scripts were color coded and analyzed based upon the Marshall and Rossman (1994) framework which involved only three stages, namely, data formatting, data organising, and generating categories, themes and patterns [9].

Ethics

Ethics approval was received from the Scientific and Ethics Committee, Mbabane, Swaziland. The researcher ensured that all the respondents were competent to give informed consent and that they retained the right to refuse to answer any questions or discontinue their participation at any time.

Results

This is the first study to describe the experience of applying the Urban HEART in a small town in Africa.

The Urban HEART in Matsapha

The implementation of Urban HEART in Matsapha started in March 2014, and followed the six steps described in Urban HEART User Manual. An inclusive approach engaging different sectors and community groups, and the generation and use of good quality evidence for identifying priorities was adopted as outlined in the manual [7, 8].

The first step involved building an inclusive team of all stakeholders for urban health. Table 1 shows the stakeholders that were included in the inclusive team.

Table 1 Stakeholders forming the inclusive team for the Urban HEART implementation.

Sector	Name of entity	Department
Municipality	Matsapha	Public Health Unit Alliance of Mayors Initiative of Community Action on AIDS at the Local Level (AMICCALL)
	Manzini	Environmental Health
	Mbabane	Environmental Health
	Ezulwini	Environmental Health
	Mankayane	Environmental Health
Government sectors	Ministry of Health	Health Promotion Programme National TB Control Programme Swaziland National AIDS Programme National School Health Programme National Environmental Health Programme National Non-communicable Diseases Prevention and Control Programme
	Ministry of Housing and Urban Planning	
	Ministry of Public Works and Transport	
	Ministry of Labour and Social Security	
	Ministry of Commerce Industry and Trade	
	Ministry of Tinkhundla Administration and Development	Kwaluseni Inkhundla
	Ministry of Defence	Royal Swaziland Police His Majesty's Correctional Services Umbutfo Swaziland Defence Forces
	Parastatals	Swaziland Environment Authority
International Organisations	World Health Organization	
	Medisans sans Frontiers (MSF)	
Non-Governmental Organisations (NGOs)	Swaziland Business Coalition on HIV and AIDS (SWABCHA)	
	Swaziland Local Government Association (SWALGA)	
	Cheshire Homes of Swaziland	
	Siphilile	
	Hospice at Home	
Academia	University of Swaziland	

The members of the team were identified based on their ability to provide required data based on the list of indicators for health outcomes and social determinants of health and potential participation in data analysis, strategies identification, planning and implementation of intervention to address equity gaps. The team therefore comprised of representatives from different social sectors.

The team was oriented on the tool through a 3-day workshop facilitated by WHO and co-funded by Matsapha Municipality and WHO. The members were

informed of the objectives and activities of Urban HEART, including the six steps of the tool. This also included partnership building, education and advocacy aimed at obtaining buy-in from influential champions. The official opening of the workshop was attended by high level officials from the local government and other stakeholders and was also used to launch the implementation of the tool.

The second step involved defining the indicator set and benchmarks for Matsapha in consultation with stakeholders. The Urban HEART core indicators as

Table 2 Prioritised indicators for Matsapha

Domain	Adapted Urban HEART indicator in Matsapha
Health outcomes	Infant mortality (per 1000 live births)
	Under five mortality rate (per 1000 live births)
	Maternal mortality ratio (per 100,000 live births)
Physical infrastructure and environment	Access to safe water (%)
	Access to improved sanitation (%)
Social and human development	Fully immunised children (%)
	Skilled birth attendance (%)
	Contraception use 15–49 years (%)

defined in the manual were adopted and data sources identified. The indicators were prioritized representing the stakeholders' health equity concerns. Table 2 shows the indicator set for Matsapha. The indicator set was kept at a manageable size.

National averages and targets were used as benchmarks since there were no data specific to Matsapha. The national averages were obtained from the national survey reports like the Demographic Health Survey and the Multiple Indicator Survey. The national targets were from the Sustainable Development Goals baseline report. National surveys were used to define benchmarks and national targets.

Reliable and valid secondary data based on the indicator set were assembled as part of step three. Efforts were made to choose the best quality data and to manage data quality problems. Data were obtained from national documents. All members of the inclusive team were assigned specific data to collect. Health status data were obtained from public health programme reports. Other secondary data related to physical infrastructure and environment as well as social and human development were provided by the members of the inclusive team. No household surveys were conducted. This was the longest, crucial and most challenging process. It took approximately 7 months.

