

**Ministry of Local Government & Community
Development**

Government of Jamaica

**THE PROJECT FOR
IMPROVEMENT OF EMERGENCY
COMUNICATION SYSTEM
IN
JAMAICA**

Background:

1.1 The context of disaster preparedness & emergency management: Traditionally, the focus of disaster prevention, mitigation, preparedness and response rests, on the Government and the responsible agency as the primary bearers of responsibility for providing emergency services to the population. Consequently, during the preparation and in the actual event of a disaster, the affected population is generally relegated to the passive role of recipients of information and aid assistance. In Jamaica disaster preparedness and emergency management falls under the portfolio of the Ministry of Local Government & Community Development (MLGCM). The function of disaster preparedness and emergency management is devolved to the Office of Disaster Preparedness & Emergency management (ODPEM), an agency under the MLGCM.

The ODPEM (formerly known as the Office of Disaster Preparedness and Emergency Relief Coordination) was established in July 1980 the name was changed in 1993. The ODPEM is established as a statutory body under section 15 of the Disaster preparedness and Emergency Management Act. The ODPEM is responsible for:

- taking action to reduce the impact of disasters and emergencies on the Jamaican population and economy
- coordinating early warning, emergency response and relief operations in major emergency events

The ODPEM was established with the mandate to perform the following functions:

1. Public information, education and training through meetings, workshops, seminars and mass media programmes on disaster related issues. A documentation centre is also maintained where disaster and emergency information may be obtained by the public and for use in awareness, training and research programmes.
2. The establishment and maintenance of websites; one of which features information specifically designed for children
3. Hazard management programmes covering the following areas: (i) Identification and mapping of high risk areas (ii) Hazard mitigation strategies and programmes (iii) Formulation and monitoring of Emergency Plans and Policies (iv) Compilation of Reports following major incidents
4. Maintaining the National Emergency Stores
5. Management of National Shelter and Zonal Programmes
6. During times of emergencies, the ODPEM is responsible for activating, operating and deactivating the National Emergency Operations Centre (NEOC). This involves: (i) Coordinating the activities of the relevant operational agencies (ii) Supporting the operational agencies by facilitating access to available resources (iii) Providing communication resources (iv) Handling requests for external assistance (v) Monitoring the emergency event and assessing the long term physical impact

7. The development of project proposals and the sourcing of funds for national disaster management programmes.

The ODPEM acknowledges the importance of community involvement in disaster preparedness, response and mitigation. For this reason the ODPEM's approach involves coordinating activities at the Parish and community levels. At the Parish level, the ODPEM works through Parish Disaster Committees, which operate out of the Parish Council Offices. These Parish Disaster Committees are responsible for Disaster Management activities at the Parish level. The ODPEM'S framework is designed to involve communities and the project for improvement of communication system in Jamaica is intended to enhance community involvement in disaster preparedness and emergency management.

1.2 The situation with respect to disasters in Jamaica: Jamaica experiences frequent flood and damage from sediments due to hurricanes and tropical storms. In 2010 and 2012 (tropical storm Nicole and hurricane Sandy) caused damage which was estimated at US\$330 million and resulted in loss of lives, as well as, infrastructure damage. The GOJ has made "Mitigation of disaster risks and adaptation to climate change" one of its development goals based on the Vision 2030 national development plan. The plan has made "strengthening of disaster response capacity" an important policy goal. The project's overall goal to prepare the environment for mitigating human damage and economic damage in times of disaster is in keeping with the Vision 2030 plan. With the provision of the Disaster-Emergency Communication System (DECOM), the project will increase communications channels from one (1) for all island to three to six (3-6) per repeater stations, increasing coverage from 20-25% to 90-95%. The number of agencies given coverage through the DECOM will move from 20 to 52 with transmission standard time moving from 60 minutes to less than 5 minutes. The proposed DECOM will introduce a siren system with the estimated change in beneficiaries moving from 2,600 to 16,000 residents¹.

