



# CITY DISASTER RISK REDUCTION AND MANAGEMENT PLAN 2022-2026



**CITY GOVERNMENT OF MALOLOS  
CITY DISASTER RISK REDUCTION AND MANAGEMENT OFFICE**

# RESOLUTION ADOPTING THE LDRRMP







# RESOLUTION ADOPTING THE LDRRMP



Republic of the Philippines  
Province of Bulacan  
City of Malolos

## OFFICE OF THE SANGGUNIANG PANLUNGSOD

EXCERPT FROM THE MINUTES OF REGULAR SESSION OF THE SANGGUNIANG PANLUNGSOD OF MALOLOS HELD AT SESSION HALL (ANNEX), 5<sup>TH</sup> FLOOR, NEW BUILDING OF THE CITY GOVERNMENT OF MALOLOS ON MARCH 14, 2022.

**MEMBERS PRESENT:**

HON. NOEL G. PINEDA	City Vice Mayor Presiding Officer City Councilor
HON. FRANCISCO J. CASTRO	"
HON. NIÑO CARLO C. BAUTISTA	"
HON. MICHAEL M. AQUINO	"
HON. ENRICO C. CAPULE	"
HON. DENNIS D. SAN DIEGO	"
HON. EMMANUEL R. SACAY	"
HON. EDGARDO F. DOMINGO	"
HON. LUIS ALFONSO M. ARCEGA	"
HON. MIGUEL CARLOS B. SOTO	"
HON. DIONISIO C. MENDOZA	ABC President
HON. PATRICK S. DELA CRUZ	SK President

**MEMBERS ABSENT:**

HON. KIRK LOUIS NICOLAS City Councilor

CITY RESOLUTION NO. 06-2022

A RESOLUTION ADOPTING AND APPROVING CITY DISASTER RISK REDUCTION AND MANAGEMENT PLAN (CDRRMP) 2022-2026 OF THE CITY OF MALOLOS, PROVINCE OF BULACAN.

Authored by: HON. NOEL G. PINEDA  
HON. FRANCISCO J. CASTRO, HON. NIÑO CARLO C. BAUTISTA, HON. KIRK LOUIS NICOLAS,  
HON. MICHAEL M. AQUINO, HON. ENRICO C. CAPULE, HON. DENNIS D. SAN DIEGO,  
HON. EMMANUEL R. SACAY, HON. EDGARDO F. DOMINGO, HON. LUIS ALFONSO M. ARCEGA,  
HON. MIGUEL CARLOS B. SOTO, HON. DIONISIO C. MENDOZA & HON. PATRICK S. DELA CRUZ

**WHEREAS**, the City Disaster Risk Reduction and Management Plan (CDRRMP) 2022-2026 of the City of Malolos was developed through a multi-agency and interdepartmental consultations and discussions with participatory and consultative workshops spearheaded by the City Disaster Risk Reduction and Management Council (CDRRMC) of Malolos;

**WHEREAS**, Republic Act 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010, provides a strong legal and institutional basis for DRRM in the country and gives a boost to develop policies and plans, and to implement actions and measures pertaining to all aspects of disaster risk reduction and management including good governance, risk assessment and early warning, knowledge building and awareness raising, reducing risk factors, and preparedness for effective response and early recovery;

**WHEREAS**, Section 12 of RA 10121, requires the Local Disaster Risk Reduction and Management Office (LDRRMO) to formulate and implement a comprehensive and integrated Local Disaster Risk Reduction and Management Plan (LDRRMP) in accordance with the national, regional and provincial framework, and policies on disaster risk reduction in close coordination with the Local Development Councils (LDCs);

HON. FRANCISCO J. CASTRO  
CITY COUNCILOR

HON. NIÑO CARLO C. BAUTISTA  
CITY COUNCILOR

HON. KIRK LOUIS NICOLAS  
CITY COUNCILOR

HON. MICHAEL M. AQUINO  
CITY COUNCILOR

HON. DENNIS D. SAN DIEGO  
CITY COUNCILOR

HON. NOEL G. PINEDA  
CITY VICE MAYOR

HON. PATRICK S. DELA CRUZ  
CITY COUNCILOR

HON. EDGARDO F. DOMINGO  
CITY COUNCILOR

HON. MIGUEL CARLOS B. SOTO  
CITY COUNCILOR

HON. DIONISIO C. MENDOZA  
CITY COUNCILOR

HON. EDGARDO F. DOMINGO  
CITY COUNCILOR

HON. MICHAEL M. AQUINO  
CITY COUNCILOR

HON. DENNIS D. SAN DIEGO  
CITY COUNCILOR



City Resolution No. 06-2022  
City of Malolos  
Page 2

WHEREAS, the City Disaster Risk Reduction and Management Council (CDRRMC) of Malolos approved on 22 November 2021 a Resolution No. 06 S. 2021 titled, "Resolution approving the City Disaster Risk Reduction and Management Plan 2022-2026 for the City of Malolos", and was endorsed to the Sangguniang Panlungsod for the approval and adoption on 05 January 2022;

WHEREAS, it is the primary power, duty and function of the Sangguniang Panlungsod as the legislative body of the city, to enact ordinances, approved resolutions and appropriate funds for the general welfare of the city and its inhabitants pursuant to Section 16 of Republic Act No 7160 or otherwise known as the Local Government Code of the Philippines of 1991;

WHEREAS, it is declared policy of the City Government of Malolos to uphold, adopt and incorporate people's constitutional rights to life and property by addressing the root causes of vulnerabilities to disaster, strengthening the City's institutional capacity for disaster risk reduction and management and building the resilience of local calamities to disaster including the impact of climate change;

WHEREAS, the City Disaster Risk Reduction and Management Council (CDRRMC) of Malolos with the Technical Working Group, member agencies, sector representatives and other stakeholders has formulated Programs, Projects and Activities (PPA's) consistent with Prevention/Mitigation, Preparedness, Response and Relief/Rehabilitation pillars of Disaster Risk Reduction and Management;

WHEREAS, in this five (5) year City Disaster Risk Reduction and Management Plan, is a consolidated Barangay Disaster Risk Reduction and Management Plans (BDRRMP) of the fifty-one (51) barangays of the City of Malolos;

WHEREAS, Republic Act No. 10121 also recognizes local risk patterns and trends and decentralization of resources and responsibilities and thus encourages the participation of Non-Government Organizations (NGOs), private sectors, community-based organizations, and community members in disaster management. It inhibits the full participation of the Local Government Units (LGUs) and communities in governance. The approach tends to be "response-oriented" or "reactive". This is evidenced by the widespread emphasis on post-disaster relief and short-term preparedness, such as forecasting and evacuation, rather than mitigation and post-disaster support for economic recovery;

NOW THEREFORE, on the motion of Hon. Dennis D. San Diego, duly seconded by the Members present,

BE IT RESOLVED, as it is hereby resolved, to approve a resolution adopting the formulation and implementation of the City Disaster Risk Reduction and Management Plan (CDRRMP) 2022-2026 of the City of Malolos, Province of Bulacan.

RESOLVED FINALLY, the copies of this Resolution be furnished the Office of the City Mayor, Office of the City Disaster Risk Reduction and Management (CDRRMO), Members of the City Disaster Risk Reduction and Management Council (CDRRMC), and all offices concerned for their information, guidance and reference.


APPROVED.


HON. MARICELA SANCHEZ  
CITY COUNCILOR  
HON. STEPHEN R. BENDICHO  
CITY COUNCILOR  
HON. ROBERTO J. SANTIAGO  
CITY COUNCILOR  
HON. ANTONIO M. AMORIN  
CITY COUNCILOR  
HON. ALFONSO M. ALONSO  
CITY COUNCILOR  
HON. MARIBO P. DOMINICO  
CITY COUNCILOR  
HON. RICHARD B. SAGAY  
CITY COUNCILOR  
HON. DENNIS D. SAN DIEGO  
CITY COUNCILOR

HON. FRANCISCO J. CASTRO  
CITY COUNCILOR  
HON. HENRI CARLO C. BAUTISTA  
CITY COUNCILOR  
HON. KIRK LOUIS NICOLAS  
CITY COUNCILOR  
HON. NOEL G. PINEDA  
CITY VICE MAYOR  
HON. MICHAEL M. AQUINO  
CITY COUNCILOR  
HON. ERIC C. CAPULE  
CITY COUNCILOR



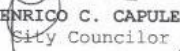
City Resolution No. 06-2022  
City of Malolos  
Page 3

  
HON. FRANCISCO J. CASTRO  
City Councilor


  
HON. NINO CARLO C. BAUTISTA  
City Councilor


\*HON. KIRK LOUIS NICOLAS  
City Councilor

  
HON. MICHAEL M. AQUINO  
City Councilor


  
HON. ENRICO C. CAPULE  
City Councilor

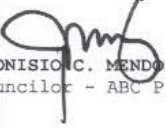
  
HON. DENNIS D. SAN DIEGO  
City Councilor


  
HON. EMMANUEL R. SACAY  
City Councilor

  
HON. EDGARDO F. DOMINGO  
City Councilor


  
HON. LUIS ALFONSO M. ARCEGA  
City Councilor

  
HON. MIGUEL CARLOS B. SOTO  
City Councilor

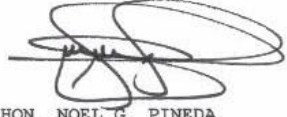
  
HON. DIONISIO C. MENDOZA  
City Councilor - ABC President

  
HON. PATRICK S. DELA CRUZ  
City Councilor - SK President

I HEREBY CERTIFY that the foregoing City Resolution was approved by the Sangguniang Panlungsod.

  
NOLIE C. NARCISO  
Local Legislative Staff Officer III  
Temporary Secretary to the Sangguniang Panlungsod

ATTESTED BY:

  
HON. NOEL G. PINEDA  
City Vice Mayor - Presiding Officer

\*absent

DhorieTrogo\*03142022

# MESSAGE OF THE CITY MAYOR







Republic of the Philippines  
Province of Bulacan  
City of Malolos

## OFFICE OF THE CITY MAYOR

### Message


The pursuit of attaining a safe, adaptive and disaster resilient communities toward sustainable development has been of a great test following the overwhelming challenges of the pandemic and the recent disasters the city and our country endured over the past years. An integral part to achieving this goal is the need for a more responsive disaster risk reduction and management (DRRM) policies and measures.

Hence, the City Disaster Risk Reduction and Management Council continues its unwavering drive in mainstreaming DRRM-CCA to all our development plans and programs. With the convergence of minds, talents, and resources, the body has crafted the Local Disaster Risk Reduction and Management Plan that addresses all phases of disaster prevention and mitigation, preparedness, response, as well as recovery and rehabilitation. The plan clearly outlines the roles and responsibilities of the local government and enlists the cooperation of relevant stakeholders in both the public and private sectors which is vital for a more a proactive disaster risk reduction and management and preparedness system.

The enhancements laid down in the DRRMP further strengthened the capacities of the City of Malolos in providing a more relevant, responsive and effective services and programs to protect the wellbeing of our constituents.

Through the spirit of *Bayanihan*, our concerted effort, determination and commitment in building the adaptive capacities and resilience of our communities will certainly deliver a safe, secured, and enjoyable life to all Malolenyos in the years to come.

*Tulungan po Natin ang Bayan na Tulungan ang Mamamayan.*

  
ENGR. GILBERT T. GATCHALIAN  
City Mayor



**EXISTING DRRM-CCA  
RELATED POLICIES/  
GUIDELINES/RESOLUTION**





## **EXISTING DRRM-CCA RELATED POLICIES/ GUIDELINES/ RESOLUTION (Description)**

### **Global, Regional and National**

- a. Sendai Framework
- b. Paris Agreement
- c. Ambisyon 2040 “Ensure Safety and Build Resilience”
- d. Philippine Climate Change Act of 2009 (RA 9729)
- e. Presidential Decree 1566 “Strengthening the Philippine Disaster Control Capability and Establishing a Community Disaster Preparedness Program Nationwide
- f. Republic Act 10121 “Philippine Disaster Risk Reduction and Management Act of 2010”
- g. National Disaster Risk Reduction and Management Council, Department of Budget and Management and Department of the Interior and Local Government – Joint Memorandum Circular No. 2013-1
- h. Republic Act 10821 “Children’s Emergency Relief and Protection Act”
- i. National Action Plan Against COVID-19
- j. Republic Act 7277 or the Magna Carta for Disabled Persons
- k. Republic Act 10754 “An Act Expanding the Benefits and Privileges of Persons with Disabilities (PWDs)
- l. Batas Pambansa (BP) 344 “An Act to Enhance the Mobility of Disabled Persons”
- m. Republic Act 10070 “Establishing Institutional Mechanism to ensure the implementation of programs and services for persons with disabilities in every province, city and municipality – Persons with Disability Affairs Office (PDAO)”
- n. Republic Act 7876 “An Act Establishing a Senior Citizens Center in all cities and municipalities of the Philippines, and appropriating funds therefor”
- o. NDRRMC Memorandum Circular No. 147, s. 2017: Guidelines in the Conduct of LDRRMP Review
- p. NDRRMC Memorandum Circular No. 37, s. 2018: Amendment to the Guidelines in the conduct of LDRRMP Review



## Local Policies

- a. Kapasiyahang Panlungsod Blg. 96-2012, “Isang resolusyon na magalang na humiling sa ating Punong Lungsod, Kgg. Christian D. Natividad na atasan ang tanggapan ng Panlungsod na Tagapangasiwa, sa pamamagitan ni Abgdo. Rizaldy L. Mendoza na gawin ng pitong araw ang gampanin ng mga miyembro ng Disaster Risk Reduction and Emergency Response Division”
- b. Kapasiyahang Panlungsod Blg. 173-2012, “Isang kapasyahang panlungsod na binibigyang-kapangyarihan ang Punong Lungsod at Tagapangulo ng City Disaster Risk Reduction and Management Council (CDRRMC), Kgg. Christian D. Natividad, na pumasok at lumagda sa kasunduan sa pagitan ng Pamahalaang Lungsod ng Malolos at ilang mga organisasyon sa loob at labas ng lungsod upang maprotektahan ang mga ari-arian at kaligtasan ng mga mamamayan sa panahon ng kalamidad at iba pang di inaasahang pangyayari”
- c. Kapasiyahang Panlungsod Blg. 102-2014, “Isang kapasyahan na nagpapatibay sa Contingency Plan for Flood and Earthquake First Edition Series 2013, DRRM Plan at Disaster Operation Manual ng Lungsod ng Malolos”
- d. Kapasiyahang Panlungsod Blg. 168-2017, “Isang kapasyahang Panlungsod na magalang na hinihiling sa Punong Lungsod - Abgdo. Christian D. Natividad na mapagkalooban at makabili ng mga Emergency Equipment ang Pamahalaang Lungsod ng Malolos para sa City Disaster Risk Reduction and Management Council (CDRRMC) gaya ng speedboats, drone or unmanned aerial vehicles (UAVs) Satellite Phones, Emergency kits at iba pa”
- e. Kapasiyahang Panlungsod Blg. 34-2018, “Isang kautusang Panlungsod na nagpapalit pangalan ng dibisyon mula Disaster Risk Reduction and Emergency Response Division tungo sa pagiging Local Disaster Risk Reduction and Management Division at paglipat ng tanggapan ng Tagapangasiwang Panlungsod patungo sa Tanggapan ng Punong Lungsod”
- f. City Ordinance No. 61-2018, “An ordinance requiring private and public establishments, schools, institutions, NGOs and Sangguniang Barangay to create an Emergency Response Team; Providing for its composition, functions, training and accreditation for each team”
- g. City Ordinance No. 62-2018, “An ordinance prescribing the guidelines on the implementation of pre-emptive and forced evacuation during disaster or an emergency or state of calamity has been declared in the City of Malolos, and danger of loss of lives and properties becomes imminent, providing penalties for violation therefore, and for other purposes”
- h. Executive Order No. 4, Series 2020, “An Executive Order Creating the Novel Corona Virus Task Force of the City of Malolos, Bulacan”
- i. Executive Order No. 8, Series 2020, “An order amending Executive Order No. 34 s. 2019 entitled " An order enjoining the reconstitution of the City Disaster Risk Reduction and Management Council (CDRRMC) in the City Government of Malolos”



- j. Executive Order No. 14, Series 2020, “An order amending Executive order No. 8 s. 2020 of the City Disaster Risk Reduction and Management Council (CDRRMC) in the City Government of Malolos”
- k. Executive Order No. 25, Series 2020, “An order creating the City Management of the Dead and Missing Team of the City of Malolos”
- l. Executive Order No. 26, Series 2020, “An order creating the Contact Tracing Team for the Covid-19 Pandemic of the City of Malolos”
- m. Executive Order No. 4, Series 2021, “An order creating the Covid-19 Vaccination Task Force of the City of Malolos”
- n. Executive Order No. 4, Series 2021, “An order providing for the observance of the operating procedures on the implementation of preemptive evacuation within the City of Malolos due to natural disasters”

# TABLE OF CONTENTS







## TABLE OF CONTENTS

<b>RESOLUTION ADOPTING THE LDRRMP.....</b>	<b>3</b>
<b>MESSAGE FROM THE MAYOR.....</b>	<b>7</b>
<b>EXISTING DRRM-CCA RELATED POLICIES/GUIDELINES/RESOLUTION (DESCRIPTION).....</b>	<b>9</b>
<b>TABLE OF CONTENTS.....</b>	<b>13</b>
<b>ACRONYMS AND ABBREVIATION.....</b>	<b>17</b>
<b>DEFINITION OF TERMS.....</b>	<b>23</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>31</b>
<b>CHAPTER I. ECOLOGICAL PROFILE.....</b>	<b>33</b>
1.1. Physical Sector.....	33
1.1.1. Geography.....	33
1.1.2. Politico-Administrative Set-Up.....	33
1.1.3. Topography.....	33
1.1.4. Climate.....	33
1.1.5. Soil.....	34
1.1.6. Land Area/Use.....	36
1.2. Demography.....	37
1.2.1. Population Characteristics.....	37
1.2.2. Population Growth.....	39
1.2.3. Voting Population.....	40
1.3. Social Services.....	41
1.3.1. Health and Nutrition.....	41
1.3.2. Housing.....	53
1.3.3. Peace, Security and Disaster Risk Management.....	57
1.3.4. Educational Institutions.....	58
1.4. Environmental Sector.....	59
1.4.1. Mangroves.....	59
1.4.2. Tributaries.....	59
1.4.3. Inhabitants.....	60
1.4.4. Waste Management, Pollution Control and Urban Land Quality.....	60
1.5. Infrastructure.....	62
1.5.1. Transportation.....	62
1.5.2. Power.....	64
1.5.3. Water.....	65
1.5.4. Information and Communication Technology.....	67