Lack of data on some of the identified indicators was a major challenge. As there was no data specific to Matsapha, data for the Manzini region where Matsapha falls was used. These data were not disaggregated.

As part of step four, evidence was generated from the data gathered. The Urban Health Equity MATRIX, as

recommended in Urban HEART, was developed and used to identify equity gaps between the urban and peri-urban dwellers. Figure 1 shows the MATRIX for Matsapha. The MATRIX is color coded as follows:

- Red: the area performance is worse than the national average
- Yellow: the area performance is worse than the national target but better than the national average
- Green: the performance is equal to or better than the national target

The monitor could not be constructed as no trend data was available.

Step five involved the assessment and prioritization of health equity gaps and gradients. The inclusive team in consultation with other stakeholders identified priority issues based on the data gathered during the assessment phase. The prioritization of issues is also based on national and local priorities and resources. Several meetings were held to identify focus areas. Maternal and child health, water and sanitation, as well as access to health services were prioritized. The last step involved identification of the best response based on the identified equity gaps and the prioritized issues. The interventions and strategies to address the equity gaps were meant to reduce health inequity, be acceptable to the communities, achievable within a certain timeframe and available resources, and comply with national priorities. An evidence-based persuasive plan for action was developed, adopted and implemented [7, 8]. The focus was to incorporate activities into existing programmes. No new programmes or projects to address health inequities were developed in Matsapha as a result of Urban HEART.

Situation of Health Equity Gaps in Matsapha before Implementation of the Tool

The application of the tool revealed equity gaps in the areas of water, sanitation and waste management; housing, living conditions and neighbourhood environment; women's health; urban health systems strengthening and access to primary health care as well as health of children.

Solid household waste management was a major challenge in the Matsapha peri-urban area. The residents were practicing improper waste disposal methods such

Indicators		Urban	Peri-Urban	National Average	National targets
Health outcomes	Infant mortality(per 1000 live births)	77	86	79	24
	Under five mortality rate(per 1000 live births)	98	114	104	30
	Maternal mortality ratio(per 100 000 live births)	320	320	320	92
Physical infrastructure and environment	Access to safe water (%)	93	40	51	70
	Access to improved sanitation (%)	97	66	72	87
Social and human development	Fully immunized children (%)	83	78	83	90
	Skilled birth attendance (%)	89	80	82	100
	Contraception use 15-49 years (%)	64.5	64.5	64.5	80

Fig. 1 Urban HEART matrix for Matsapha

as open dumping and dump waste in flowing water, and they were not practicing the waste recycling, reusing and reduction sufficiently. This was posing a health hazard and had negative impact on the quality of life of the residents. There was need for a sustainable solid waste management system and the communities lacked resources for establishing such. There was also a need for education programmes in the community to raise awareness and improve waste management at home and in neighbourhoods. The living conditions were very poor in terms of housing and the environment. There was overcrowding, no access roads and clean and safe drinking water as well as other sanitary facilities.

Access to health care was also compromised. The majority of the residents were factory workers who finish work late when the health facilities were closed. As a result, they did not have access to healthcare. This resulted in their children missing vaccinations and pregnant mothers missing antenatal care. Provision of maternal and child health services in the peri-urban area was therefore needed as well as services for the prevention and control of communicable and non-communicable diseases.

Process of Change

The following programmes and projects were identified and expanded to be part of the process of effecting change towards improving health equity in Matsapha:

Matsapha Peri-Urban Waste Collection Programme

A properly managed effective waste management programme increases the health and environmental quality of a community [10]. Municipal waste management is a significant element of the sustainable development of cities [11, 12]. The Matsapha peri-urban waste management project was initiated with funding from the Commonwealth run by the Municipality together with the Swaziland Environmental Authority (SEA) and the Kwaluseni Inkhundla. There was collaboration of the government, development agencies and the communities in the process of solid waste management. With the implementation of Urban HEART, the project was extended to reach other parts of the peri-urban area.

The residents would bring all solid household waste to central points. Tractors with trailer would collect the

refuse for segregation and disposal at the dumpsite. The refuse collection was also accompanied by education and promotion of appropriate solid waste management practices at the household level recycling and storage as well as organisation of regular clean-up campaigns. This project provided a regular removal and disposal of household and community solid waste.