The impact of climate change is expected to result in fewer rain days per year but an increase in the daily intensity of precipitation causing more periods of drought and flooding. While it is not expected that there will be a significant increase in hurricane frequency a possible increase of 10-20% in intensity is anticipated². Following the passing of hurricanes Dennis and Emily in 2005 which were not intense (below category 3) damage was estimated at US\$96.87 million (1.2% of GDP); infrastructure, followed by the productive sector and then the social sector were the most

¹ **Source:** Preparatory Survey Report on the Project for Improvement of Emergency Communication System in Jamaica (Draft), August 2016 – Japan International Cooperation Agency (JICA), Yachiyo Engineering Co. Ltd.

² **Source:** Climate Change Impacts on Jamaica's Bio-diversity, Dale Webber.

seriously impacted³. Recent flooding in Kingston (September 2016) resulted in US\$8 million in loss to the Wallenford Coffee Company alone. While the DECOM will not prevent flood damage the ability to provide early warning will help to mitigate loss from damage caused by these events. The system will therefore have a beneficial effect on GDP. The system will also have the positive effect of improving communication in times of disaster and will also improve the ability to appeal to citizens living in vulnerable areas. It will allow for the conduct of evacuation training and heightening awareness prior to disaster incidences, improving readiness for disaster and reducing loss of human lives; the system will therefore contribute positively to national safety and security.

³ Source: Assessment of the Socio-Economic and Environmental Impact of Hurricanes Dennis and Emily on Jamaica, PIOJ August 2005.

2.0. Overview of the Project

2.1 Situation analysis:

Between the beginning of the hurricane season in June until the end of the season in November, an average of ten (10) tropical storms are formed, some of which develop into hurricanes. Therefore, countries within the hurricane zone, including Jamaica, have been subject to the effects of these destructive forces. The records of the Meteorological Service of Jamaica show that hurricanes are a recurring threat to Jamaica and the heavy winds and rains associated with these natural disasters have often leave Jamaica with lingering effects like flooding and landslides. The earliest reference to a hurricane in Jamaica dates back to 1559, when a hurricane caused severe damage to the island's infrastructure. Since that time Jamaica has suffered direct hits from about 150 hurricanes which caused significant damage and loss of lives. Hurricane Gilbert (1988) alone caused US\$800 million in damage. Hurricane and their effects have a serious negative impact on Jamaica's economy.

Following the June 12, 1979 floods, which devastated sections of western Jamaica, the Government of Jamaica recognized the need for the establishment of a permanent disaster preparedness and relief organization, which would be responsible for coordinating, monitoring and educating the nation on disasters and disaster events. The Office of Disaster Preparedness was set up in 1980 to raise a consciousness among Jamaicans regarding hurricanes and other disasters.

The ODPEM cooperates with disaster observation agencies, emergency response centres in operating the disaster response liaison setup and issuing warnings to disaster prevention-related agencies. However, its current disaster prevention radio network is not utilized due to lack of communications capacity and coverage. It therefore depends on unreliable methods such as emails, mobile phones to conduct communications. As a result, when disasters have occurred in the past, there have been problems with delays in the communication of warnings, information on the disaster/emergency conditions, as well as, the implementation of countermeasures.

Based on these circumstances, the Government of Jamaica (GOJ) made a request to the Government of Japan in December 2014, for assistance in the construction of a radio communications system. This was with a view to enhancing the speed and stability of information transmission when disasters occur. This would be achieved through establishing a nationwide digital radio communication system for disaster prevention, which would serve to strengthen the fragile radio communications system for disaster prevention. The current disaster prevention radio network in Jamaica utilizes the existing analogue VHF radio system; however, this does not possess sufficient communications capacity or wave coverage for disaster prevention purposes and is in need of urgent improvement.

The project aims to establish the base for realizing fast and stable information flows between related disaster prevention agencies, as well as, with the general public when disasters occur. This will contribute towards making environmental improvements with a view to mitigating loss

of lives and infrastructural damage when disasters occur in Jamaica. The Project is consistent with the development policies of Jamaica and the Government of Japan's aid policy.

2.2 Project Description:

Presently, Jamaica is without an emergency telecommunication infrastructure and platform that can facilitate communication among government agencies and first responders during an emergency in a timely manner. The existing inventory of Emergency Telecommunications and Early Warning Systems (EWS) in Jamaica is limited and unsuitable for major and wide area impact for the use by first responders in critical moments. The current radio network is not utilized due to lack of communications capacity and coverage, and it depends on unreliable methods such as emails, mobile phones, etc. to conduct communications. Due to these reasons, when an emergency occurs, there are problems with delays in the communication which affects the implementation of counter measures.