<b>CHAPTER II. INSTITUTIONAL LDRRMC AND LDRRMO STRUCTURE.....</b>	<b>70</b>
2.1 LDRRMC Structure.....	70
2.2 LDRRMO Structure.....	71
<b>CHAPTER III. RISK PROFILE.....</b>	<b>73</b>
3.1 Hazards and Vulnerability.....	73
3.1.1. Climate Change.....	73
3.1.2. Typhoons.....	73
3.1.3. Southwest Monsoon/Habagat.....	74
3.1.4. Flooding.....	74
3.1.5. Tsunami.....	77
3.1.6. Coastal Flooding and Storm Surge.....	77
3.1.7. Earthquake.....	77
3.1.8. Fire.....	77
3.1.9. Human Health and Diseases.....	79
3.1.10. Animal Health and Diseases.....	80
3.2. Risk Profile.....	80
<b>CHAPTER IV. CAPACITY.....</b>	<b>83</b>
4.1. CDRRMO Capacity.....	83
4.2. Early Warning System.....	83
4.3. Evacuation Center.....	85
4.4. Barangays and Other Organizations.....	88
<b>CHAPTER V. RISK ASSESSMENT MAPS.....</b>	<b>91</b>
<b>CHAPTER VI. SITUATIONAL ANALYSIS: IDENTIFYING SWOC FOR THE FOUR DRRM</b>	
<b>THEMATIC AREAS.....</b>	<b>148</b>
6.1. Strengths, Weaknesses, Opportunities and Challenges.....	148
6.1.1. Prevention and Mitigation.....	148
6.1.2. Disaster Preparedness.....	152
6.1.3. Disaster Response.....	154
6.1.4. Rehabilitation and Recovery.....	158
<b>CHAPTER VII. THEMATIC AREA PLAN.....</b>	<b>161</b>
7.1. Disaster Prevention and Mitigation.....	161
7.2. Disaster Preparedness.....	166
7.3. Disaster Response.....	170
7.4. Rehabilitation and Recovery.....	175



<b>CHAPTER VIII. MONITORING AND EVALUATION.....</b>	<b>180</b>
8.1. Prevention and Mitigation Plan.....	180
8.2. Preparedness Plan.....	182
8.3. Response Plan.....	183
8.4. Rehabilitation and Recovery Plan.....	185
<b>ANNEXES.....</b>	<b>187</b>
DRRM-CCA Capacity Building.....	187
National and International DRRM-CCA Policies / Guidelines Resolution .....	194
Programs, Projects and Activities (P/P/As).....	204
CDRRMC Members and Functions.....	214
Operation Center Protocol.....	223
Standard Manual of Operations.....	225
Contingency Plans.....	227
DRRM-H Plan.....	229
Directory.....	231
<b>REFERENCES.....</b>	<b>234</b>

# ACRONYMS AND ABBREVIATIONS





## ACRONYMS AND ABBREVIATIONS

<b>ABC</b>	Association of Barangay Captains
<b>AFP</b>	Armed Forces of the Philippines
<b>AIP</b>	Annual Investment Plan
<b>ASAP</b>	As Soon As Possible
<b>BASPD</b>	Barangay Affairs and Special Projects Division
<b>BDC</b>	Barangay Development Council
<b>BDRRMC</b>	Barangay Disaster Risk Reduction & Management Council
<b>BERT</b>	Barangay Emergency Response Team
<b>BFP</b>	Bureau of Fire Protection
<b>BHW</b>	Barangay Health Worker
<b>BNS</b>	Barangay Nutrition Scholar
<b>BPLD</b>	Business Permit and Licensing Division
<b>CA</b>	City Administrator
<b>CAFC</b>	City Agriculture and Fishery Council
<b>CAgrO</b>	City Agriculture Office
<b>CBEWSs</b>	Community Based Early Warning Systems
<b>CBFMMP</b>	Community Base Flood Monitoring & Mitigation Program
<b>CBO</b>	City Budget Office
<b>CCA</b>	Climate Change Adaptation
<b>CDP</b>	City Development Plan
<b>CDRRERD</b>	City Disaster Risk Reduction and Emergency Response Division
<b>CDRRMC</b>	City Disaster Risk Reduction & Management Council
<b>CDRRMF</b>	City Disaster Risk Reduction and Management Fund
<b>CEO</b>	City Engineering Office
<b>CGM</b>	City Government of Malolos
<b>CGSO</b>	City General Services Office
<b>CHO</b>	City Health Office
<b>CISD</b>	Critical Incident Stress Debriefing
<b>CLUP</b>	Comprehensive Land Use Plan
<b>CMIS</b>	City of Malolos Integrated School





<b>Com Grp</b>	Communication Group
<b>CP</b>	Contingency Plan
<b>CPDO</b>	City Planning and Development Office
<b>CSOs</b>	Civil Society Organizations
<b>CSWDO</b>	City Social Welfare and Development Office
<b>CVO</b>	City Veterinary Office
<b>DA</b>	Department of Agriculture
<b>DANA</b>	Damage Assessment and Needs Analysis
<b>DBM</b>	Department of Budget and Management
<b>DCC</b>	Disaster Coordinating Council
<b>DepEd</b>	Department of Education
<b>DHs</b>	Department Heads
<b>DILG</b>	Department of the Interior and Local Government
<b>DOH</b>	Department of Health
<b>DOST</b>	Department of Science and Technology
<b>DP</b>	Donor Partner
<b>DPWH</b>	Department of Public Works and Highways
<b>DRRM</b>	Disaster Risk Reduction and Management
<b>DRRMP</b>	Disaster Risk Reduction and Management Plan
<b>DSWD</b>	Department of Social Welfare and Development
<b>DTI</b>	Department of Trade and Industry
<b>ECs</b>	Evacuation Centers
<b>ELA</b>	Executive Legislative Agenda
<b>EOC</b>	Emergency Operation Center
<b>ERAT</b>	Emergency Rapid Assessment Team
<b>ERRR</b>	Emergency, Reconstruction, Rehabilitation and Recovery
<b>EWSs</b>	Early Warning Systems
<b>FA-BLS</b>	First Aid-Basic Life Support
<b>GAs</b>	Government Agencies
<b>HEMS</b>	Health Emergency Medical Surveillance
<b>HUDCC</b>	Housing and Urban Development and Coordinating Council
<b>IC</b>	Incident Commander



<b>ICP</b>	Incident Command Post
<b>ICS</b>	Incident Command System
<b>IEC</b>	Inside Evacuation Center
<b>IEC</b>	Information and Education Campaign
<b>INGOs</b>	International Non-Governmental Organizations
<b>IP</b>	Implementing Partner
<b>LCE</b>	Local Chief Executive
<b>LDRRMC</b>	Local Disaster Risk Reduction & Management Council
<b>LDRRMO</b>	Local Disaster Risk Reduction & Management Office
<b>LDRRMP</b>	Local Disaster Risk Reduction & Management Plan
<b>LGU</b>	Local Government Unit
<b>LIAC</b>	Local Inter-Agency Committee
<b>LLP</b>	Lingkod Lingap sa Pamilya
<b>LO</b>	Liaison Officer
<b>LSB</b>	Local Shelter Board
<b>LSP</b>	Local Shelter Plan
<b>MFR</b>	Medical First Responders
<b>MOOE</b>	Miscellaneous and Other Operating Expenditures
<b>MRS</b>	Malolos Rescue Squad
<b>MRS</b>	Malolos Rescue Squad
<b>MSCC</b>	Malolos Sports and Convention Center
<b>NDRRMC</b>	National Disaster Risk Reduction & Management Council
<b>NDRRMF</b>	National Disaster Risk Reduction and Management Fund
<b>NDRRMP</b>	National Disaster Risk Reduction and Management Plan
<b>NFIs</b>	Non Food Items
<b>NGAs</b>	Non-Government Agencies
<b>NGOs</b>	Non Government Organizations
<b>NHA</b>	National Housing Authority
<b>OCA</b>	Office of the City Administrator
<b>OCD</b>	Office of the Civil Defense
<b>OCs</b>	Operation Centers
<b>OEC</b>	Outside Evacuation Center



<b>OPR</b>	Office/Person Responsible
<b>PCG</b>	Philippine Coast Guard
<b>PDNA</b>	Post Disaster Needs Assessment
<b>PDNA</b>	Post Disaster Needs Assessment
<b>PDRRMF</b>	Provincial Disaster Risk Reduction and Management Fund
<b>PDRRMO/C</b>	Provincial Disaster Risk Reduction & Management Office/Council
<b>PIO</b>	Public Information Officer
<b>PN</b>	Philippine Navy
<b>PNP</b>	Philippine National Police
<b>POL</b>	Petroleum Oil and Lubricants
<b>POs</b>	People's Organization
<b>POSD-TMO</b>	Public Order and Safety Division-Traffic Management Office
<b>PPAs</b>	Programs, Projects and Activities
<b>PPPPs</b>	Policies, Plans, Programs and Projects
<b>PPPs</b>	Plans, Programs, Projects
<b>PRC</b>	Philippine Red Cross
<b>RDRRMC</b>	Regional Disaster Risk Reduction & Management Council
<b>RDANA</b>	Rapid Damage Assessment and Needs Analysis
<b>RHMs</b>	Rural Health Midwives
<b>RHNs</b>	Rural Health Nurses
<b>RHPs</b>	Rural Health Physicians
<b>RHUs</b>	Rural Health Units
<b>RO</b>	Radio Operator
<b>RPs</b>	Responsible Partners
<b>RSIs</b>	Registered Sanitation Inspectors
<b>SAR</b>	Search and Rescue
<b>SAR Grp</b>	Search and Rescue Group
<b>SB</b>	Sangguniang Barangay
<b>SimEx</b>	Simulation Exercises
<b>SIns</b>	Sanitary Inspectors
<b>SO</b>	Safety Officer
<b>SOP</b>	Standard Operating Procedures



<b>SOPs</b>	Standard Operating Procedures
<b>SP</b>	Sangguniang Panlungsod
<b>SPEED</b>	Surveillance in Post Extreme Emergencies and Disasters
<b>SRR</b>	Search, Retrieval and Rescue
<b>TMG</b>	Technical Management Group
<b>TWG</b>	Technical Working Group
<b>VGs</b>	Volunteer Groups
<b>VOs</b>	Volunteer Organizations
<b>VRGs</b>	Volunteer Rescue Groups
<b>VRO</b>	Volunteer Rescue Organization
<b>WaSAR</b>	Water Search and Rescue
<b>WHF</b>	World Health Foundation
<b>WHO</b>	World Health Organization

# DEFINITION OF TERMS





## DEFINITION OF TERMS

<b>Adaptation</b>	The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
<b>Capacity</b>	A combination of all strengths and resources available within a community, society or organization that can reduce the level of risk, or effects of a disaster. Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity may also be described as capability.
<b>Civil Society Organizations</b>	Non-state actors whose aims are neither to generate profits nor to seek governing power. CSOs unite people to advance shared goals and interests. They have a presence in public life, expressing the interests and values of their members or others, and are based on ethical, cultural, scientific, religious or philanthropic considerations. CSOs include nongovernment organizations (NGOs), professional associations, foundations, independent research institutes, community-based organizations (CBOs), faith-based organizations, people's organizations, social movements and labor unions.
<b>Climate Change</b>	A change in climate that can be identified by changes in the mean and/or variability of its properties and that persists for an extended period typically decades or longer, whether due to natural variability or as a result of human activity,
<b>Community-Based Disaster Risk Reduction and Management</b>	A process of disaster risk reduction and management in which at risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities, and where the people are at the heart of decision-making and implementation of disaster risk reduction and management activities.
<b>Contingency Planning</b>	A plan which includes management processes that analyzes specific potential events or emerging situations that might threaten potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations. It is a set of responses you will do based on valid information even before the disaster strikes. It is a sub-set of the comprehensive plan.
<b>Contingency Planning (RA 10121)</b>	“A management process that analyzes specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to



	enable timely, effective and appropriate responses to such events and situations.”
<b>Complex Emergency</b>	A form of human-induced emergency in which the cause of the emergency as well as the assistance to the afflicted IS complicated by intense level of political considerations.
<b>Disaster Prevention</b>	The outright avoidance of adverse impacts of hazards and related disasters. It expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance such as construction of dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high-risk and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake.
<b>Disaster Risk Reduction</b>	The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposures to hazards, lessened vulnerability of people and property, wise management of land and the environment and improved preparedness for adverse events.
<b>Disaster Risk Reduction and Management</b>	Systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster. Prospective disaster risk reduction and management refers to risk reduction and management activities that address and seek to avoid the development of new or increased disaster risks, especially if risk reduction policies are not put in place.
<b>Disaster Risk Reduction and Management Information System</b>	A specialized database which contains, among others, information on disasters and their human material, economic and environmental impact, risk assessment and mapping and vulnerable groups.
<b>Demographic</b>	Population, concentration, mobility, density, growth
<b>Disaster</b>	A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope causing its own resources. Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences, Disaster impacts may include loss of life, injury, disease and other negative effects on human, physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.





<b>Disaster Mitigation</b>	The lessening or limitation of the adverse impacts of hazards and related disasters. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness.
<b>Early Warning System</b>	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. A people-centered early warning system necessarily comprises four (4) key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings are received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection to community response.
<b>Emergency Management</b>	The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.
<b>Economic</b>	Production, industry, trade, transportation, ownership, etc
<b>Emergency</b>	Unforeseen or sudden occurrence, especially danger, demanding immediate action.
<b>Exposure</b>	The elements that are subject to the impact of a specific hazard (i.e., elements at risk) such as houses on a floodplain.
<b>Flood</b>	Defined as a rise, usually brief, in the water level in a stream to a peak from which the water level recedes at a slower rate (Excess Water)
<b>Flooding</b>	A great flow of water that rises and spreads over the land. may result when a volume of water from lakes/streams/ rivers exceeds its carrying capacity and escapes from its usual boundaries
<b>Flooding type</b>	<ul style="list-style-type: none"> <li>• Riverine floods - originating from channel overflow;</li> <li>• Coastal floods - originating from the sea</li> <li>• Stagnation floods - depressions in the absence or insufficient outlets;</li> <li>• Sheet floods - originating from concentrated runoff on slopes with or without insufficient rills and gullies; and</li> <li>• Flash floods - high velocity flows confined in steep channels mostly straight and V- shaped; also, from underground river networks.</li> </ul>
<b>Framework</b>	Structure, organization
<b>Geographic</b>	Location, contour, features, etc.
<b>Geographic Information System</b>	A database which contains, among others, geo-hazard assessments, information on climate change, and climate risk reduction and management.
<b>Hazard</b>	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health



	impacts, property damage, loss of livelihood and services, social and economic disruption or environmental damage (RA 10121).
<b>Hazard Map</b>	A Geomorphological-based assessment of flood-prone areas and is a “worst-case scenario map”.
<b>Mitigation</b>	Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation, and technological hazards and to ensure the ability of at-risk communities to address vulnerabilities aimed at minimizing the impact of disasters. Such measures include, but are not limited to, hazard-resistant construction and engineering works, the formulation and implementation of plans, programs, projects and activities, awareness raising, knowledge management, policies on land-use and resource management, as well as the enforcement of comprehensive land-use planning, building and safety standards, and legislation.
<b>Land-Use Planning</b>	The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long-term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.
<b>National Disaster Risk Reduction and Management Framework or "NDRRMF"</b>	Provides for comprehensive, all hazards, multi-sectoral, inter-agency and community-based approach to disaster risk reduction and management.
<b>National Disaster Risk Reduction and Management Plan" or "NDRRMP"</b>	The document to be formulated and implemented by the Office of Civil Defense (OCD) that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. The NDRRMP shall provide for the identification of hazards, vulnerabilities and risks to 'be managed at the national level; disaster risk reduction and management approaches and strategies to be applied in managing said hazards and risks; agency roles, responsibilities and lines of authority at all government levels; and vertical and horizontal coordination of disaster risk reduction and management in the pre-disaster and post-disaster phases. It shall be in conformity with the NDRRMF.
<b>Post-Disaster Recovery</b>	The restoration and improvement where appropriate, of facilities, livelihood and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors, in accordance with the principles of "build back better".
<b>Preparedness</b>	Pre-disaster actions and measures being undertaken within the context of disaster risk reduction and management and are based on sound risk analysis as well as pre-disaster activities



	to avert or minimize loss of life and property such as, but not limited to, community organizing, training, planning, equipping, stockpiling, hazard mapping, insuring of assets, and public information and education initiatives.
<b>Private Sector</b>	The key actor of the economy where the central social concern and process are the mutually beneficial production and distribution of goods and services to meet the physical needs of human beings. The private sector comprises private corporations, households and non-profit institutions serving households.
<b>Private Sector</b>	The key factor in the real in of the economy where the central social concern and process are the mutually beneficial production and distribution of goods and services to meet the physical needs of human beings. The private sector comprises private corporations, households and non-profit institutions serving households.
<b>Rehabilitation</b>	Measures that ensure the ability of affected communities/ areas to restore their normal level of functioning by rebuilding livelihood and damaged infrastructures and increasing the communities' organizational capacity.
<b>Response</b>	Any concerted effort by two (2) or more agencies, public or private, to provide assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected and in the restoration of essential public activities and facilities.
<b>Resilience</b>	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions (RA 10121).
<b>Risk</b>	Defined as the likelihood of an adverse effect, direct or indirect, on human health and welfare. Risk is mathematically expressed as the product of hazard, exposure and vulnerability.
<b>Risk Assessment</b>	A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihood and the environment on which they depend. Risk assessments with associated risk mapping include: a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical, social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios.
<b>Risk Management</b>	The systematic approach and practice of managing uncertainty to minimize potential harm and loss. It comprises risk



	assessment and analysis, and the implementation of strategies and specific actions to control, reduce and transfer risks. It is widely practiced by organizations to minimize risk in investment decisions and to address operational risks such as those of business disruption, production failure, environmental damage, social impacts and damage from fire and natural hazards.
<b>Risk Transfer</b>	The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.
<b>Secretariat</b>	Documents proceedings; organizes reference materials used in preparing the CP.
<b>Security and Defense</b>	Crimes, major threats, public safety, major installations, border issues, etc.
<b>Socio-Culture</b>	Ethnic composition, culture and habits, main issues, traditional links
<b>Special Working Group</b>	Necessary especially if a new plan is being created in a situation of urgency.
<b>State of Calamity</b>	A condition involving mass casualty and/or major damages to property, disruption of means of livelihoods, roads and normal way of life of people in the affected areas as a result of the occurrence of natural or human-induced hazard.
<b>Susceptible</b>	At risk, prone, having a tendency, subject
<b>Sustainable Development</b>	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two (2) key concepts: (1) The concept of "needs", in particular, the essential needs of the world's poor, to which overriding priority should be given; and (2) The idea of limitations imposed by the state of technology and social organizations on the environment's ability to meet present and future needs. It is the harmonious integration of a sound and viable economy, responsible governance, social cohesion and harmony, and ecological integrity to ensure that human development now and through future generations is a life-enhancing process.
<b>Vulnerable</b>	Helpless, in danger, in a weak position, defenseless
<b>Vulnerability</b>	These are the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability may arise from various physical, social, economic, and environmental factors such as poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures,



	and disregard for wise environmental management (RA 10121).
<b>Vulnerable and Marginalized Groups</b>	Those that face higher exposure to disaster risk and poverty including, but not limited to, women, children, elderly, differently-abled people, and ethnic minorities (RA 10121).