Health care Waste Management Zone (Incinerator)

Health facilities are socially obligated to maintain a clean environment and to dispose of medical waste, in order to prevent pollution and infection within and near the facility [11, 12]. Hazardous health care waste poses a great danger to public health and the environment if it is not properly managed [13]. Following the construction of the Matsapha Comprehensive Health Care Clinic in Matsapha an increased amount of medical waste was being generated which required proper disposal. There was no incinerator in Matsapha. In line with implementation of Urban HEART, the Municipality with support from the Médecins Sans Frontières (MSF) constructed an incinerator to serve the clinic and other health facilities generating medical waste in Matsapha.

Matsapha Mobile Clinic

The Matsapha Mobile Clinic was incorporated in line with emphasising and strengthening the role of urban primary health care. The mobile clinic was procured by Coca Cola Swaziland and provision of services was funded by the President's Emergency Plan for AIDS Relief (PEPFAR) through Health Communication Capacity Collaborative (HC3) under the leadership of the Ministry of Health. The clinic provided mobile outreach services by visiting workplaces and residential areas to ensure access to Human Immunodeficiency Virus Infection (HIV) and Tuberculosis (TB) prevention and control as well as sexual reproductive health (SRH) services. The other services included holding health promotional campaigns, as well as monitoring referrals and linkages to care.

People were also screened for non-communicable diseases like hypertension and diabetes as well as counselling for prevention focusing on the risk factors like smoking, harmful use of alcohol and physical inactivity as well as unhealthy diet. The provision of the mobile health care services saw an increased uptake of HIV Testing Services (HTS) and knowledge of status

among clients as well as improved quality of life for the Matsapha workforce. The provision of these services were ongoing even before the introduction of Urban HEART; however, service provision were extended to those parts of the peri-urban areas that needed them most as revealed by the equity assessment.

Matsapha Comprehensive Health Care Clinic

The clinic was established by the Médecins Sans Frontières (MSF), in collaboration with the Ministry of Health and Matsapha Municipality to provide primary health care services for the residence of Matsapha, including the industrial workers. The clinic provided one-stop, comprehensive care for HIV and TB. The services provided include HIV counselling and testing, diagnosis and treatment of TB, and sexual and reproductive health care services, including ante- and postnatal care. The clinic also provided victims of violence with medical and psychosocial care, and consultations and treatment for common illnesses. Immunisations for children and other child survival interventions were also available. The clinic opened for extended hours including weekends and holidays. This was convenient for the industrial shift workers. The establishment of the clinic enabled the decentralisation of medical services helping people with HIV, tuberculosis (TB) and multidrug-resistant TB (MDRTB) as well as other residence of Matsapha get the care they need free of charge [13]. This was in line with achieving Universal Health Coverage (UHC). The goal of UHC is to ensure that all people and communities obtain the quality health services they need without financial hardship. UHC is of prime importance in improving equity. The residence of the peri-urban area were encouraged to utilise the clinic through community based awareness raising campaigns.

Siphilile Maternal and Child Health Programme

Siphilile is a community based non-governmental organisation working in the peri-urban areas of Matsapha that aims to promote maternal and child health by recruiting, training and deploying "Mentor Mothers" in disadvantaged and vulnerable communities. The organisation ran a Maternal and Child Health Programme supported mainly by the Church of Sweden. The programme helped address some of the equity gaps identified in as far as maternal and

child health was concerned. This was a “mentor mothers” programme in liaison with the Matsapha Comprehensive Health care Clinic and the Municipality. The programme main focus was the health of women and children. Lifesaving interventions were provided to pregnant women and children less than 5 years by more than 50 mentor mothers. The mentor mothers weighed the children, provided immunisation services, screened for tuberculosis and link to care, screened mothers for depression and puerperal psychosis as well as provided health education on Prevention of Mother to Child Transmission of HIV (PMTCT). Psychosocial support to survivors of gender-based violence was also provided.

The programme also capacitated owners of informal day-care centres in Matsapha on health, hygiene, sanitation and the prevention and management of diarrhoea. The majority of young mothers who work in the industries in Matsapha leave their children mainly aged between 0 to 3 years at the more than 100 day-care centres in the peri-urban area of Matsapha when they go to work. In line with the Urban HEART, the programme trained more than 32 day-care givers. This programme was also expanded during the implementation of Urban HEART.

Catalysts for Action

Engagement of Political Leaders

The application of the tool in Matsapha was supported by the local government and other high-level stakeholders. The Urban HEART initiative in Matsapha was launched by the Minister of Housing and Local government as well as the Minister of Health and the World Health Organization Country Representative.