This Project aims to establish the base for realizing fast and stable information conveyance among government and response agencies and also with the general public when necessary. This will be done through establishing a nationwide digital radio communication system for response by government and response agencies. It is intended that this will strengthen the insubstantial radio communication system for disaster prevention and also serve to enhance public safety and overall national security while building economic resilience.

The project recognizes a multi-hazard and multi-agency or multi-sectorial approach to responding to emergencies and disaster events. Further, the wider issues of Public Safety and National Security are considerations. Emerging hazards such as terrorism, epidemics and pandemics, trans-national crime and hazardous materials incidents all rely on effective communication across jurisdictions and across entities (including support from private sector and civil society). The lack of a reliable communication system especially across key response agencies of government poses a threat to public safety, national security and sustained economic growth.

The purpose of the project is to provide a platform for emergency/disaster communication among various critical agencies of government, first responders, major stakeholders, auxiliary services and community volunteers. The project is critical for the improvement of:

1. Public Security and Safety
2. Fire Rescue, Search & Rescue (marine and land) and Medical Emergencies
3. Evacuation planning, communication and mobilization
4. Local Emergency Operations Center
5. Communities and areas prone to flooding, storm surges, landslide and other hazards

Critical to the intended purpose of the project is the need to maintain reliable communication for live saving operations, reduce response time, and cost savings for none reliance on airtime for telecommunication services.

2.3 Project Components:

The project components are:

1. Integration of the NWA Microwave Network for data communication
2. Disaster Emergency Communications (DECOM) infrastructure - Installation of Emergency Communication System at twenty-four (24) repeater locations (increase from the ODPEM 9 stations)
3. Installation of Early Warning Sirens at fifteen (15) locations (3 communities)
4. Two radios equipment to key response entities (base radios, mobile radios, and handheld radios)
5. National and Parish Control stations (set of radio equipment).
6. Provision of deployable equipment for vulnerable communities (disaster zones).
7. Transportable radio equipment for 2 major cays (Pedro and Morant Cays)
8. Provision/procurement of Maintenance equipment and tools
9. Procuring of spare parts

Component 1 is a necessary condition for start-up of the project as it provides the backbone on which the project is to be implemented. This is a pre-implementation activity.

2.4 Goals & Objectives:

The objective of the project is to enhance Jamaica's Public Safety, National Security and Disaster/Emergency Communication System. The goal or outcome expected therefore is for improved preparedness, response and recovery from the impact of disasters and or emergency incidents at the national, Parish and community levels, as well as, more effective coordination and communication (includes voice and transfer of data) among key stakeholders.

The Specific objectives are:

- To develop a national emergency communication system to coordinate incident response among the various critical agencies of government and volunteers
- To allow Emergency responsive agencies and responders to communicate via a common wireless platform
- To develop a National Early Warning System

2.6 Strategic Plan:

The Project:-The project aims at preparing the environment for mitigating human and economic damage at times of disaster occurring in the country. It will establish the base for realising fast and stable information transmission between related agencies and general public safety when a disaster occurs. The project is informed by a robust and comprehensive survey conduct by Japanese engineers commissioned by JICA. Based on preliminary estimates, JICA will provide 67.8% grant funding for the project with the remaining 32.2% funded through counterpart resources to be provided by the GOJ. The scope of the project covers the (i) Provision of equipment and services (ii) Small infrastructure works (iii) Early Warning System (iv) Maintenance of equipment & tools (v) Spare parts (vi) Administrative expenses.

The project will have added benefits that will also provide support for:

- Communications component of Jamaica's national public safety systems and national security systems.
- Parish Councils and key emergency services including the police, fire service, Ministry of Health and the JDF.
- Enhanced technical skills of local telecommunications staff across various agencies of government and community organisations.
- Added capability for redundancy by having separate networks that can back-up each other in the event one fails.

It is expected that there will be an increase in employment for technical and administrative staff to support the expanded service.