# EXECUTIVE SUMMARY





## EXECUTIVE SUMMARY

The Philippines' geographic location makes it vulnerable to various types of natural hazards. Human-induced hazards also pose a major threat to our lives. Such circumstances and challenges brought by disasters paved the way for the institutionalization of Republic Act No. 10121 last May 27, 2010, otherwise known as "*The Philippines Disaster Risk Reduction And Management Act of 2010*". RA 10121 calls for building disaster-resilient communities and capacitating national government agencies, local government units and other partner stakeholders. It also advocates for the inclusion of creating a professionalized service and well-informed citizenry in disaster risk reduction and management or DRRM. In addition, it serves as a means to enhance the operating mechanisms of the Philippine Disaster Risk Reduction and Management System (PDRRMS), to overcome its gaps and transform it from a reactive into a proactive stance.

Since the threat of disasters in the Philippines have been increasing over the years and are predicted to worsen due to climate change, the City of Malolos Disaster Risk Reduction and Management Plan (CDRRMP) was crafted in the context of city's current needs in the area of disaster preparedness, mitigation and management. The DRRMP shall be use as an instrument for the implementation of the National Disaster Management Policy as well as identified activities before, during, and after a disaster situation. The plans strengthen and concrete the relationships and coordination among various players in the city, thereby reducing duplication of efforts among disaster management service providers. It also further strengthens the role of Malolos City Disaster Risk Reduction and Management Council (CDRRMC), the City DRRM Office, Volunteer Rescue Groups (VRGs), Civil Society Organizations (CSOs), donors, private sector, Volunteer Organizations (VOs) and other quality and standard assurance institutions to ensure that disaster management are not below NDRRMC standards.

The City of Malolos Disaster Risk Reduction and Management Plan sets minimum standard in the provision of disaster management services in order to embrace the most effective and efficient ways of saving lives, protecting property and the environment from damage and destruction. It also provides information for response to a disaster with some emphasis on the preventive measures or steps that can be taken by individual institutions to minimize the risk of such situations and summarizes the roles, responsibilities and procedures relating to the management of disasters in general, and drought induced disasters in particular, promoting public/private sector disaster mitigation and preparedness initiatives and to carry out pilot projects in specific communities, with the goal of establishing community-based, sustainable disaster preparedness and prevention programs. Disasters, whether caused by natural or technological hazards, have the effect of setting most people back and stifling development.



# CHAPTER I

## ECOLOGICAL PROFILE





## CHAPTER I. ECOLOGICAL PROFILE

### 1.1. PHYSICAL SECTOR

#### 1.1.1. Geography

The City of Malolos is one of the 24 municipalities and cities comprising the province of Bulacan. It is bounded on the North by municipalities of Calumpit and Plaridel, Guiguinto on the East, Paombong on the West and Bulacan and Manila Bay on the Southeast and South respectively. In terms of its relative geographic location, the City of Malolos lies 14 degrees 45 minutes and 14 degrees and 51 minutes north latitude and 120 degrees 47 minutes and 120 degrees 51 minutes east longitude.

#### 1.1.2. Politico-Administrative Set-Up

The City of Malolos is situated about 42 kilometers northeast of Manila and is easily accessible to all types of vehicles through the use of the two major transportation arteries, namely, North Luzon Expressway and MacArthur Highway.

For administrative purposes, the City of Malolos is the seat of the provincial government of Bulacan and is composed of fifty-one (51) urban barangays.

#### 1.1.3. Topography

The wide-ranging topography of the City of Malolos is relatively flat of about 0.81% to gently sloping of 2.17%. The slope of the land descends towards west, southwest to southern direction. The highest land elevation is at about 6.0 meters above sea level while the lowest is only half a meter below sea level. A network of natural waterways and rivers of various sizes and importance is traversing through the landscape of the town down south to Manila Bay.

#### 1.1.4. Climate

The City of Malolos generally falls under Type I category of the Philippine Climate Corona Classification that has two (2) pronounced seasons, i.e., wet and dry seasons. The months of May to October are considered wet/rainy season period while relatively dry and cool weather pattern begins from November to April.

Annual temperature varies from 20.4 degrees centigrade to 34.9 degrees centigrade. The highest registered temperature occurs during the month of April with 34.9 degrees centigrade while the lowest registered temperature of 20.4 degrees centigrade occurs during the month of January.

North and northeast wind prevails over the area from October to February bringing in fair to slight rains. South East wind flow predominates from March to May with slight to heavy rains. While South West air currents prevail during the months of June to September bringing in strong winds, tropical rains, storms and typhoons.



## Summary of Monthly Climatological Data

SCIENCE GARDEN STATION 2000

MONTH	TEMPERATURE		NUMBER OF RAINY DAYS	DAYS WITH THUNDER-STORM	WINDS		NO. OF DAYS WITH LIGHTNING
	Max.	Min.			DIRECTION	MAXIMUM DIRECTION	
JANUARY	30.4	20.4	4	0	NE	-20E	0
FEBRUARY	31.6	20.6	2	0	NE	13NNE	0
MARCH	33.2	21.6	3	1	SE	12SE	1
APRIL	34.9	23.3	4	4	SE	14SE	4
MAY	34.6	24.4	12	14	SE	12S	13
JUNE	32.9	24.3	18	17	SW	18NN	13
JULY	31.6	23.9	22	19	SW	-21SWS	13
AUGUST	31.1	23.9	24	17	SW	22WSW	9
SEPTEMBER	31.5	23.7	22	18	SW	17SW	12
OCTOBER	31.3	23.2	19	11	N	20N	9
NOVEMBER	31.1	22.4	14	5	N	14N	2
DECEMBER	30.3	21.3	9	1	N	12N	0
ANNUAL	32.1	22.8	153	107	SW	20SW	76

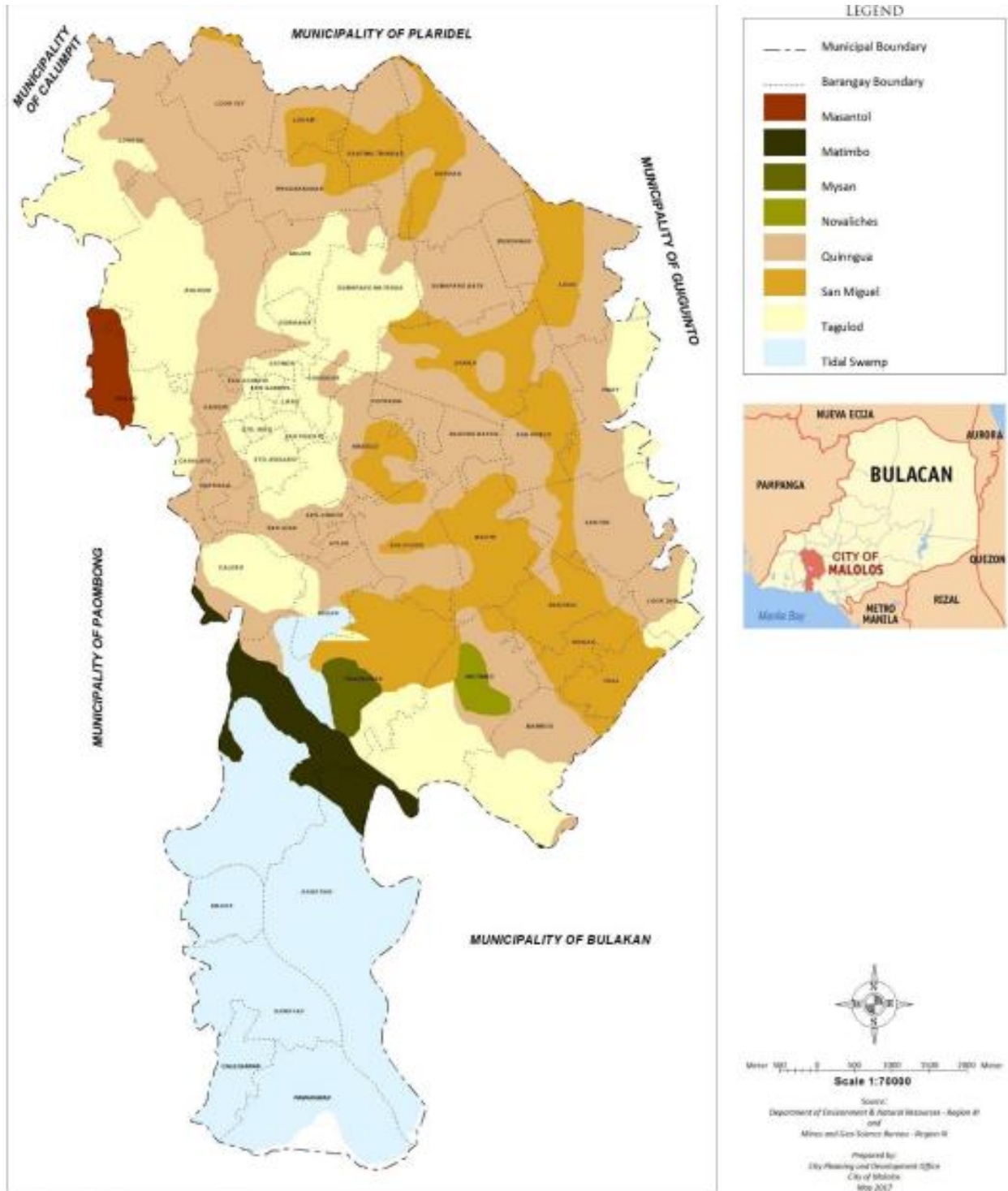
Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) – Quezon City

### 1.1.5. Soil

The soils of the area belong to the young soils of the lowlands and do not have developed profiles. They are classified as soils of the alluvial landscape, soils of the coastal landscape and miscellaneous soil type based on profile development and parent rock. There are three soil types from the major said type of Bulacan, the soils of the alluvial landscape and these are the Quingua Series, San Manuel Series and the Tagulod Series. Other soil types comprising the soil map of the City of Malolos are the Matimbo Series and Masantol Series, which belong to the soils of the coastal landscape, Loamy Tidal Swamp and Mucky Tidal Swamp from the miscellaneous soil types.



SOIL MAP





### 1.1.6. LAND AREA/USE

Barangays Sto. Niño, Sto. Rosario and San Vicente comprise the city proper “Poblacion”, which is one of the growth centers or business districts in the City of Malolos. Malolos Public Market initializes business activities in the Poblacion area. The City Hall is located at Sto. Niño, fronting the Immaculate Concepcion Cathedral Basilica Minore (Malolos Church) and its patio. The Provincial Capitol (Provincial Government of Bulacan) is in Guinhawa, where another growth center “Malolos Crossing” can be found. Potential growth center sprouts along the strips of Blas Ople Diversion Road.

Area of Existing Urban Land Uses, 2003

<b>CLASSIFICATION</b>	<b>AREA (Has.)</b>	<b>PERCENT TO TOTAL (%)</b>
Built-up Areas	1,621.40	24.11
Water Bodies	191.66	2.85
Other Plantation	338.94	5.04
Agricultural Areas	2,157.38	32.08
Fishponds	1,900.48	28.26
Grassland	351.72	5.23
Bare/Rocky Land	122.40	1.82
Mangrove Forest	41.02	0.61
<b>TOTAL</b>	<b>6,725.00</b>	<b>100.00</b>

Source: Land Cover Map 2003, GSMI

### LAND RECLASSIFICATION

Land Reclassification, 2000-2019

<b>Year</b>	<b>Area Reclassified (sq. m.)</b>
2000	233,004.00
2001	146,836.00
2002	0.00
2003	221,924.00
2004	10,578.00
2005	406,631.50
2006	234,297.00
2007	325,402.00
2008	298,012.00
2009	23,000.00
2010	14,455.00
2011	4,463.00
2012	322,545.00
2013	8,156.00
2014	0.00
2015	50,000.00
2016	136,040.00
2017	34,499
2018	82,583



2019	0.00
<b>Total</b>	<b>2,552,425.50</b>

## 1.2. DEMOGRAPHY

### 1.2.1. Population Characteristics

The city's population is steadily increasing over the successive censuses except in 1918 population. The annual growth rate shows that it is increasing with a much faster rate from 1970 to 2007 and decreases from 2007 to 2015.

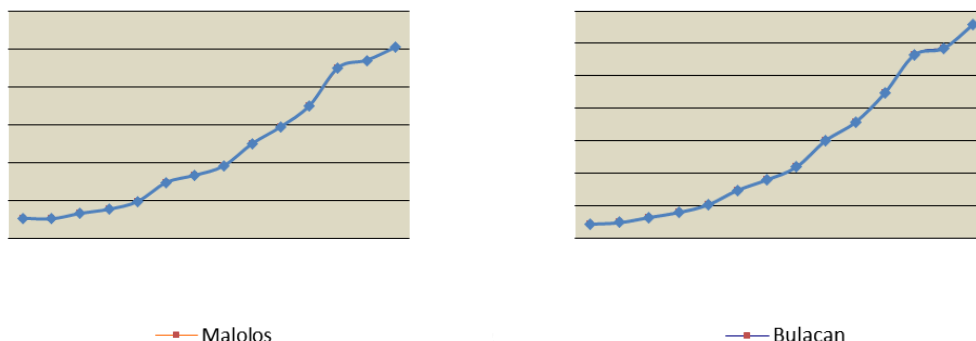
Census Year	Malolos	A G R (%)*	Bulacan	A G R (%)*
1918	26,109	-0.23	239,969	0.72
1939	33,384	1.17	319,339	1.36
1948	38,779	1.66	394,642	2.35
1960	48,968	1.94	514,346	2.21
1970	73,996	4.13	737,975	3.61
1975	83,491	2.41	899,529	3.96
1980	95,699	2.73	1,096,046	3.95
1990	125,178	2.69	1,505,219	3.17
1995	147,414	3.27	1,784,441	3.40
2000	175,291	3.46	2,234,088	4.49
2007	225,244	3.58	2,822,216	3.34
2010	234,945	1.41	2,924,433	1.19
2015	252,074	1.41	3,292,071	2.37

\*Exponential growth rate

Source: Philippine Statistics Authority (PSA)/National Statistics Office (NSO) Censuses of Population

The City of Malolos recorded an increase of 17,129 (7.29%) from 2010 to 2015. Annual population grew by 1.41% that is a bit lower than to what the town had during the period 2000-2007 that is 3.58% (highest). The growth in the city's population in the past 5 years may not only be attributed to natural increase but also in the influx of migrants from various points of origin.