Formation of an All-Inclusive Team

The implementation of Urban HEART in Matsapha was through a participatory approach using an intersectoral working team with increased participation of civil society and other stakeholders. This helped in the availing of data and information for health equity assessment. The inclusive team also facilitated the engagement of other stakeholder for the implementation of the tool as well as ongoing programmes and projects for in cooperating interventions to reduce health equity.

Challenges Faced

Building of an inclusive team took more than 2 months. It was time consuming bringing stakeholders on board. This, however, was very important for partnership building, education and advocacy. It is important to raise awareness in other sectors about the importance and relevance of Urban HEART. The core team needed to dedicate a lot of time to implement the tool [7, 8].

The selection of the indicator set to include in the assessment required wide consultation with all stakeholders and community members as data was required from a range of policy sectors. The data collection required an intersectoral team to support the process. There was a challenge of lack of data on some of the identified indicators particularly disaggregated data and data specific to Matsapha.

Discussion

The study findings highlighted the process of applying Urban HEART in Matsapha revealing the enabling factors and challenges faced. The application of the tool revealed health equity gaps in Matsapha. The tool has been applied in bigger cities elsewhere where similar equity gaps were revealed [14].

The residents of the peri-urban area of Matsapha faced challenges with access to clean and safe water, poor sanitation and waste management, poor housing, living conditions and neighbourhood environment. They also lacked access to primary health care impacting negatively on the health of community members especially women and children. Through Urban HEART, interventions to improve these conditions were identified and incorporated into ongoing projects for implementation. There was no funding to initiate new projects. The impact of the interventions implemented however was not evaluated in this study putting into consideration the short period of implementation. This was also beyond the scope of the study.

Addressing the social determinants of health requires contributions from sectors other than health hence the need to build an all-inclusive team. Buy-in from the sectors was crucial both for access to data as well as implementation of interventions to address equity gaps. Action on social determinants of health require multi-sectoral and whole of government approaches. Available evidence show that

strong political will is needed to address health inequities in urban areas. Health inequities need to be brought to public debate and hence political agenda [15, 16]. The inclusion of different sectors in the team driving the process was indeed an enabling factor. However, care need to be taken not to engage some stakeholders that are involved in activities that do not promote health. The case in point is the engagement of the beverages industry. There is no legal framework in place in Swaziland that prohibits engagement of some of these stakeholders.

From the study it emerged that Urban HEART is a platform to engage multiple stakeholders in identifying and planning action on health inequities, encouraging intersectoral action. Approaches for addressing urban health inequities involves urban governance, urban planning and design, social determinants of health, health promotion, and personal and community empowerment [18]. The World Health Organisation, Commission on the Social Determinants of Health calls for the need to place considerations of health equity at the heart of urban planning policies [17]. Achieving sustainable urbanisation requires intersectoral action on social determinants at the local level [19–21].

The implementation of Urban HEART in Matsapha was faced with a number of challenges mostly lack of resources to implement interventions for reducing urban health equity. Due to the small size of Matsapha, there were few stakeholders to provide the data and resources required. However, the limited number of stakeholders can reduce the challenges of reaching consensus on priorities for the city. One of the major challenges was lack of data specific to Matsapha on some of the indicators and having to use estimates based on national and regional figures. Some of the indicator data was non-existent resulting in those indicators being dropped for the list. There is therefore need to routinely collect data at local level.

As cities continue to grow, urban health inequity will hinder national and global progress towards sustainable development if left unsolved. The global political commitment to the Sustainable Development Goals (SDGs) provides a platform to contribute to health equity in cities. This therefore calls for equity to be an ethical imperative and an essential principle of sustainable development. Health equity is social justice in health. The implementation of Urban HEART, therefore, assists in aspiring to develop sustainably while addressing equity gaps [22–24].

Conclusion

Urban HEART, ideally, equips local and national authorities with relevant evidence to inform important decisions related to prioritisation and resource allocation. Communities are mobilised and empowered to promote health equity. Multiple sectors are engaged in addressing common goals, including the promotion of health equity. To ensure sustainability and efficiency in the implementation of Urban HEART in Matsapha, there is a need to improve intersectoral collaboration, ensure financial support, conduct better surveillance of equity data, design proper interventions and conduct evaluation and monitoring of the project.

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