The mission: - To provide a platform for emergency/disaster communication among various critical agencies of government, first responders, major stakeholders, auxiliary services and community volunteers. The principal aim is to mitigate incidents of damages, economic loss and the loss of lives during times of disasters and or emergencies.

The SWOT analysis:-

<p>Strengths:</p> <ul style="list-style-type: none"> • Existence of a Disaster Risk Management Act, 2015 • Existence of a National Disaster Management Plan & Policies • Established National Zonal Programme of community-based Disaster Management structures & procedures • Existence of a National Disaster <p>Strengths cont'd.:</p> <ul style="list-style-type: none"> • catalogue & Database • Existence of a National Emergency Operations Centre • Existence of a National Shelter Programme • Community-based disaster management system • Community flood warning systems • National relief and procurement policy 	<p>Weaknesses:</p> <ul style="list-style-type: none"> • Insufficient and costly disaster & emergency communication system • Given the multi-sectorial nature of the project conflicts may arise, mitigation plan will be needed • Inadequate project development capacity in the executing agency • Insufficient technical capacity to fully support improve communications system • The lack of a reliable communication especially across key response agencies of government poses a threat to public safety, national security and sustained economic growth.
<p>Opportunities:</p> <ul style="list-style-type: none"> • The GOJ has made “Mitigation of disaster risks and adaptation to climate change” one of its development goals based on the Vision 2030 national development plan. • The Vision 2030 plan has made “strengthening of disaster response capacity” an important policy goal. • Possibility of improve communications component of Jamaica’s national public safety system • Improvement in the technical skills of local telecommunications staff across various agencies and community organisations • Build capability for redundancy by having separate networks that can back-up each other in the event one fails 	<p>Threats:</p> <ul style="list-style-type: none"> • Possibility of challenges with providing local counterpart • Issues of coordination among partners • Responsiveness of partners within required timelines • Competing telecoms initiatives at the national level

The findings of the SWOT will inform the approach and strategies to be employed in executing the activities under the project.

2.7 Project implementation:

The project is to be executed over twenty-four (24) months with financing to be provided by JICA with counterpart resources from the GOJ. The named implementation agency is the MLGCD which is the project sponsor and the executing agency the ODPEM. The establishment of a Project Implementing Unit (PIU) will provide added capacity contracted to the ODPEM to support the execution of the project activities. The primary tasks will be:

- Project Management to guide execution in line with the Project's Plan and Operations manual. The Project manager will prepare the project's charter setting out the plan for execution over the 24 months period.
- Technical support for execution of activities will be provided through the engagement of technical staff to provide telecommunications, network, technicians (telecommunications & electricians), and communications services to the ODPEM
- Administrative support for the financial, logistic and inventory management services that will be demanded by the project
- Short-term engagement/contract of a legal consultant and construction engineer which will be needed to support the related activities in relation to negotiating for licences, service contracts, regulatory matters and MOUs and or SLAs⁴, as well as, execution of construction works.

The project will be executed in phases in order to ensure readiness at each phase and for efficient execution of the various timed lines of action.

Phasing Project implementation:

The project will be characterised by four (4) distinct phases to its implementation namely, (i) Meeting conditions prior (ii) Phase I: Start-up activities and (iii) Full implementation and (iv) Post-implementation sustainability planning. The latter phase is a consideration that needs to be treated with in the Project Plan & Operations Manual as it will have implications for the project implementation phase.

(i) Conditions Prior:

Conditions prior are critical pre-implementation actions that are critical pre-conditions/actions required by the funding partner that signals Jamaica's commitment to the timely and effective implementation of the project, as well as, necessary actions and agreements with various partners and stakeholders that are important to the success of the project. These include:

1. Completing NWA Backbone

⁴ SLA – Service Level Agreements carry legal obligations and should be preferred over MOUs which does not carry the same level of legal commitment