#### Comparison of Population on all Census Years

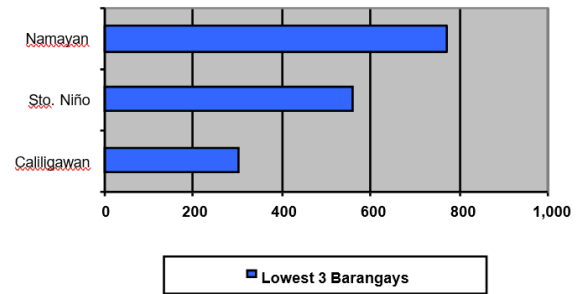
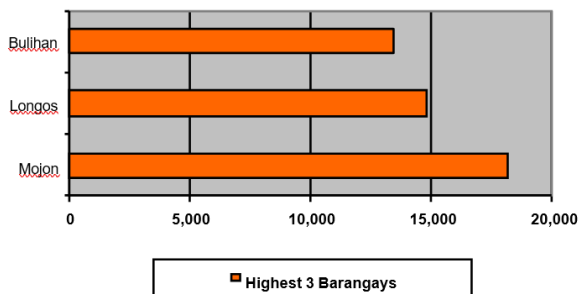




### 2015 Population

Barangay		Barangay	
1. Anilao	3,078	27. Mabolo	6,435
2. Atlag	5,294	28. Mambog	2,673
3. Babatnin	958	29. Masile	832
4. Bagna	5,321	30. Matimbo	6,516
5. Bagong Bayan	3,688	31. Mojon	18,239
6. Balayong	3,338	32. Namayan	771
7. Balite	2,813	33. Niugan	828
8. Bangkal	12,437	34. Pamarawan	3,336
9. Barihan	5,833	35. Panasahan	8,818
10. Bulihan	13,510	36. Pinagbakahan	6,087
11. Bungahan	2,965	37. San Agustin	2,262
12. Caingin	6,899	38. San Gabriel	2,467
13. Calero	1,281	39. San Juan	4,388
14. Canalate	4,124	40. San Pablo	5,240
15. Caniogan	5,132	41. Santiago	1,973
16. Catmon	2,382	42. Stma.Trinidad	6,524
17. Cofradia	3,937	43. Sto. Cristo	2,025
18. Dakila	5,352	44. Sto. Niño	561
19. Guinhawa	4,086	45. Santor	8,646
20. Caliligawan	302	46. Sto. Rosario	7,633
21. Liang	1,661	47. San Vicente	2,790
22. Ligas	6,624	48. Sumapang Bata	2,645
23. Longos	14,864	49. Sumapang Matanda	7,554
24. Look 1 <sup>st</sup>	6,808	50. Taal	2,231
25. Look 2 <sup>nd</sup>	3,108	51. Tikay	10,094
26. Lugam	4,711	<b>TOTAL</b>	<b>252,074</b>

Source: Philippine Statistics Authority (PSA) Census of Population, 2015



### FIRST 3 BARANGAYS WITH THE HIGHEST & LOWEST POPULATION, 2015





## 1.2.2. Population Growth

### Population Growth 2010-2015

Barangay	Population		Annual Growth Rate (AGR) %*	Barangay	Population		Annual Growth Rate (AGR) %*
	2010	2015			2010	2015	
1. Anilao	2,999	3,078	0.52	27. Mabolo	6,399	6,435	0.11
2. Atlag	5,101	5,294	0.74	28. Mambog	2,344	2,673	2.63
3. Babatnin	969	958	(0.22)	29. Masile	884	832	(1.21)
4. Bagna	5,061	5,321	1.00	30. Matimbo	6,455	6,516	0.19
5. Bagong Bayan	3,489	3,688	1.11	31. Mojon	17,261	18,239	1.10
6. Balayong	3,059	3,338	1.75	32. Namayan	872	771	(2.46)
7. Balite	2,579	2,813	1.74	33. Niugan	572	828	7.40
8. Bangkal	11,030	12,437	2.40	34. Pamarawan	3,425	3,336	(0.53)
9. Barihan	5,404	5,833	1.53	35. Panasahan	8,612	8,818	0.47
10. Bulihan	13,134	13,510	0.56	36. Pinagbakahan	5,653	6,087	1.48
11. Bungahan	2,731	2,965	1.64	37. San Agustin	2,202	2,262	0.54
12. Caingin	6,867	6,899	0.09	38. San Gabriel	2,234	2,467	1.98
13. Calero	1,214	1,281	1.07	39. San Juan	4,326	4,388	0.28
14. Canalate	4,015	4,124	0.54	40. San Pablo	5,035	5,240	0.80
15. Caniogan	5,239	5,132	(0.41)	41. Santiago	1,972	1,973	0.01
16. Catmon	1,988	2,382	3.62	42. Stma.Trinidad	6,384	6,524	0.43
17. Cofradia	3,815	3,937	0.63	43. Sto. Cristo	1,929	2,025	0.97
18. Dakila	5,146	5,352	0.79	44. Sto. Niño	532	561	1.06
19. Guinhawa	3,003	4,086	6.16	45. Santor	8,046	8,646	1.44
20. Caliligawan	428	302	(6.97)	46. Sto. Rosario	7,593	7,633	0.11
21. Liang	1,564	1,661	1.20	47. San Vicente	2,529	2,790	1.96
22. Ligas	6,119	6,624	1.59	48. Sumapang Bata	2,424	2,645	1.74
23. Longos	11,361	14,864	5.38	49. Sumapang Matanda	7,258	7,554	0.80
24. Look 1 <sup>st</sup>	5,614	6,808	3.86	50. Taal	2,118	2,231	1.04
25. Look 2 <sup>nd</sup>	2,610	3,108	3.49	51. Tikay	8,992	10,094	2.31
26. Lugam	4,355	4,711	1.57	<b>TOTAL</b>	<b>234,945</b>	<b>252,074</b>	<b>1.41</b>

Source: Philippine Statistics Authority (PSA) Census of Population, 2015

\* Exponential Growth Rate

Niugan has recorded the highest annual growth rate, 7.40%, followed by Guinhawa, 6.16% and Longos, 5.38%. Barangay with the least growth rate is Caliligawan, (6.97%).

In the 2015 Census of Population conducted by the Philippine Statistics Authority (PSA), the City of Malolos registered a total of 252,074 that is 7.66% of Bulacan's total population of 3,292,071.



### 1.2.3. Voting Population

No. of Registered Voters and Precints

Barangay	Registered Voters	Precints	Clustered Precints
1. Anilao	1,386	9	4
2. Atlag	2,890	21	9
3. Babatnin	568	4	2
4. Bagna	2,736	17	8
5. Bagong Bayan	1,644	11	5
6. Balayong	1,830	12	6
7. Balite	1,476	9	5
8. Bangkal	3,751	27	11
9. Barihan	2,566	16	8
10. Bulihan	5,397	37	18
11. Bungahan	1,456	10	4
12. Caingin	3,126	20	10
13. Calero	786	6	3
14. Canalate	2,225	18	8
15. Caniogan	2,698	23	8
16. Catmon	1,545	12	5
17. Cofradia	1,898	11	6
18. Dakila	2,412	19	7
19. Guinhawa	688	6	2
20. Caliligawan	259	2	1
21. Liang	878	6	3
22. Ligas	2,932	18	9
23. Longos	4,690	30	14
24. Look 1st	3,357	19	10
25. Look 2nd	1,504	10	5
26. Lugam	2,545	16	8
27. Mabolo	2,813	21	8
28. Mambog	1,563	10	5
29. Masile	528	3	2
30. Matimbo	3,579	22	11
31. Mojon	7,050	48	23
32. Namayan	538	4	2
33. Niugan	541	4	2
34. Pamarawan	1,996	12	6
35. Panasahan	4,261	26	13
36. Pinagbakahan	2,076	12	6
37. San Agustin	1,240	9	4
38. San Gabriel	1,170	8	4
39. San Juan	2,324	14	7
40. San Pablo	2,447	16	8
41. Santiago	1,070	7	4
42. Stma.Trinidad	2,652	19	9
43. Sto. Cristo	1,070	8	3
44. Sto. Niño	573	4	2
45. Santor	3,088	20	9
46. Sto. Rosario	3,961	32	12
47. San Vicente	1,457	10	5
48. Sumapang Bata	1,320	10	5
49. Sumapang Matanda	3,373	28	11
50. Taal	1,223	10	5
51. Tikay	3,522	24	11
<b>TOTAL</b>	<b>112,678</b>	<b>770</b>	<b>356</b>

Source: Commission on Election (As of October 21, 2019 ERB Hearing)



## 1.3. SOCIAL SERVICES

### 1.3.1. Health And Nutrition

#### a. Medical Health Facilities and Personnel

At present, one of the major tasks of the city government is to promote preventive health care, which is also the national thrust in the country's health program. The impact of this undertaking will have a far-reaching effect on maternal and child health care, which includes family planning, nutrition and dental care, diarrhea disease control and tuberculosis control program.

The city government disseminates its services through its six (7) rural health units (RHU) and thirty-eight (38) barangay health stations (BHS). Each rural health unit has corresponding barangays being served.

RHU	BARANGAY
I	Anilao, Balayong, Caingin, Calero, Canalate, San Juan, San Vicente, Santiago, Sto. Cristo, Sto. Niño, Sto. Rosario <sup>@@</sup>
II	Caniogan, Catmon, Liang <sup>@@</sup> , San Agustin, San Gabriel
III	Bagong Bayan <sup>@@</sup> , Balite, Bungahan, Cofradia, Dakila, Ligas, Mabolo, San Pablo, Sumapang Bata, Tikay
IV	Atlag, Babatnin, Bagna, Caliligawan, Mambog, Masile, Matimbo <sup>@@</sup> , Namayan, Pamarawan, Panasahan
V	Barihan, Look 1 <sup>st</sup> , Lugam <sup>@@</sup> , Pinagbakahan, Stma. Trinidad
VI	Bangkal <sup>@@</sup> , Look 2 <sup>nd</sup> , Niugan, Santor, Taal
VII	Bulihan, Guinhawa, Longos, Mojon <sup>@@</sup> , Sumapang Matanda

Source: City Health Office

<sup>@@</sup> - RHU Location

All barangays in the city have their barangay health stations except Canalate, San Agustin, Santiago, San Gabriel, San Juan and Sto. Niño. Eight (8) doctors, including the City Health Officer who is assigned at CHO and the rest in their respective rural health units lead the health services. They get help from twenty (20) nurses, seven (7) dentists, five (5) medical technologists, thirty-six (36) midwives, four (4) nursing aides and eight (8) dental aides. Additional manpower rendering help for public health services are two hundred ninety-six (296) Barangay Health Workers (BHWs) and three hundred twenty-three (323) Mother Leaders (MLs).

Services being rendered in all RHUs are primary health care, maternal and child health care, dental health, nutrition, family planning and environmental health. Its medical services are being supplemented by Bulacan Medical Center, twelve (12) private hospitals, one hundred forty (140) clinics (57 dental, 24 EENT, 18 maternity, 29 medical/surgical, 9 pediatric, 3 others) and twenty-seven

(27) Laboratory clinics (19 clinical/medical, 7 dental, 1 drug testing).



## Hospitals

### EENT

Name	Address	Owner/Contact No.	No. of Workers	Type	Bed Capacity
1. Santos Clinic, Inc. – EENT	MacArthur Highway, Sumapang Matanda	Dr. Sabino A. Santos, Jr. 791-7133 791-1101	10	Ambulatory/Surgical	N/A
2. Malolos EENT Hospital	KM 42, MacArthur Highway, Sumapang Matanda	Dr. Armando T. Chiong, Jr. 791-1029	3	Ambulatory	N/A

### GENERAL

Name	Address	Owner/Contact No.	No. of Workers	Type	Bed Capacity
1. Malolos San Vicente Hospital	Lucero St., Caniogan	Dr. Corazon T. Villano 791-5760	54	Secondary	12
2. Bulacan Medical Center (Bulacan Provincial Hospital)	Guinhawa	Dr. Protacio T. Bajao – Officer-in-Charge G/F Bulacan Medical Center 791-0630 HR 791-8145 Admin 791-8140 to 42 663-1040	436	Tertiary	300
3. Sacred Heart Hospital of Malolos, Inc.	Dr. Peralta St., Guinhawa Subd., Guinhawa	Dr. Alberto C. Reyes 794-4744 loc. 0	255	Secondary	72
4. Ofelia L. Mendoza Maternity & General Hospital	Liang	Dr. Ofelia L. Mendoza 791-0003	20	Secondary	12
5. Romel B. Cruz Hospital	702 Baog, Matimbo	Dr. Romel B. Cruz 791-3025	65	Secondary	32
6. Ofelia L. Mendoza Maternity & General Hospital	Mojon	Dr. Ofelia L. Mendoza 794-7113	25	Secondary	18
7. Stma. Trinidad Hospital	Pinagbakahan	Dr. Erlinda J. Valerio Engr. Rodolfo Valerio 791-7331	28	Secondary	15
8. Santos General Hospital of Malolos, Inc.	F. Estrella St., Sto. Rosario	Ernesto B. Santos 791-0665 791-0559	47	Secondary	28

### MATERNITY

Name	Address	Owner/Contact No.	No. of Workers	Type	Bed Capacity
1. Graman Medical & Maternity Hospital	44 Camia St., Dakila	Engr. Manuel E. Sevilla, Jr. 896-2292 791-0062 loc. 102	40	Primary	20
2. Mary Immaculate Maternity and General Hospital	F. Estrella St., Sto. Rosario	Ana Maria C. Malabanan, M. D., FPOGS 662-7274 791-7274	60	Secondary	20
3. Malolos Maternity Hospital & Eye Center Laboratory	MacArthur Highway, Sumapang Matanda	Malolos Maternity Hospital, Inc. 791-1938	20	Primary	17



## Clinics

### DENTAL

Name	Address	Owner/Contact No.	No. of Workers
1. Dental Pascual**	109 F. Estrella St., Atlag	Dr. Carmela A. Pascual791-1189	2
2. Dr. Marilou Ramos Clinic**	F. Estrella St., Atlag	Dr. Marilou Ramos-Adel 791-2309	2
3. Caluag Dental Clinic II Cosmetic Dentistry**	Bagong Bayan	Dr. Maylene P. Caluag0923-4675492	1
4. Jacinto-Arellano Dental Clinic	Bagong Bayan	Dr. Joanne J. Arellano 0919-2719390	1
5. Maniego Dental Clinic**	Bagong Bayan	Dr. Edgar L. Maniego 662-2588	1
6. Dionisio Dental Clinic**	Barihan	Dr. Margarita Dionisio- Mendoza 0926-3545858	1
7. Bethlehem Dental Clinic**	Cadena de Amor St., Alido Heights Subd.,Bulihan	Dr. Judith Cortez Tolentino 0917-6191409	3
8. Dalisay Dental Clinic**	Twin's Plaza, MacArthurHighway, Bulihan	Dr. Jonathan Dalisay 662-5656 0922-8285656	3
9. Dental Essentials**	022 Dulo II, Bulihan	Lourdes Elaine S. Rivera 0915-6266688 794-3243	2
10. E. Divinagracia Dental Clinic**	Sampaguita St., Alido Heights Subd., Bulihan	E. Divinagracia 0921-4986968 0916-7574816	1
11. Tayamen Dental Clinic**	Alido Heights Subd.,Bulihan	Janelle Tayamen-Dela Rosa 0917-4564774 0919-6530336	1
12. Villar-Lee Dental Clinic**	Capitol View Park, Bulihan	Dr. Larcy M. Villar-Lee 0927-7982290	1
13. Lozendo Dental Clinic**	120 Cadena, De Amor St.Alido Subd., Bulihan	Elydel L. Apape 0916-8753881	1
14. BHM Dental Clinic**	MacArthur Highway,Bulihan	Dr. Kay Valenzuela-Javier 0923-5395524 0943-8443952	1
15. Castillo Dental Clinic**	Enriquez St., Caingin	Dr. Meliton V. Castillo, Jr. 791-0459	4
16. Dental Care Clinic**	2nd Flr. St. Vincent'sPolyclinic, Catmon	Mary Jane D. Regalado 0925-4002417	1
17. Ramos-Adel Dental Clinic	91 Harca Bldg., Catmon	Dr. Marilou Adel 791-2309 0917-9643198	2
18. MRC Valdez Dental Clinic**	203 2 <sup>nd</sup> /F, Carmencita Bldg., Paseo Del Congreso, Catmon	Ma. Rochel Valdez Asuncion 896-0899	2
19. Poco Dental Care**	2 <sup>nd</sup> Floor, Balaga Bldg.,Paseo del Congreso, Catmon	Dr. Sergio E. Poco 794-0395 0927-3020747	1
20. Kids Care Dental**	Paseo Del Congreso, SanAgustin	Dr. Kimberly Ong 0933-8559447 0945-1258556	1



21. Dental Clinic**	Camia St., Dakila	Ma. Concepcion Vicente-Diego 0917-8056567	1
22. J. A. V. Dental Clinic**	Unit 103, Paradise Hotel, MacArthur Highway, Dakila	Dr. Jose A. Velasquez 796-3658	2
23. Snake Asia Dental Supply	87 Mabini St., Guinhawa	Maria Q. Mateo 514-5806 0945-3977288	2
24. Bajar Dental Clinic**	77 Paseo del Congreso, Catmon	Jose Rodel M. Bajar 931-1968 09234686384 0920-7269324	1
25. Barasoain Dental Clinic**	Paseo del Congreso, Liang	Dr. Ma. Regina C. Galman 791-0025 0915681616	1
26. Cruz Dental Clinic**	Paseo del Congreso, Liang	Dr. Sally Cruz 896-0876 0906-8556298	1
27. Dental Clinic**	360 Hangga St., Longos	Evangeline P. Chico 0923-2040916	1
28. Dr. Juan Gualberto Perez Palad Dental Clinic**	Cabanas N3/1st Floor - Space E, The Cabanas Mall of Malolos, MacArthur Highway, Longos	Dr. Juan Gualberto Perez Palad 0922-8410712 0917-8860712 768-6600	1
29. Dentista Dental Clinic**	Look 1 <sup>st</sup>	Dr. Cecilia Galang-Evardome 0917-7920123 0998-9594200	1
30. Dental Clinic**	#54 Vinta St., Mabolo	Dr. Elenita Torres 0927-6203403	1
31. El Shaddai Roque-Dela Cruz Dental Clinic**	Lucero St., Mabolo	Dr. Mary Ann Roque-Dela Cruz 0933-6478850 0928-1712017	1
32. Garcia Dental Clinic**	St. Joseph St., Matimbo	Dr. Jean Occiano-Garcia 760-6840	2
33. Daily Care Dental Clinic**	Maunlad Ave., Cor. Malago St., Maunlad Subd., Mojon	Dr. Loida N. Ramos	1
34. Dental Clinic**	132 Mabini St., Mojon	Dian Elaine D. Valenzuela 0917-7981990	1
35. Giron Dental Clinic**	#16 Purok 2, A. Mabini St., Mojon	Dr. Lilia F. Giron 760-6426	1
36. Rain of Smiles Dental Spa**	Purok 3, A. Mabini St., Mojon	Raelene Marie P. Sebastian 0915-6188493	2
37. Salazar Dental Clinic**	Purok 2, A. Mabini St., Mojon	Dr. Olivia S. Salazar-Pablo 791-1532 791-6062	1
38. Villanueva Dental Clinic**	Purok 3, A. Mabini St., Mojon	Dr. Morena A. Villanueva 791-0656	1
39. Dental Clinic**	Phase 3A Block 5 Lot 8 Ilang-ilang St., Grand Royale Subd., Pinagbakahan	Dr. Caroline M. Oandasan 0908-9754523 0916-4162223	2
40. Aquino-Mateo Dental Clinic**	G/F Asteria - 1 Bldg., Paseo del Congreso, San Gabriel	Dr. Winnie Janilyn A. Mateo 0922-8519940	1



41. Ma. Victoria Galang Dental Clinic**	36 F. Estrella St., SanJuan	Dr. Ma. Victoria J. Galang 662-1763 0923-1669039	2
42. Dental Clinic**	255 San Pablo	Dr. Neriza P. Santos 0919-8998604	1
43. Dental Clinic**	Aragon Bldg., F. EstrellaSt., Sto. Rosario	Dr. Haydee Gail V. de Guzman 0933-5401016	1
44. Timoteo Dental Clinic**	F. Estrella St.,Sto. Rosario	Dr. Teodora Timoteo – Daquioag 0906-3226981 0933-3579406	1
45. Alinea Dental Clinic**	Malolos Shopping Arcade,San Agustin	Dr. Lourdes M. Alinea 0923-3992986	2
46. Gutierrez-Sacay Dental Clinic**	San Vicente	Dr. Rowena Sacay 790-6790 0932-8818846	1
47. Natividad Garcia Dental Clinic**	Tanjeco St., San Vicente	Dr. Ma. Victoria N. Garcia	1
48. St. Paul Dental Clinic**	PR bldg. II, Tanjeco, San Vicente	Gloria Bulaong – Ramos 896-2587 0922-3103738	1
49. Torres Dental Clinic**	Ten. Tanjeco St.,San Vicente	Dr. Eunice Carandang – Torres 663-7883/0923-5927573	1
50. Cruz Dental**	Pulo St., Cor. Paseo Del Congreso, Liang	Dr. Sally Cruz 0906-8556298 0933-5728701	1
51. Angulo Medical & Dental Clinic**	Castro Subd., Sumapang Matanda	Dr. Oscar Angulo Dr. Oliver Anggulo0932-4254413	1
52. Bernardo Dental Clinic**	28 Sumapang Matanda	Dr. Lourdes B. Cerbas791-3828	2
53. Dentista Ko Dental Clinic**	3-03320 3/F Robinson's Place Malolos, Sumapang Matanda	Aileen J. Ortega 794-2566 0925-5032425	4
54. R.R.M Tuazon Oral Surgery & Implant Center (Dental Partners)**	3-03327 Robinson's Place Malolos, Sumapang Matanda	Ritchie Raye M. Tuazon 931-3582 0998-5649757	2
55. Roberto Dental Clinic**	Sumapang Matanda	Lorenza Roberto791-0460	1
56. Laarny P. Domingo Dental Clinic**	Purok 1, Tikay	Dr. Laarny P. Domingo 0917-6494708	1
57. Carmona Joaquin Dental Clinic**	2F VU Bldg. Blass Ople Road	Dr. Herzon Benedict T. Joaquin 234-0027	1

\*\* - unregistered





## EENT

Name	Address	Owner/Contact No.	No. of Workers
1. Occhialera Filipinas, Inc. (Executive Optical).	1-01129 1/F Robinsons Place Malolos, Barangay Sumapang Matanda, City Of Malolos	Occhialera Filipinas, Inc. 375-6625	3
2. Occhialera Filipinas, Inc. (Executive Optical).	1k118 Space 2028, Robinsons Place Malolos, Barangay Sumapang Matanda, City of Malolos	Occhialera Filipinas, Inc. 375-6625	3
3. MC Bulaong Optical Clinic	419 Bagong Bayan	Ma. Corazon R. Bulaong	1
4. Adriano Optical Clinic and Laboratory**	08 Amethyst St., Capitol View Park Subd., Bulihan	Cristina Bernadette I. Adriano 0922-5492121	1
5. Optique Care Eye Wonder Clinic, Co.	South Super Market, MacArthur Highway, Bulihan	Optique Care Eye Wonder Clinic, Co. 0916-476214	1
6. Unioptics Optical Clinic	Rs #4 Puregold Price Club, Inc., Catmon	Manuel P. Manahan 0922-8260303	1
7. Bartimaeus Eye Center, Inc.	Eco Commercial Building, Mac Arthur Highway, Guinhawa	Bartimaeus Eye Center, Inc. 0932-8682278 794-7082	7
8. See Clearly Happy Eyes Happy Lives Optical Shop**	South Supermarket, Longos	Agnes Joanna Felix 0932-5913178	1
9. Liberty Pabulos Trinidad Optometry Clinic**	Fernando Bldg., Valencia St., San Vicente	Dr. Liberty P. Trinidad	1
10. Deus Vision Clinic	132 JBM Bldg., Mojon	Ma. Belinda D. Calabucal 892-0079	1
11. Tano Optical Clinic**	808 A. Mabini St., Mojon	Dr. Erickson M. Tano 0922-8210874 0933-3665815 0995-9431852	1
12. Barasoain Eye Clinic**	45 Don Antonio Bautista St., San Agustin	Lee Allen D. Cloma 0933 515 4906	1
13. Ear, Nose, Throat Care, Head and Neck Surgery Clinic**	Corner T. Alonzo St., Sto. Rosario	Dr. Mariel Conanan-Montes 790-8230	3
14. CB Roque-Egargo Eye Clinic**	Tanjeco St., San Vicente	Caroline B. Roque Egargo 896-1372	2
15. Optometrist Clinic**	Rajah Matanda St., San Vicente	Dr. Erlic Domingo 0942-3802846	1
16. Active Vision - Dr. Judy Esguerra Tiongson Optical Clinic	2-02229 Robinson's Place Malolos, Sumapang Matanda	Judy E. Tiongson	2



17. Ideal Vision Center	2-02235 Robinson's Place Malolos, Sumapang Matanda	Ideal Vision Center	2
18. Malolos EENT Clinic **	MacArthur Highway, Sumapang Matanda	Dr. Armando T. Chiong, Sr. 791-1029	3
19. Potenciana D. Principe ENT Clinic **	MacArthur Highway, Sumapang Matanda	Potenciana D. Principe 760-5157	2
20. Santos Eye Clinic **	MacArthur Highway, Sumapang Matanda	Dr. Sabino A. Santos, Jr. 791-1101	13
21. Dr. Divina Dela Cruz Hernandez, Optometrist - Ontology **	Purok 4, Tikay	Dr. Divina Dela Cruz Hernandez 0905-9297928	1
22. Mendoza-Angeles Optical Clinic.	M. Crisostomo St., Barangay San Vicente, City of Malolos	Ronell Christian B. Angeles	1
23. Tiongco Optometric Clinic.	Pariancillo St., Barangay Sto Niño, City of Malolos	Ma. Concepcion R. Tiongco 9231965640	1
24. G D Eye Care Optometric Clinic.	Topico Bldg, Barangay Sto Rosario, City of Malolos	Gerardo P Dagta	1

## MATERNITY

Name	Address	Owner/Contact No.	No. of Workers
1. Arcega's Maternity and Children's Clinic **	170 Gat Damaso Kaluag St., Bagong Bayan	Jessica Tess C. Arcega	1
2. Klinika ni Inay	Stall # 5 101 Sampaguita St., Alido Subd., Bulihan	Luisa R. Cruz 305-0902 0942-8479479	2
3. Malolos Sto. Tomas Mother & Child Clinic	38 Canalate	Ma. Rosario M. Salazar 791-0386	2
4. Fajardo-Crisostomo Maternity and Lying-in Clinic **	225 Lucero St., Caniogan	Jocelyn F. Crisostomo 760-2318 0925-4797816	1
5. Dr. Bianca Katrina E. Villanueva Ob Gyne Clinic **	Rm. 305 Sacred Heart Hospital, Guinhawa	Dr. Bianca Katrina E. Villanueva 0929-8649914	1
6. San Jose Clinic **	77 Paseo del Congreso, Liang	Dr. Ma. Carmen R. Bongga 791-0134	1
7. MVC Maternity & Women's Health Care Clinic **	Cabanas N3/1st Floor - Space D, The Cabanas Mall of Malolos, MacArthur Highway, Longos	Dr. Maria Victoria Celso 0933-2498816 0915-1945628	1
8. Precy Roque Lying InClinic	Wakas, Mambog	Precedina C. Roque 760-6797	1
9. San Padre Pio Birthing Home and Polyclinic	103 Don Antonio Bautista St., San Agustin	June Emily C. Sulit 794-3517	2
10. Lozano Well Family Midwife Clinic	324 Purok 3, San Pablo	Leodivina H. Lozano 0917- 5251650	1
11. Bethesda Ob-Gyne & Pedia Clinic	214 Stma. Trinidad	Salome A. Santos 0917-7429957	1
12. Mary's Child Maternity and Lying In Clinic	Purok 3, Stma. Trinidad	Mary Grace Q. Cipriano 0920- 4673903	1



13. Ramos – Vinluan Specialty Clinic & Clinical Laboratory	237 Pariancillo St., Sto. Niño	Ma. Lucila V. Ramos, M. D. 791-4570 794-1556	6
14. Ob-Gyne Clinic **	96 TR Bldg., T. Tanjeco St., San Vicente	Kathreen S. Tantoco, M. D. 662-4856/0922-8735196	1
15. Sumapang Bata Birthing Clinic	186 Purok 5, Sumapang Bata	Josephine De Jesus De Guzman 0917-872-5649	2
16. Torres-Gabia Medical Care Services and Lying In Clinic	Bantayan 1 St., Barangay Bulihan	Analiza Torres Gabia 0922-5029872	1
17. Flor G. Tayson Birthing Homes	Maunlad Homes Subd., Phase II, Barangay Mojon, City of Malolos	Florinda G Tayson 0923-2756691	
18. Lozano Well Family Midwife Clinic	Barangay San Pablo, City of Malolos	Lodebina H Lozano	1

### MEDICAL/SURGICAL

Name	Address	Owner/Contact No.	No. of Workers
1. Aniag Medical & Maternity Clinic **	78 Atlag	Dr. Madeleine T. Aniag 791-0780	2
2. Medical & Surgical Clinic **	Atlag	Dr. Lazaro D. Tapang 791-5817	2
3. Medical Clinic **	F. Estrella St., Atlag	Dr. William Ogbac, M. D. 791-4473	1
4. Move and Think Therapy Specialists	Unit-C-SLO Bldg., Capitol View Park Subd., Bulihan	Peter Angelo J. Santos 0923-1519008	1
5. JBM Physical Medicine and Rehabilitation Centre, Inc.	2/F St. Vincent Poly Clinic, Catmon	Jane M. Santiago Jeffrey M. Santiago 795-5094 0917-7004356	2
6. Rubrics Stone and Prostate Cancer of Asia-Malolos Branch	2/F, Lites MKTJ Bldg., Paseo del Congreso, Catmon	BMG Metro North Urologists, Inc. 796-3967 0933-8698289	4
7. CASB Physical Therapy Clinic	Alta Bldg., Peralta St. Guinhawa	Cesar Anthony S. Bautista 664-1362 0942-5557189	2
8. Dr. De Mesa Medical Clinic **	Paseo del Congreso cor. Don Antonio St., San Agustin	Dr. Benjamin P. De Mesa 0928-5077264	2
9. Virginia V. Mina Medical Clinic **	Purok 3 A. Mabini St., Mojon	Virginia Valerio Mina 791-0903 791-2168	1
10. Triple E Clinic	392 Mindanao St., San Juan	Estrellita E. Erfe 0965-0542620 791-2570	2
11. BMERT-KATUDIB Clinic **	225 Pariancillo St., Sto. Niño	Dr. Jose Raymundo R. Carlos 791-2603	2
12. Los Maloleños Medical and Clinical Services **	Pariancillo St., Sto Niño	Efrenilo D. Roque 796-5710	1
13. Ramos – Vinluan Specialty Clinic and Clinical Laboratory	237 Pariancillo St., Sto. Niño	Dr. Ma. Lucila V. Ramos 791-4570 0921-4677079	6



<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
14. Dental Clinic**	Soriano Bldg., San Vicente	Dr. Lolita M. Buazon Dr. Rommel M. Buazon 662-2128/790-5472 0916-4732670	2
15. Garcia's Clinic	Tanjeco St., San Vicente	Dr. Edgardo T. Garcia 794-1230	1
16. St. Vincent Clinic – Cardiologist**	San Vicente	Dr. Abelardo F. Tan 662-1889	5
17. Health Hub Multispecialty & Diagnostic Clinic, Corp.	4-04411 4/F Robinson's Place Malolos, Sumapang Matanda	Health Hub Multispecialty & Diagnostic Clinic, Corp. Marichu Navarro 0943-4379912 794-5633	4
18. Health in Motion Physical Therapy and Osteopathy	SRI Plaza 9223 MacArthur Highway, Sumapang Matanda	Jenina Joy F. De Gucena 896-0640 0933-3538080 0935-3054030	1
19. Medical and Dental Clinic**	Sumapang Matanda	Dr. Oscar Angulo 760-1656	1
20. Nephrology Center of Malolos Bulacan**	I-Plaza, MacArthur Highway, Sumapang Matanda	Dr. Florante Tuazon – Medical Director 790-6553	4
21. Sure Health Ultrasound & Specialist Clinic	1215 KM 41, MacArthur Highway, Sumapang Matanda	Marlene Javier Jennifer Go 796-1374	1
22. United Diagnostic Supply	Bagong Sikat St., Barangay Bungahan, City of Malolos	Rolando C. Mendoza 09175516499	1
23. Centria Medical Services and Diagnostic Center	159 Purok 5, Centria Bldg., Paseo Del Congreso, Barangay Liang, City of Malolos	David L. Santos 0995-8708050	2
24. Everhealth Diagnostic Laboratory	819 Mabini St., Barangay Mojon, City of Malolos	Joan Andrea M. Princena	1
25. F.C. Ladia Diagnostic And Clinical Laboratory	Mabini St., Barangay Mojon, City of Malolos	Femar C. Ladia	2
26. Malolos Women's Ultrasound Center Inc.	#802 Mabini St., Barangay Mojon, City of Malolos	Malolos Women's Ultrasound Center Inc.	1
27. S. Famatigan Medical Clinic	Lot 1 Tierra Bella Subd., Barangay Pinagbakahan, City of Malolos	Samantha Joy F. Manzano	1
28. Integra Wellness Enterprise	G/F Unit A2, Madel Arcade Center, Blas Ople Road, Barangay Bulihan, City of Malolos	Louise Faith L. Roque	2
29. Amihan Medical Ventures, Inc. (Hi-Precision Diagnostics)	G/F Building Shell Mac Arthur Hi-Way, Barangay Sumapang Matanda, City of Malolos	Amihan Medical Ventures, Inc.	1

\*\* - unregistered

**PEDIATRIC**

<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
1. Dr. Anna Aniaga-Dimalanta Pediatric Clinic**	88 Estrella St., Atlag	Dr. Anna Catalina A. Dimalanta 0917-7958111	1
2. Children's Clinic**	066 Bagong Bayan	Dr. Paula May C. Caluag 0917-8031374 791-3087	1
3. Añosa Kinder Klinik**	109 Lucero St., Mabolo	Ronald C. Añosa 0908-8104226	2
4. Rebecca Q. Ramos Children's Clinic**	546 F. Estrella St., Matimbo	Dr. Rebecca Q. Ramos 0923-8631747	1
5. Dr. Milagros M. Aniaga Pediatric Clinic**	T. Alonzo St., Sto. Rosario	Dr. Milagros Aniaga 791-1783 0933-9566560	1
6. Dr. Sayo Clinic**	Canlapan St., Sto. Rosario	Dr. Ma. Elena B. Sayo 796-0144	1
7. Ma. Lourdes B. Dela Peña Pediatric Clinic**	San Vicente	Ma. Lourdes B. Dela Peña 791-2894	2
8. Progressive Academy for Children with Exceptionalities Inc.	1276 Daliah St. Alido Subd., Barangay Bulihan, City of Malolos	Progressive Academy for Children with Exceptionalities Inc. 09178727460	2
9. My Child's Place Behavioral Therapy Center	M2 MKT Bldg. Fausta Subd., Barangay Mabolo, City of Malolos	Marilou C. Santiago 09228803578	2

**OTHERS**

<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
1. Habilities Center for Intervention**	121 Sampaguita St., Alido Heights Subd., Bulihan	Ma. Lourdes Willa G. Cruz 0927-3020434	1
2. RMV Over the Top Psychiatric and Custodial Care Center Co.	357 Stma. Trinidad	RMV Over the Top Psychiatric and Custodial Care Center Co. 0917-8934333 0917-1664646	2
3. Psychsphere Psychological Services	Block 1 Lot 11 Phase I C Sampaguita St., Grand Royale, Barangay Bulihan, City of Malolos	Dante D Boac 09063700313	2