2. Acquiring letters of permission from Repeater Site Owners (use of Tower and Buildings/huts)
3. Acquiring letters of permission from other agencies for use of buildings for the keep and care of equipment
4. Acquiring letters of permission for use of land for Siren Site towers
5. Finalising assessment of repeater sites to be repaired/rehabilitated
6. Clearing and bushing of repeater and siren sites
7. Critical Executive and Operational Meetings and Agreements (Site Owners, Major Beneficiaries/Partners – NWA, Municipal Corporations & MLGCD, JFB, MOH, JDF, JCF, MNS, MSET)
8. Finalizing SMA Applications for frequencies and other regulatory matters
9. Securing funds and or waivers for payment of fees SMA
10. Establishing a Project Management/PIU team to manage and execute all phases of the Project
11. Finalizing PIMSEC revised submission
12. Obtaining Project Approval from PIMSEC
13. Finalizing overall Budget (full budget for both Jamaica Counterpart Funds and Japanese Grant Funds)

(ii) Phase I – Project Implementation: Start-Up

Phase I of the project will see to execution of lines of action directly related to readiness for receipt of the equipment for the establishment of the DECOMS and EWANS systems. This phase will be initiated once there is approval (GOJ and JICA) that all conditions prior actions have been satisfactorily completed. Phase I activities should commence once there is a signed agreement in place. This phase will occur within the first six and a half (6.5) months of project implementation. The activities that will define this phase shall involve the following:

1. Project administration & reporting
2. Construction and or repairs/rehabilitation to station huts
3. Engagement of short-term consultants (Legal and construction Engineer)
4. Drafting MOUs and/or SLAs (site owners – repeaters and siren sites, beneficiaries of equipment, partners for maintenance)

5. Selecting technical team (to lead negotiation & procurement) to visit Japan; the team will be responsible for securing suppliers of equipment⁵
6. Developing the Government of Jamaica Maintenance and Sustainability Plan
7. Finalizing equipment distribution list (by type, entity, numbers)
8. Developing and finalizing Stakeholder Management Plan including completing all required consultations
9. Developing and finalizing Communication Plan; this also includes consultations with all key stakeholders for their agreement and collaboration
10. Developing and finalizing the detailed Joint Project Operational Plan (tasks to be undertaken in collaboration with the Japanese and Jamaica stakeholders to be led by the ODPEM)
11. Identifying and developing list of persons to be trained for technical and user training from the Japanese
12. Appointing and developing TOR for the Project Steering Committee
13. Formalising agreement through discussions/consultations on ownership of equipment⁶
14. Securing storage facilities for equipment to be shipped to Jamaica
15. Securing workshops for installation of equipment
16. Finalizing arrangements for equipment to be based at the Cays (Pedro and Morant)
17. Securing funds and or waivers for exemption of statutory costs inclusive of GCT, Customs Clearance, Contractors Levy

(iii) Phase II Full Implementation

Phase II marks full implementation of the project and will commence on successful completion of Phase I activities. This Phase will have an eighteen and a half (18.5) months period of execution and will see the start of collaboration between the Jamaican and Japanese project teams. It will signal the receipt and installation of equipment and supplies and training of technical support personnel by the Japanese counterparts. This Phase will mark the establishment and roll-out of the Emergency Communications System. The activities under this phase will include inter alia:

⁵ Japan covers 2 Jamaicans – any other persons must be covered by Jamaica

⁶ To be determined by the Jamaican partners.

1. Shipping of equipment and spare parts
2. Transporting equipment & spare parts for warehousing/storage
3. Construction of repeater station huts⁷
4. Distributing equipment
5. Installing equipment at sites including Cays
6. Training of workshop personnel
7. User training: (i) Operation (ii) System
8. User acceptance testing
9. Implementing quality control and monitoring systems
10. Project administration & reporting
11. Developing and administering standard operating procedures (SOP) for sustainability

(iv) Phase III: Post implementation

This phase is focused on executing the GOJ's maintenance and sustainability plan which would have been developed in the first phase of the project (item 6). It will involve the following:

1. Institutionalising the SOPs agreed in Phase II
2. Modernising and expanding the structure, capacity and competencies in the ODPEM and related agencies to optimise the use of the improved Emergency Communication Systems
3. Designing and executing the new operations and maintenance plans in line with the new standards
4. Establishing renewal standards and plans
5. Redefining the ODPEM's budget to maintain the expanded service capabilities
6. Establishing internal quality assurance system for sustaining high quality services from the DECOMS and EWANS.