**Laboratory Clinics****CLINICAL/MEDICAL**

<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
1. EAQ Malolos Laboratorio	Stall 2, Caltex, Blas F. Ople Road, Bulihan	Norman S. Mendiola 796-0306	1
2. Ma. Trinity Laboratory & X-Ray Diagnostic Center	Stall 5 # 42, Twins Plaza, Bulihan	Jovencio M. Sinon 676-1068 0933-2517549 0998-7932466	4
3. St. Joseph Of Padua Medical Laboratory	Sampaguita St., Alido Heights Subd., Bulihan	Oda G. Lagco 0906-9747536	1



Name	Address	Owner/Contact No.	No. of Workers
4. Heartmate Laboratory, Inc.	Room 4, Lites MTKJ Bldg., Paseo del Congreso, Catmon	Heartmate Laboratory, Inc. Odette Finuliar 794-9633 0939-1796910	2
5. Rubrics Stone and Prostate Cancer of Asia – Malolos Branch	2/F, Lites MKTJ Bldg., Paseo del Congreso, Catmon	BMG Metro North Urologists, Inc. 796-3967 0933-8698289	4
6. KIMTELAB Clinical Laboratory**	44 Camia St., Dakila	Elizabeth Hapa Mendoza 791-0062	1
7. Malolos Health Providers, Inc.	169 Paseo del Congreso, Liang	Malolos High Precision Diagnostics & Healthcare Center, Inc. 791-0089 0933-8153626 0955-2088770	7
8. Accucare Diagnostic Center	N3/1st Floor - Spaces A and B, The Cabanas Mall of Malolos, MacArthur Highway, Longos	Dr. Cecilia Leonila Chavez 760-6465 0932-4102357	3
9. Ameer Diagnostic Laboratory	A. Mabini St., Mojon	Amira De Leon Arroyo 305-0430 0925-5255504	4
10. F. C. Ladia Diagnostic and Clinical Laboratory**	Mabini St., Mojon	Femar C. Ladia 794-1870	3
11. Malolos Women's Ultrasound Center & Specialty Clinic**	802 A Bldg., Mabini St., Mojon	Alexandra Cruz-Mallari 790-6668	3
12. Miraculous Faith Ultrasound & Diagnostic Center	G/F SRCDC Bldg., A. Mabini St., Mojon	Imelda C. del Rosario 794-1539 0925-8428711	2
13. Miraculous Faith CT Scan Center	Mark III Bldg., A. Mabini St., Mojon	Imelda C. del Rosario 795-0248 0923-7027638	2
14. Ladia Wellness Clinic and Laboratory	Lite MTKJ Bldg., Paseo del Congreso, Catmon	Lara Celin J. Ladia 794-7716	2
15. Bethesda Clinical Laboratory	214 Stma. Trinidad	Salome A. Santos 0917-7429957 0933-4461425	2
16. Sayo Family Care Clinic and Diagnostic Laboratory	31 Canlapan St., Sto Rosario	Joseph Mauro B. Sayo 931-2639 0923-7126521	3
17. St. Vincent Clinical Laboratory I**	222 Tanjeco St., San Vicente	Joselito T. Ladia 662-1889	3
18. Echo Heartmasters Clinic	SRI Plaza, MacArthur Highway, Sumapang Matanda	Ken S. Villanueva 893-2377	3
19. SADA Medical Specialist, Co.	MacArthur Highway, Sumapang Matanda	Lydia David	4

**DENTAL**

<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
1. Suntech Dental Laboratory	L10, B13, Grand Royale Subd., Bulihan	Myrna O. Pinto 760-1798	4
2. Jolo Dental Laboratory and Supply	Paseo del Congreso, Catmon	Joselito D. Limas 0927-5370951	4
3. Right Care Dental & Medical Supply**	G/F SRCDC Bldg., A. Mabini St., Mojon	Ma. Ana Francisco 0918-9001281	1
4. Gucon S Dental Laboratory	Bantayan 1st., Barangay Bulihan, City of Malolos	Melquiades E Gucon 7601421	1
5. Diagnostica DentaleInc.	Stall No 10 Eco Commercial Bldg., Barangay Guinhawa, City of Malolos	Diagnostica Dentale Inc. 09335831189	1
6. Lucas' dental Laboratory and Supply	Maunlad Mall Ext 2, Barangay Sto Rosario, City of Malolos	Antonio M Figueroa	1
7. NKA Dental Supply	0623 Castro Subd. Barangay Sumapang Matanda, City of Malolos	Agnes C Angulo8962904	1

**DRUG TESTING**

<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
1. Briton-Ameer Clinical Laboratory, Inc.	A. Mabini St., Mojon	Alvin Joseph Arroyo 791-7339	5



### 1.3.2. Housing

#### a. Informal Settlement Areas

The City of Malolos is the capital of Province of Bulacan and is considered as the dormitory town for the spillover population of Metro Manila. Perhaps, these are the reasons to the fast growth of urban poor population in the locality. Urban poor population can be found in creeks, riverside, railroads, road right-of-way, under the bridge and illegally occupied private lots. Summary of households/families per barangay considered as informal settlers are as follows:

Location	Number	
	Dwelling Units	Families
1. Atlag	103	103
2. Look 2 <sup>nd</sup>	141	141
3. San Pablo	5	5
4. Sto. Rosario	95	95
5. Taal	44	44
6. Tikay	162	162
<b>TOTAL</b>	<b>550</b>	<b>550</b>

#### b. Residential Subdivisions

Name of Subdivision	Location	Owner/Developer	Area (sq. m.)	Housing Units	Lots
1. Altana Subd.	Atlag	Landworks Asia, Inc.	50,000	8	261
2. Desta Homes Subdivision	Atlag	Jose Tengco/Villa Desta	69,247	104	182
3. Villa Desta Subdivision	Atlag Balayong	Desta Development Corp./Prime North Development Corp.	36,698	38	251
4. Balaga Subdivision	Bagong Bayan			14	
5. Rufina Homes	Bagong Bayan	Rufina P. Proximo/ J. F. Proximo Holdings & Development Corp.	56,476	48	
6. Maunlad Homes	Balayong	Nemencio Pulumbarit, Jr.	112,616	120	
7. Valle Rosa Residences	Balayong	Excelsis Land, Inc./ Landworks Asia, Inc.	31,200	35	166
8. Balite Subdivision	Balite	Carmen delos Santos	20,914	20	63
9. Northville 8	Bangkal Santor	National Housing Authority/Goldenville Realty & Development Corp.	183,254	3,205	3,254
10. North Highlands	Barihan Stma. Trinidad Sumapang Bata	DPS Land Development Corp.	82,638	11	622
11. BLISS	Bulihan	Malolos Bagong Lipunan Community Association (MBLCA)/National Housing Authority (NHA)	25,000	63	50





<b>Name of Subdivision</b>	<b>Location</b>	<b>Owner/Developer</b>	<b>Area (sq. m.)</b>	<b>Housing Units</b>	<b>Lots</b>
12. Capitol View Park Subdivision	Bulihan	A. S. Bautista/ N. Morales Realty	60,000	69	194
13. Domsal Subdivision	Bulihan	Domsal Development Corp.	68,512	50	
14. Grand Royale Subdivision	Bulihan, Longos Look 1 <sup>st</sup> , Lugam Mojon, Pinagbakahan	Pia Marie Isabelle Buhain-Madrid/ Asian Land Strategies Corp.	1,697,102	2,123	10,792
15. Greenfield Residences	Bulihan	Fil-Earthscape Property Corp.	14,000	56	131
16. Malolos Heights Subdivision	Alido Heights Subdivision, Bulihan	GSIS/Arch. Humberto H. Hollero (deceased)	214,418	4	513
17. New Hope Subdivision	Bulihan	Caniogan Credit & Development Corp.	43,583	43	354
18. Royale Estate Subdivision	Bulihan	Asian Land Strategies Corp.	56,375	152	245
19. Villa De Palos Verdes	Bulihan	Palos Verdes Land Corp.	16,320	8	58
20. Woodlands of Grand Royale Subdivision	Bulihan	Asian Land Strategies Corp.	122,667	184	546
21. Smart Ville	Bulihan	Smart City Dev't Corp	50,000	3	178
22. Maunlad Homes	Caingin San Agustin	Nemencio Pulumbarit, Jr.	19,967	312	591
23. Sto. Rosario Credit & Cooperative, Inc. (SRCCI) Subdivision	Caingin	Sto. Rosario Credit & Cooperative, Inc.	10,000	85	102
24. St. Paul Subdivision	Canalate	Aljaca Marketing Corp.	7,537	36	33
25. Casifina Ville	Caniogan	B.T. Baltazar & Associates	2,500	28	
26. Maunlad Homes	Caniogan	Gold Central Estate, Inc.	7,423	34	46
27. Pricilla Compound	Cofradia	Pricilla Formeloza	4,267	5	18
28. Valcres Homes	Cofradia	Valentin/Cresenciana dela Cruz	5,435	23	34
29. Ismael Homes	Dakila	Ismael & Eufrocina Crisostomo	8,130	6	100
30. Madera Grove Estate	Dakila	Avida Land Corp.	12,2916	103	367
31. Guinhawa Subdivision	Guinhawa	Concepcion Peralta	72,717	187	191
32. Dream Crest Homes	Longos	Asian Land Strategies Corp.	517,090	585	4,082
33. Florida Villas	Longos	Florida Villas	30,828	116	157
34. Golden Ville Subdivision	Longos	Victoria S. Bustos/ Dona Rita Realty Corp.	176,000	160	435
35. Humel Heritage Homes	Longos	Hullero Construction	138,640	487	635
36. Lapid's Ville	Longos	Rustico Lapid	8,176	76	75
37. Mac Arthur Village	Longos	Henry Lim/ Philstar Marketing & Development, Inc.	147,242	262	740



<b>Name of Subdivision</b>	<b>Location</b>	<b>Owner/Developer</b>	<b>Area (sq. m.)</b>	<b>Housing Units</b>	<b>Lots</b>
38. Metropolis North Subdivision	Longos	Sta. Lucia Realty & Development, Inc.	65,814	25	245
39. Northfields Executive Village	Longos	Isabelita P. Mercado/ IPM Realty & Development Corp.	443,054	620	1,038
40. Provence	Longos	Camella Communities/ Communities Philippines (Crown Communities)	305,196	1,259	2,064
41. Bloomfields Residence	Longos	Fil-Earthscape Property Corp.	13,508	52	111
42. Wellford Homes	Longos	Ting, Elvira Ang	6,700	1	504
43. Mother Rita Socialized Housing Project	Look 1 <sup>st</sup>		20,220	201	201
44. Garden Ville Subdivision	Lugam	Gloria Garcia	38,809	33	98
45. Fausta Subdivision	Mabolo	Fausta Compound Homeowner's Association (FCHA)/ Cabantog	6,600	85	90
46. St. Ignatius Village	Mabolo	Pablo Dionisio/ Pedro Dionisio Dionisio Realty Development Corp.	33,332	99	99
47. Valcres Subd.	Mabolo	Valentin/Crescenciana dela Cruz	19,877	67	66
48. William Ville II	Mabolo San Juan Sto. Cristo	Joselito M. dela Cruz/ William Realty	96,934	138	444
49. Felicisima Village	Mojon	Sandigan Savings Bank/ Buendia/Felicisima Bautista	130,000	293	407
50. Golden Grain Villas	Mojon	Grace delos Santos/ Louie delos Santos	20,000	63	100
51. Maunlad Homes	Mojon Pinagbakahan	Nemencio Pulumbarit, Sr./ Maunlad Homes	369,500	1,412	1,832
52. Menzyland Subdivision	Mojon	Nemencio Pulumbarit, Sr./ Maunlad Homes	180,000	2,310	2,600
53. Menzyville Subdivision	Mojon	Nemencio Pulumbarit/ Maunlad Homes	11,773	75	108
54. San Felipe Subdivision	Mojon	Felipe Bautista	146,425	256	333
55. San Jose Subdivision	Mojon	Manuel San Jose	53,633	104	138
56. Fisherman's Village	Panasahan	Feliza Enriquez	31,202	43	125
57. William Ville I	Panasahan	Joselito dela Cruz/ William Realty	42,465	41	153
58. William Ville III	Panasahan	Joselito dela Cruz/ William Realty	46,911	41	315
59. Tierra Bella	Pinagbakahan		25,330	27	171



<b>Name of Subdivision</b>	<b>Location</b>	<b>Owner/Developer</b>	<b>Area (sq. m.)</b>	<b>Housing Units</b>	<b>Lots</b>
60. Stanley Ville Subdivision	San Agustin	Laguna Lands & Estate Development	30,000	58	166
61. Rufina Golden Village	San Juan Sto. Cristo	Rufina P. Proximo/ J. F. Proximo Holdings & Development Corp.	323,180	601	1,373
62. Pagtalunan Subdivision	San Pablo	Ramon Pagtalunan	20,000	40	
63. Pleasant Village Subdivision	San Pablo	Herminio N. Alday/ Aljaca Marketing Corp.	10,800	63	70
64. Samson and Centeno Subdivision	San Pablo			46	46
65. San Pablo Homes	San Pablo	San Pablo Multi-Purpose Cooperative	2,000	20	
66. Socorro Subdivision	San Pablo	Pedro Buenaceda			
67. Deogracias Subdivision	Sto. Cristo	Dr. Johnny Reyes	27,214	17	17
68. Malolos Heights Estate	Santor Tikay	Philstar Marketing and Development, Inc.	50,781	27	197
69. Maunlad Homes	Sto. Rosario	Nemencio Pulumbarit/ Maunlad Homes, Inc.	8,446	28	27
70. Sionson Subdivision	San Vicente	Jose Sionson	43,872	70	66
71. Cabantog Subdivision	Sumapang Matanda	Trinidad Cabantog	19,872	54	52
72. Castro Compound	Sumapang Matanda	Mr. Jacinto Castro		45	45
73. Del Carmen Subdivision	Sumapang Matanda	Carmen Bautista delos Santos	37,510	72	80
74. Grand Town Village	Sumapang Matanda	Arch. Rene Nuqui	20,000	45	145
75. Hiyas Subdivision	Sumapang Matanda	Mr. & Mrs. Anicetas Lopez	24,858	63	217
76. Miranda Subdivision	Sumapang Matanda	Victoria Miranda	7,269	10	10
77. Pascual Subdivision	Sumapang Matanda	Crisanta Pascual	21,397	26	16
78. Regatta North Subdivision	Sumapang Matanda	Shirley Plaza/ Woodlands Real Estate Development, Inc.	50,000	405	400
79. Saint Paul Village	Sumapang Matanda	Arsenio Lopez	8,000	55	55
80. Villa Tierra Subdivision	Sumapang Matanda		21,397	48	73
81. Cyber Ville Subdivision	Tikay	Philstar Marketing and Development, Inc./ Sta. Lucia Realty and Development Corp.	71,919	30	544
82. Farmville	Tikay	Henry Lim	11,539	12	68
83. North Madison Place	Tikay	H.R. Land, Inc.	46,830	178	177
84. St. Agatha Homes	Tikay	Archer Realty & Development Corp.	169,154	746	1,277



85. North Manhattan Residences	Tikay/Santor	Firsjia Phil/ Inc Westview Estate &Dev't Corp.	10,000	6	352
86. Malolos Heights II Estate	Santor	Philstar Marketing & Development Inc.	15,400	2	600
<b>Total</b>			<b>7,325,705</b>	<b>18,875</b>	<b>42,781</b>

### 1.3.3. Peace, Security and Disaster Risk Management

#### a. Protective Services

Philippine National Police (City of Malolos)  
 Community Police Assistance Center (COMPAC) 1  
 (The Cabanas Mall of Malolos, Longos)  
 COMPAC 2 (Crossing, Guinhawa)

Tel. No. 796-2483

Base Radio  
 Tel. No. 305-3397

#### Police Force and Equipment

Policemen	89
<b>Equipment</b>	
Patrol cars	6
Computers	23
Motorcycles	8
SWAT van	1
VHF Base radios	15
Office table	45
Typewriter	0
Television	1
Electric fan	3
Air conditioning unit	16

#### Crime Statistics

Type of Offenses	No. of Cases Reported (January – December 2019)
Index Crimes	100
Crime against Person	36
Crime against Chastity	-
Crime against Property	64
Non-Index Crimes	1,181
Solved Cases	1,109
Unsolved Cases	172
Crime Solution Efficiency Rate	87%
Average Monthly Crime Rate	8.33%



## b. Fire Protection Services

Bureau of Fire Protection (City of Malolos)

Tel. No. 791-6129

Panasahan Sub-Station  
(MAPUMA) Sub-Station

CP No. 0948-6599365 Malolos Public Market

### Fire Protection Force and Equipment

<b>Force</b>	
Firemen	23
Nurse (Emergency Medical Services)	12

<b>Equipment</b>	
Fire trucks	7
Fire hoses	23
Ambulance	0
Helmet	14
Fire coats	32
Fire boots (pair)	13
Nozzles	8
Handheld radios	0
VHF radio	2
Camera (BFP)	2
Typewriter	0
Steel cabinet	3
Television (station owned)	2
Electric Fan (station owned)	3

## 1.3.4. Educational Institutions

### No. of Schools

#### By Level

<b>LEVEL</b>	<b>PUBLIC</b>	<b>PRIVATE</b>	<b>TOTAL</b>
Pre-Elementary	46	49	93
Elementary	46	38	84
Junior High School	15	21	36
Senior High School	9	19	26
Technical/Vocational	2	2	4
College	2	6	8
<b>TOTAL</b>	<b>120</b>	<b>135</b>	<b>255</b>



### By Name

LEVEL	PUBLIC	PRIVATE	TOTAL
Pre-Elementary	0	14	14
Pre-Elementary/Elementary	41	14	55
Elementary	0	2	2
Pre-Elementary/Elementary/Junior High School	3	8	11
Junior High School	7	1	8
Pre-Elementary/Elementary/Junior High School/Senior High School	2	11	13
Pre-Elementary/Elementary/Senior High School	0	1	1
Elementary/Junior High School/Senior High School	0	0	0
Junior High School/Senior High School	3	0	3
Senior High School	2	1	3
Technical/Vocational	1	0	1
Junior High School/Senior High School/College	0	0	0
Senior High School/College	1	3	4
Senior High School/Technical/Vocational	0	1	1
Senior High School/Technical/Vocational/College	1	1	2
College	0	1	1
Pre-Elementary/Elementary/Junior High School/Senior High School/College	0	1	1
<b>TOTAL</b>	<b>61</b>	<b>59</b>	<b>120</b>

## 1.4. ENVIRONMENTAL SECTOR

### 1.4.1. Mangroves

#### Nursery and Areas

Mangrove culturing involves sprout collection on existing mangroves and maintenance of nursery in Calero. Reforestation in existing mangrove areas will stabilize river banks and increase fish population. Mangrove areas can be found along tributaries strips covering 41.02 ha. or 0.61% of the.

### 1.4.2. Tributaries

Name	Drain Area
1. Atlag River	Atlag, Bagna, Balayong
2. Malaway River	Babatnin
3. Galas River	Babatnin
4. Pamarawan River	Babatnin, Masile, Namayan, Pamarawan
5. Pangagtan River	Babatnin, Panasahan
6. Bugwan River	Babatnin, Pamarawan
7. Lico-lico River	Calero, Panasahan
8. Matimbo River	Matimbo, Mambog
9. Lagyo River	Matimbo, Panasahan
10. Manicnic River	Masile, Panasahan
11. Parila River	Panasahan

Name	Drain Area
1. Sapang Pari	Atlag, San Juan, Sto. Cristo
2. Sapang Dakila	Bagong Bayan, Cofradia
3. Balayong Creek	Balayong
4. Barihan Creek	Barihan
5. Apulid - Malanggam Creek	Lugam, Look 1 <sup>st</sup> , Longos, Bulihan
6. Caniogan Creek	Caniogan
7. Sapang Mabolo	Cofradia, Mabolo
8. Guinhawa Creek	Guinhawa
9. Estero de Mercado	Liang, San Vicente
10. Sta. Rita Creek	Ligas
11. Mojon Creek	Mojon



12. Santor Creek	Santor
13. Sapang Baliwag	Santor
14. Sumapang Bata Creek	Sumapang Bata
15. Sumapang Matanda Creek	Sumapang Matanda

### 1.4.3. Inhabitants

Birds are the noticeable inhabitants within the area. As to population, the most common species of birds are the Sparrow (Maya), Whiskered Tern (Kalangay to locals) which can be observed mostly in fishponds and fish corrals (baklad) in the morning between 6AM to 9AM all year round, Chinese Egret (Tagak) which can be seen in the afternoon between 4PM to 6 PM during November to February, Striated Heron (Bakaw Itim) and Yellow Bittern (Bakaw) which inhabited mangrove (Bakawan) areas. Other bird species such as Common and White Collared Kingfishers (Kasay-kasay), Pied Fantail (Maria Kapra), Crake (Kulok/Kilayan) and Common Sandpiper (Kanduro) are discernible anytime except the last, during low tides. Rarely can be seen in the fishponds and rivers are the Little Grebe (Kanisid). “Pipit”, “Batu-bato” and “Tarat” are also common as to with other areas.

### 1.4.4. Waste Management, Pollution Control and Urban Land Quality

#### a. Garbage/Waste Management

##### Material Recovery and Composting Facility

Facility/Location	Lot No.	TCT No.	Area (sq. m.)
<b>Material Recovery and Composting Facility (MRCF)</b> Matimbo - Mambog	6190	T-109851	736
	6191	RT-43704 (T-10192)	6,706
	6199	T - 7541	21,064
	6200	T-197570	1,063
	6201	T-12506	25,252
	6202	T-135703	888
	6210	RT-43705 (T-11047)	5,562
<b>TOTAL</b>			<b>50,739</b>

Solid wastes generated by the populace is processed by the existing MRCF, occupying about 5 has, located in Matimbo and Mambog. Only trucks with segregated wastes are being allowed to enter the facility to encourage waste segregation at the household level. Vermiculture or worm composting is now being introduced in waste reduction/processing to speed up the production of compost materials.



### Environment Protection Fees (Garbage Fees) – Semi-Annual Collection

Category	Fees (P)
Amusements places	200.00 - 2,000.00
Financial institutions	1,000.00 - 3,000.00
Gasoline service, filling stations	2,000.00 - 3,200.00
Private hospitals and medical clinic	400.00 - 3,000.00
Hotels, Motels, Boarding Houses, Dormitories and Lodging Houses	80.00 - 1,000.00
Institutions of Learning	800.00 - 6,000.00
Market stalls holders	80.00 - 500.00
Telegraph, Teletype, Cable and Wireless, Communication Companies, etc.	1,000.00
Telephone companies	3,000.00
Terminal garage for bus and other public utility	30.00 - 7,000.00
Professional, Administration offices and Display Offices	600.00
Private Warehouse or Bodega	3,000.00
All other business and other Service Agencies not specifically mentioned above	100.00 - 6,000.00

#### b. Garbage Collection

Barangay	Schedule of Collection	Size of Dump Truck	Number of Dump Truck (Trips/day)	Volume of Garbage per Collection Day (tons)	Location of MRCF
Malolos Public Market	Daily	Mini dump truck	4	13.31/day	Mambog
General Services Office	Daily	Mini dump truck	12	39.93/day (mixed waste)	Mambog

Source: City General Services Office

Every barangay has different schedule of garbage collection since they use their own dump trucks. All intended responsibilities, i.e. collection of segregated wastes, are being transferred gradually from the City Government to barangay in the proper implementation of Republic Act 9003. Aside from the Central Facility in Barangay Mambog, most barangays have established Material Recovery Facility or the like, Waste Sorting Station.

#### c. Waste Water Disposal System Drainage and Sewerage

Drainage systems are insufficient and not yet fully interconnected. Surface run-offs are usually collected through public storm drainage systems on major road networks. Other run-offs rely on natural drainage through sloping surfaces. NIA canal system serves as a collecting basin for surface run-off making water build-up during heavy rains to recede easily.

Since there is no centralized waste water treatment facility/plant in the city, domestic and commercial waste waters are discharged through the tributaries even it is untreated. Majority of the households and commercial establishments have individual specific tanks, effluent will traverse through tributaries till it reaches the Manila Bay. However, there are still households that





do not have sanitary toilet facilities. Out of the 55,742, 91.72% or 51,125 households have accessed to sanitary toilets.

## 1.5. INFRASTRUCTURE

### 1.5.1. Transportation

#### a. Roads

Classification	Length (km.)				
	Concrete	Asphalt	Gravel	Earth	Total
National	0.0000	21.3000	0.0000	0.0000	21.3000
Provincial	20.1800	5.2000	0.0000	0.0000	25.3800
City	22.8655	4.5387	0.0000	3.3815	30.7857
Barangay	39.8810	6.2650	0.0000	13.3350	59.4810
<b>Total</b>	<b>82.9265</b>	<b>37.3037</b>	<b>0.0000</b>	<b>16.7165</b>	<b>136.9467</b>

#### b. Bridges

BRIDGE ID/CODE	BRIDGE NAME	LOCATION	CLASSIFICATION	LENGTH (m.)	WIDTH (m.)	CAPACITY (tons)
BR#-FO	Malolos Fly-Over@	Guinhawa	National	343.64	8.85	-
BR#-11		Anilao	City	15.00	7.32	14
BR#-12		Anilao	City	12.00	7.32	14
BR#-13		Anilao	City	15.00	7.32	14
BR#-14		Anilao	City	6.00	7.32	14
BR#-21	Atlag Bridge	Atlag Bagna	National	20.00	6.00	14
BR#-22	Sevilla Bridge	Atlag	City	-	-	-
BR#-23	Buhangin Bridge	Atlag	City	-	-	-
BR#-31	Babatnin Bridge	Babatnin	City	-	-	-
BR#-61	Balayong Bridge	Balayong	City	10	3.00	14
BR#-62		Balayong	City	10	3.00	
BR#-71		Balite	City	-	-	-
BR#-72		Balite	City	-	-	-
BR#-141	Canalate Bridge	Canalate	National	-	-	-
BR#-161	Paseo del Congreso Bridge	Catmon	National	6.60	6.20	14
BR#-162	Valenzuela Bridge	Catmon	City	-	-	-
BR#-171	Cofradia Bridge	Cofradia	City	-	-	-
BR#-181	Dakila Bridge	Dakila	National	6.00	6.70	14
BR#-191	Guinhawa Bridge	Guinhawa	City	12.00	16.00	14
BR#-201	Caliligawan Bridge	Caliligawan	City	-	-	-
BR#-211	Liang Bridge	Liang	City	-	-	-
BR#-231	Longos Bridge	Longos	Provincial	-	-	-
BR#-232	Longos Bridge 2	Longos	National	20.00	16.00	14
BR#-261	Lugam Bridge	Lugam	City	-	-	-
BR#-281	Mambog Bridge	Mambog	National	15.00	7.32	14
BR#-301	Matimbo Bridge	Matimbo	City	-	-	-
BR#-321	Namayan Bridge	Namayan	City	-	-	-
BR#-411	Santiago Bridge	Santiago	National	-	-	-



BR# -431	Sto. Cristo Bridge	Sto. Cristo	City	15.00	7.32	14
BR# -441	Malolos Bridge	Sto. Niño	National	15.00	6.20	14
BR# -491	Sumapang Matanda Bridge	Sumapang Matanda	National	-	-	-
BR# -511	Tikay Bridge	Tikay	National	9.40	6.70	14

*© All are concrete except Malolos Fly-Over - Mabey Flyover System (Prefab Steel Asphalt)*

### c. Ports

Name/Location	Area (sq. m.)
Atlag	201.90
Babatnin	72.00
Calero	72.00
Canalate	18.00
Caliligawan	72.00
Masile	72.00
Namayan	72.00
Pamarawan	125.25
Panasahan	1,500.00
San Vicente	130.50

### d. Terminals

Mode of Transport	Destination	Number		
		Association	Terminal	Route
1. UV Express	MRT San Fernando Dau	3	1	3
	<b>Sub-Total</b>	<b>3</b>	<b>1</b>	<b>3</b>
2. Jeepney	Malolos Bayan - Pinagbakahan	8	0	1
	Bulacan	2	1	1
	Hagonoy Paombong	4	3	3
	Apalit Baliuag Dau San Fernando Marilao Meycauayan Malinta Sta. Maria	6	1	4
	Plaridel	1	0	1
	Pulilan	2	0	1
	<b>Sub-Total</b>	<b>23</b>	<b>6</b>	<b>11</b>
3. Pedicab	<b>Sub-Total</b>	<b>6</b>	<b>6</b>	<b>6</b>
4. Tricycle	<b>Sub-Total</b>	<b>72</b>	<b>72</b>	<b>72</b>
5. Boat	Babatnin Caliligawan Masile Namayan	4	1	4
	Pamarawan	1	1	1
	<b>Sub-Total</b>	<b>5</b>	<b>2</b>	<b>5</b>
<b>Total</b>		<b>109</b>	<b>87</b>	<b>97</b>



Modes of transportation within the urban centers and nearby barangays are cars, jeepneys, buses, tricycles/e-bikes, motorcycles and pedicabs/bikes. While in the so-called “coastal” barangays, settlements along fishpond area strips, only boat and pedicabs are available.

There are 32 bridges in the City of Malolos, with length of more than 526.64 meters. All are concrete except the Malolos Fly-over which is made of prefabricated steel (asphalt overlaid) under the Mabey Fly-over System. Its widths range from 3.00 meters to 8.85 meters and mostly have capacities of 14 tons.

As stated above, there are 87 terminals for all modes of transports even for motorized boats; Atlag Bridge (Babatnin/Caliligawan/Masile/Namayan) and Panasahan Fish Market (Pamarawan) except for buses. Also catering for UV Express, jeepneys and tricycles are a centralized terminal in Bulihan (Malolos Central Terminal) and a satellite central terminal in Sumapang Matanda (Robinson’s Place).

### 1.5.2. Power

The City of Malolos is served by MERALCO for its power needs on a 24-hour basis. Electricity is available in all barangays, giving a rate of 99.41% households with electricity. Power supply is assured in the City of Malolos with the presence of two (2) sub-stations in Pinagbakahan and Tikay. The electrical power distribution system provides current of 220 volts and 440 volts.

#### a. Electric Consumption

A total of 267,990 MWh power was consumed in 2019, with about 45.02% accounted for residential use, 33.18% for commercial use, 20.80% for industrial uses and for others about 1.00%.

Electric Consumption, MWh (2015-2019)

Year	Residential	Commercial	Industrial	Streetlight	Total
2019					
2018	120,657	88,911	55,735	2,687	267,990
2017	117,365	85,722	51,796	2,639	257,522
2016	111,995	82,149	53,321	2,609	250,076
2015	99,598	76,904	41,927	2,545	220,974

#### b. Electrification Level

Electrification Level (2015-2019)

Year	Residential	Commercial	Industrial	Streetlight	Total
2019	64,927				64,927
2018	58,631	7,633	69	91	66,424
2017	57,138	7,359	69	90	64,656
2016	56,001	7,184	62	89	63,336
2015	53,684	6,276	2	93	60,055



### 1.5.3. Water

#### a. Local Water District

Water is supplied mainly by Primewater Infrastructure Corporation. Its main office is at MIDECOR Bldg., MacArthur Highway, Sumapang Matanda, City of Malolos and can be reached at (044)764-0912.

#### Water Consumption

Barangay	No. of Concessionaries		Consumption (cu. m.)	
	Residential	Commercial	Residential	Commercial
1. Anilao	505	3	94,833	1,648
2. Atlag	886	4	183,282	4,590
3. Babatnin	Babatnin Rural Waterworks & Sanitation Association			
4. Bagna	832	5	184,661	3,156
5. Balayong	722	1	114,204	3
6. Balite	773	3	154,663	3,583
7. Bangkal	2,432	5	363,238	939
8. Barihan	1,358	16	258,382	3,791
9. Bulihan	2,446	139	514,238	85,401
10. Bungahan	602	9	145,394	3,518
11. Caingin	1,631	15	303,039	4,560
12. Calero	216	0	47,608	49
13. Caliligawan	44	-	4,807	-
14. Canalate	927	13	166,385	1,124
15. Caniogan	953	15	164,293	1,638
16. Catmon	621	57	137,767	26,168
17. Cofradia	867	4	175,903	2,063
18. Dakila	1,404	47	324,082	41,519
19. Guinhawa	913	257	217,024	294,168
20. Liang	299	29	56,113	50,080
21. Ligas	1,383	23	302,411	10,875
22. Longos	880	53	169,602	18,041
23. Heritage	468	16	109,586	19,213
24. Look 1st	1,372	2	263,028	567
25. Look 2nd	597	3	150,095	5,586
26. Lugam	500	1	105,235	545
27. Mabolo	1,199	49	233,543	12,324
28. Mambog	466	3	90,289	220
29. Masile	139	-	22,862	-
30. Matimbo	1,456	8	269,198	5,318
31. Mojon	3,230	76	640,933	17,978
32. Namayan	123	1	17,355	715
33. Niugan	100	2	27,513	218
34. Pamarawan	Pamarawan Rural Waterworks & Sanitation Association			
35. Panasahan	1,855	23	332,318	7,809
36. Pinagbakahan	440	33	97,640	6,364
37. San Agustin	358	21	73,033	6,709
38. San Gabriel	221	9	49,851	3,179
39. San Juan	929	17	193,463	4,329
40. San Pablo	1,349	35	275,248	21,561
41. San Vicente (Pob.)	454	178	105,494	55,771
42. Santiago	308	3	56,926	1,093
43. Santisima Trinidad	879	19	169,448	5,016
44. Santor	1,083	11	236,221	2,099
45. Sta. Isabel (Bagong Bayan)	780	24	174,881	12,203
46. Sto. Cristo	695	18	137,052	4,247
47. Sto. Niño (Pob.)	151	66	27,591	35,966



48. Sto. Rosario (Pob.)	1,266	89	241,225	34,276
49. Sumapang Bata	509	4	120,785	3,882
50. Sumapang Matanda	1,207	16	249,358	6,572
51. Taal	400	0	96,085	495
52. Tikay	1,143	13	258,550	4,180
<b>TOTAL</b>	<b>44,370</b>	<b>1,437</b>	<b>8,906,735</b>	<b>835,349</b>