⁷ The Japanese team will be responsible for this activity

2.8 Key Performance Indicators (KPIs):

The following results matrix documents the KPIs for the Project.

Table II

Objectives & Outcomes	Post Implementation Indicators (KPIs)	Baseline Value	Target Value (KPIs)		Data Collection & Reporting
			Year 1	Year 2	Responsible agency
Higher level objectives: Communications & early warning coverage.	Year:2021	Year:2016	Year 1	Year 2	
Improved communications among key stakeholders in disaster and emergency management.	90-95% coverage in disaster vulnerable communities	20-25%	45%	95%	ODPEM/PIU
Beneficiaries by Siren System <i>(data provided from research done by JICA Project Team)</i>	Approximately 16,000 residents	Approximately 2,600 residents	7,200 residents	16,000 residents	ODPEM/PIU
Development Objectives: Performance of information transmission.			Year 1	Year 2	
Number of organizations of Disaster-Emergency Communication System	52	20	23	52	ODPEM/PIU
Transmission standard time (From ODPEM to	Less than 5	60 minutes	No change <i>(requires completion)</i>	Less than 5	

Objectives & Outcomes	Post Implementation Indicators (KPIs)	Baseline Value	Target Value (KPIs)		Data Collection & Reporting
Communities)	minutes		<i>of communication system)</i>	minutes	ODPEM/PIU
Intermediate Objectives:	Year: 2017	Year: 2016	Year 1	Year 2	
Pre-implementation activity	<p>NWA’s National Microwave Backbone/infrastructure in place to support DECOM</p> <p>Identification of lands for new station huts & siren towers</p>	<p>No reliable/appropriate infrastructure in place</p> <p>Lands to be acquired via lease agreement from public and private title holders.</p>	<p>NWA Microwave ready to support DECOM</p> <p>Agreement to be in place for transfer to ODPEM.</p>		ODPEM

3.0 Project Risks:

3.1 Risk Assessment: The purpose of the risk assessment process is to remove perceived hazard or reduce the level of its risk by adding precautions or control measures as necessary. The following four (4) areas are the likely risk factors that could affect the project.

Risk	High	Medium	Low
Political			
Social			
Financial			
Environmental			

Political risk is seen as low as the nature of the project is designed to support economic growth by reducing the potential damage to the economy during times of disasters. It is therefore the judgement that the project activities would find political favour. Additionally a significant level of the investment is funded by a grant and to that extent not a significant drain on the budget.

Social risk is seen as medium as though there are obvious benefits to be derived from the project by at-risk communities, the acceptance and appreciation still has to be sold to communities and receive their buy-in and support. Gaining the respect of communities for the investment in the towers, station huts and equipment so as to mitigate the risk of theft and damage will require educating them on the benefits to their security and safety during periods when they may be most vulnerable. There is therefore a medium level of risk perceived..

Financial risk is rated high given the comparatively vulnerable state of the economy at this time. Though funding for the capital investment is significantly grant aided the ultimate measure of success is the country's ability to maintain the systems (DECONS & EWANS) which are the outputs of the project, maintenance has historically not been a strength of government. This is evidenced in the level of investment that will be required to refurbish the existing station huts. It is in this regard that the financial risk is assessed as high.

Environmental risk is determined to be low as it is not expected that the project has any actual or potential threat of adverse effects on the environment from substance that could be harmful to human life, the physical surroundings and or any living organisms.

4.0 Project Compliance & Audit:

4.1 Compliance & Audit: The following are the conditions of the project which are classified as (i) pre-project conditions and (ii) conditions of compliance agreed in the financing agreement.

4.1.1 Conditions Precedent/pre project:

- Installation of the NWA microwave backbone
- Acquisition of land for construction of additional station huts
- Acquisition of land for the siren towers
- Engagement of key staff to implement the project

4.1.2 Contract Conditions:

- Provision of quarterly project monitoring reports to JICA
- Establishment of a Project Steering Committee
- Opening of a bank account in Japan
- Margin of preference for equipment manufactured in Japan
- Annual audit within four (4) months of the end of the financial year

4.1.3 Audit Plan: A compliance audit to be conducted for each year of implementation four months after the close of the financial year (by July of each year).