## Pumping Stations

Location	Deepwell ID	Motor Capacity (hp)	Average production/day (cu)	Total Rated Capacity (LPS)
1. Brgy. Anilao	Anilao	7.5	177	7
2. Brgy. Atlag	Atlag - Sto. Cristo	15.0	471	6.9
3. Brgy. Atlag	Atlag New - Buhangin	20.0	475	11
4. Brgy. Bagong Bayan	Rufina Homes	15.0	-	20
5. Brgy. Balayong	Balayong - Balite	7.5	428	7
6. Brgy. Balite	Balite	5.0	196	5
7. Brgy. Bangkal	Bangkal	20.0	996	13
8. Brgy. Barihan	Barihan	15.0	922	11
9. Brgy. Barihan	Barihan - Pulo	5.0	479	5
10. Brgy. Bulihan	Bulihan - Capitol View Park Subd.	10.0	832	10
11. Brgy. Bulihan	Domsal Subd. - Bulihan	25.0	412	20
12. Brgy. Bulihan	Malanggam - Bulihan	10.0	676	9
13. Brgy. Bulihan	Bulihan - New	20.0	595	13
14. Brgy. Bungahan	Bungahan I	7.5	653	13
15. Brgy. Bungahan	Bungahan II	20.0	1,397	21
16. Brgy. Caingin	Caingin - School	5.0	392	14
17. Brgy. Caingin	Caingin - Maunlad Homes Subdivision	10.0	896	16
18. Brgy. Calero	Calero - New	7.5	720	8
19. Brgy. Canalate	Sampaga	5.00	346	4
20. Brgy. Caniogan	Caniogan	7.50	310	6
21. Brgy. Catmon	Catmon - Enriquez St.	15.0	723	15
22. Brgy. Cofradia	Cofradia	15.0	815	15
23. Brgy. Dakila	Dakila	10.00	610	10
24. Brgy. Guinhawa	Guinhawa - Capitol	7.50	411	9
25. Brgy. Guinhawa	Guinhawa - Subdivision	7.50	328	7
26. Brgy. Ligas	Ligas	7.50	545	10
27. Brgy. Longos	MacArthur Village	5.0	-	9
28. Brgy. Longos	Heritage Homes	25.0	1,099	14
29. Brgy. Look 1 <sup>st</sup>	Look 1 <sup>st</sup>	5.0	405	6
30. Brgy. Look 1 <sup>st</sup>	Mother Rita	5.0	468	5.52
31. Brgy. Look 2 <sup>nd</sup>	Look 2 <sup>nd</sup>	10.0	-	12
32. Brgy. Lugam	Lugam - Lagundi	3.0	168	6
33. Brgy. Mabolo	Mabolo	10.0	745	14
34. Brgy. Mabolo	Fausta Subdivision	5.0	310	6
35. Brgy. Masile	Masile	2.00	75	3
36. Brgy. Matimbo	Matimbo - Bacood (Luisky)	20.0	764	21
37. Brgy. Matimbo	Matimbo - Baog (Hospital)	7.50	583	11
38. Brgy. Mojon	Mojon - Maunlad Homes	15.00	1,261	14
39. Brgy. Mojon	Menzyland I	5.0	-	3
40. Brgy. Mojon	Menzyland II	10.0	568	7
41. Brgy. Mojon	San Jose - Mojon	7.50	703	10
42. Brgy. Namayan	Namayan	2.0	152	3
43. Brgy. Panasahan	Tawiran	5.0	503	7
44. Brgy. Panasahan	William Ville - Panasahan	10.0	730	10
45. Brgy. Panasahan	Panasahan Fisherman's Ville - New	10.0	858	11
46. Brgy. Pinagbakahan	Pinagbakahan - New	25.0	1,672	20



47. Brgy. San Agustin	Kapitan Kiko	5.0	-	3.3
48. Brgy. San Pablo	Pleasant Ville Subdivision	5.0	-	7
49. Brgy. San Pablo	San Pablo - New	20.0	481	17
50. Brgy. Santiago	Santiago	10.0	362	19
51. Brgy. Stma. Trinidad	Stma. Trinidad	7.50	628	7
52. Brgy. Sto. Cristo	William Ville - Sto. Cristo	10.0	611	7
53. Brgy. Santor	Santor	7.50	-	6
54. Brgy. Sto. Rosario	Sto. Rosario	15.0	588	11
55. Brgy. Sto. Rosario	Sabitan	10.0	310	7
56. Brgy. San Vicente	San Vicente - Sioson Subd.	15.0	1,041	14
57. Brgy. Sumapang Matanda	Sumapang Matanda - New	15.0	508	16
58. Brgy. Sumapang Matanda	Grand Town Subdivision	5.0	-	4
59. Brgy. Taal	Taal	7.50	-	7
60. Brgy. Tikay	Tikay	3.00	-	5

## b. Rural Waterworks Systems

Babatnin Rural Waterworks & Sanitation Association (since 1985) - 662-1821 Bulihan Rural Waterworks Cooperative & Allied Services (since December 1982) Pamarawan Rural Waterworks & Sanitation Association (since 1980)

Water is also being supplied by the three (3) rural waterworks systems in Babatnin, Bulihan and Pamarawan. There are also public and privately owned artesian wells to meet the water need of the populace. 60 pumping stations are owned and maintained by the City of Malolos Water District.

## 1.5.4. Information And Communication Technology

### a. Postal Service

City of Malolos (Main/Extension) Post Office  
Capitol Compound, Guinhawa

Ma. Magdalena F. Esconde (Post Master)  
Main Post Office – Provincial

Extension Post Office – Sto. Rosario

Robinson's Place, MacArthur Highway, Sumapang Matanda

### b. Telephone Service

Name	Location
1. Philippine Long Distance Telephone (PLDT), Co. 791-0100/791-1900	Sikatuna St., Catmon
2. GLOBE Telecom	Level 2, Graceland Mall, Guinhawa

### c. Mobile Communication Service

Name	Location
1. GLOBE Telecom	Level 2, Graceland Mall, Guinhawa
2. DIGITEL Mobile Philippines, Inc. (The Sun Shop)	Level 3, Robinson's Place, Sumapang Matanda
3. SMART Communications, Inc.	Level 3, Robinson's Place, Sumapang Matanda



#### d. Internet Service Provider

<b>Name</b>	<b>Location</b>
1. PLDT DSL	Sikatuna St., Catmon
2. Innove Communications, Inc.	Level 2, Graceland Mall, Guinhawa
3. SMART Broadband, Inc.	Level 3, Robinson's Place, Sumapang Matanda

#### e. Cable Network Service

<b>Name</b>	<b>Address</b>	<b>Owner/Contact No.</b>	<b>No. of Workers</b>
1. Skywatch Cable Network Corp.	F. Estrella St., San Juan	Skywatch Cable Network Corp. 791-5561/791-5367	11
2. Brightmoon Cable Networks, Inc.	Sto. Rosario	Gwynn T. Martinez	
3. Cableconnect Inc.	Stall 201 San Marcelino Plaza, Barangay Mojon	Cableconnect Inc. 9227928686	4
4. Bangstrip Telecommunication Services	543 Paseo Del Congreso, Barangay San Agustin	Kristine April S. Santos 9228942899	3

#### f. Radio Station

<b>Name</b>	<b>Location</b>
1. DWJC – FM 90.3	Lucero St., Mabolo
2. Radyo Bulacan 103.9 FM	Golden Grain Villas, Mojon

# CHAPTER II

## INSTITUTIONAL LDRRMC AND LDRRMO STRUCTURE

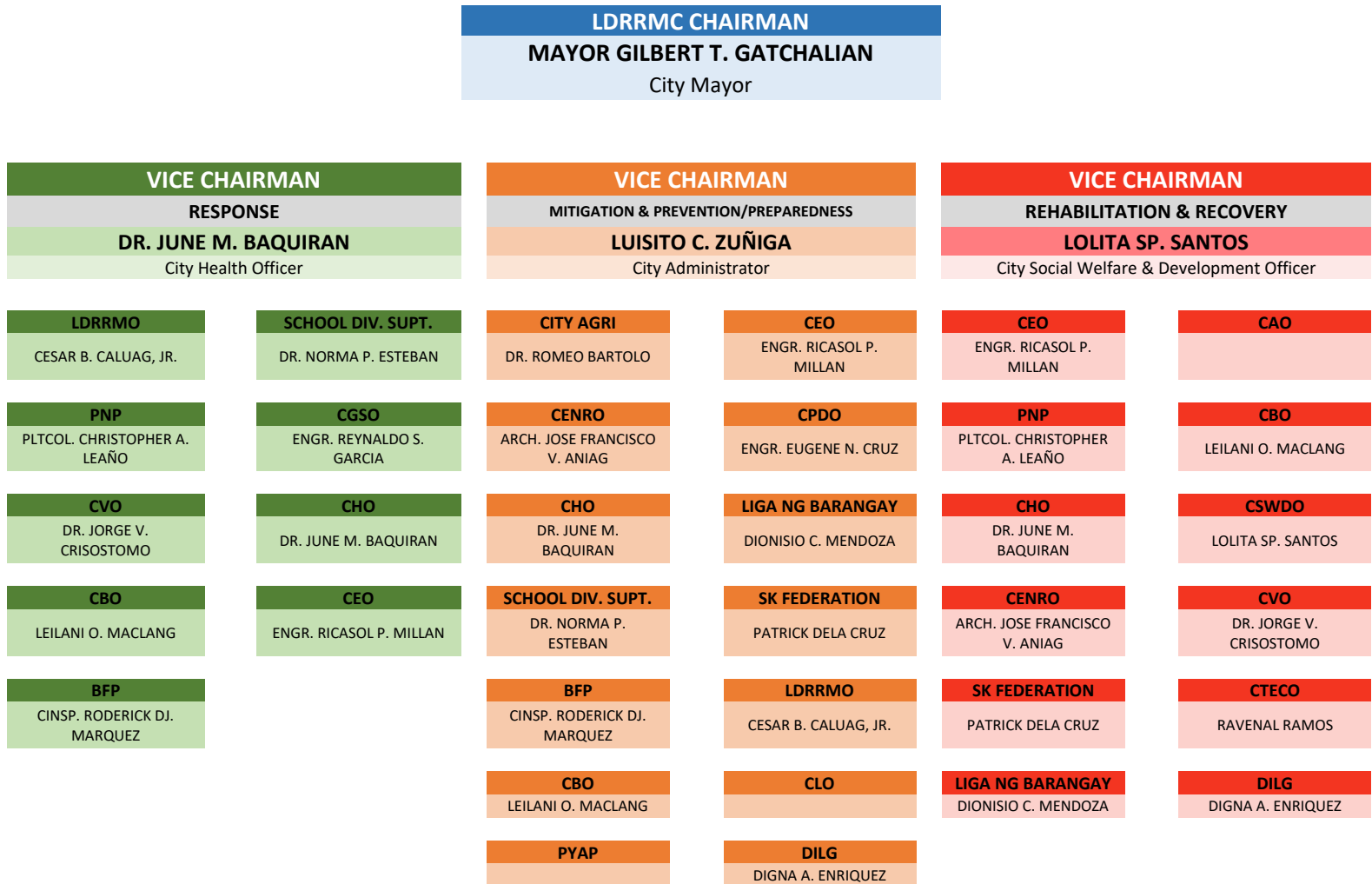






## CHAPTER II. INSTITUTIONAL LDRRMC AND LDRRMO STRUCTURE

### 2.1. LDRRMC STRUCTURE





**2.1. LDRRMO STRUCTURE**

**CITY OF MALOLOS DRRM OFFICE**

**ENGR. GILBERT T. GATHALIAN**

City Mayor

**CESAR B. CALUAG, JR.**

Local DRRM Officer IV

**KATHRINA PIA D. PEDRO**

Local DRRM Officer I  
(Administration, Planning and Training)

**LOUIE ALBERT S. DELA CRUZ**

Local DRRM Officer I  
(Operations and Waring)

MICHELLE H. PATA

**MAA I**

MODESTO RAMOS

RODELIO A. NICDAO

MANUEL SANTIAGO

JOSELITO MARASIGAN

ROLANDO CABANTOG

**COMMUNICATION UNIT**

BERNAR IAN O MARATA

NAPOLEON R. BAUTISTA

EDILBERTO CABALQUINO

HENRY JOHN M. PASCUAL

ARNEL C. PENULLER

NIÑO VICENTE ZACARIAS

GREG PETER B. BARTLETT

ALEXANDER ALBERTO

**DRIVER/RESPONDER**

GLENDIA J. GARCIA  
MARIA FE LOURDES GRACE M. SY  
GEORGE ARIEL G. ALDABA  
MELIZA J. LEONCIO  
JIMMY C. DE GUZMAN  
BERNARDINO N. BULAONG  
CARLITO V. CALUAG

**ADMINISTRATIVE AIDE I**

GEORGE BUENAVENTURA  
B. BARTLETT

**BUILDING SECURITY**

JEDIDAH C. DAPON  
ALVIN S. PARAISO  
EDGAR V. RODRIGUEZ  
IRISH S. SANTIAGO  
ANTONIO SAPASAP, JR.  
GAIL GABRIEL TORRALBA  
SAMSON OLIMPO  
CEDRICK DC. CLEMENTE

**RESPONDER**

# CHAPTER III

## RISK PROFILE





## CHAPTER III. RISK PROFILE

### 3.1. HAZARDS AND VULNERABILITY

The highest land elevation of Malolos City is at about 6.0 meters above sea level particularly in Ligas area with moderate susceptibility in flooding while the lowest is only half a meter below sea level in most fishponds within the coastal barangays near Manila Bay which make them vulnerable to flood and tidal effect. In addition, major rivers and creeks also abound in the area causing river flooding in the city. Due to its geographic location the city is exposed to both natural and man-made hazards. The key hazards for the City of Malolos are:

#### 3.1.1. Climate Change

Climate change projections for temperature and rainfall change for the Province of Bulacan indicate that there will be temperature increases of approximately one degree across the year by 2020, and approximately two degrees by 2050\*. There are predictions of less rainy day in the dry season, and more rainy days in the wet season.

Climate change predictions indicate that the number of extreme events, in terms of days with extreme heat or extreme amounts of rain, is also expected to increase. This means that there will be increasing risks of both droughts in the dry season and floods in the wet season.

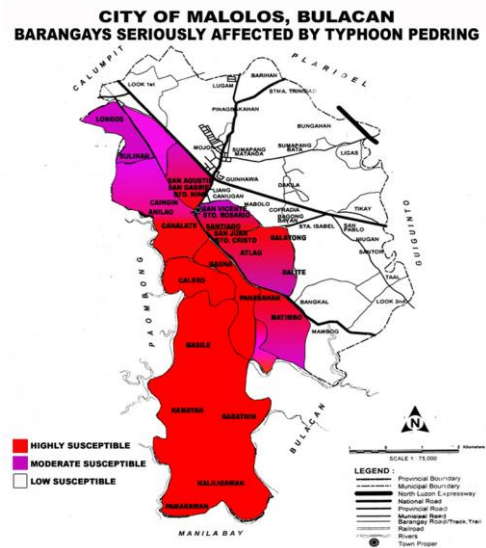
*\*Source: Climate Change in the Philippines, February 2011, by AdapTayo, MDGF, and PAGASA.*

#### 3.1.2. Typhoons

Records from the Bulacan Provincial Disaster Risk Reduction and Management Office (PDRRMO) shows that for seven (7) years (2006-2012), there were 17 typhoons that hit the province and affected a large number of families and damage to properties.

The effects of Typhoon Pedring on September 2011 which caused the flooding of 23 barangays of the City of Malolos for almost a month displaced about 9,633 populations.

Based on PAGASA, typhoon Pedring has a return period of 5-10 yrs. The map shows the extent of flooding in the city of Malolos during the typhoon Pedring in 2011.



**Table No. 1: Total Number of Typhoons in the Province of Bulacan 2015-2020**

No. of Typhoons	YEAR					
	2013	2014	2015	2016	2017	2018
	2	2	4	2	1	6



Source: Provincial Disaster Risk Reduction and Management Office

**Table No. 2: Total Number of Families and Individuals Affected and Relocated due to Typhoons and Flooding in Bulacan 2013-2018**

	YEAR					
	2013	2014	2015	2016	2017	2018
<b>No. of Families (in thousands)</b>	2	2	4	2	1	6

### 3.1.3. Southwest Monsoon/Habagat

The HABAGAT or “South West Monsoon” in 2012 also flooded 41 barangays and has a recorded displaced population of 12,807. Habagat has a return period of 10-15 years. The occurrences of these events further proved the effects of climate change.

### 3.1.4. Flooding

Flooding defined as a great flow of water that rises and spreads over the land. It is a result when a volume of water from lakes/streams/ rivers exceeds its carrying capacity and escapes from its usual boundaries. Flooding is the most common hazard that occurred in the City of Malolos, frequently in low lying areas and coastal barangays caused by heavy rains from typhoon or monsoon rains, high tides from Manila Bay and storm surges.

Based on the Flood Hazard Map of the City of Malolos, almost 90% of the barangays are vulnerable to flooding at various degree of magnitude.

The table shows the extent of flooding divided into two: moderate and highly susceptible flooding.

**Table No. 3: Barangay Flood Susceptibility**

BARANGAY	AREA FLOODED (%)	NUMBER OF AFFECTED POPULATION	NUMBER OF AFFECTED HOUSEHOLDS	NUMBER OF AFFECTED HOUSES, STRUCTURES, SOCIAL SERVICES	NUMBER OF AFFECTED ECONOMY
<b>HIGHLY SUSCEPTIBLE BARANGAYS</b>					
1. Babatnin	100	998	200	200	1
2. Calero	100	1,250	250	250	0
3. Caliligawan	100	440	88	88	1
4. Masile	100	910	192	192	0
5. Namayan	100	898	180	180	0
6. Pamarawan	100	3,527	705	705	0
7. Bagna	80	4,169	834	834	16
8. Panasahan	75	4,736	789	789	67
9. Liang	60	938	187	187	48
10. Sto Rosario	55	4176	835	835	102
11. Mambog	55	1,289	322	322	16



12. Caniogan	50	2,664	486	486	22
13. Matimbo	50	3,300	649	649	36
14. Bangkal	50	5,679	1,136	1,136	12
15. Stma. Trinidad	50	2,630	526	526	31
16. Santiago	45	1,037	172	172	10
17. Catmon	45	921	184	184	145
18. Look 2 <sup>nd</sup>	40	1,075	215	215	13
19. San Juan	40	1,783	356	356	23
20. Sto Nino	40	247	49	49	60
21. Balayong	40	1,260	252	252	7
22. Niugan	40	236	47	47	3
23. Caingin	40	2747	549	549	31
24. San Agustin	35	782	162	162	40
25. San Gabriel	35	805	173	173	34
26. Bulihan	30	4,057	812	812	327
27. Canalate	30	1,654	331	331	14
28. San Vicente	30	781	156	156	548
29. Dakila	30	1,590	318	318	63
30. Look 1 <sup>st</sup> .	30	1,343	269	269	19
31. Mojon	30	5,332	1,067	1,067	178
32. Pinagbakahan	25	1,455	291	291	60
33. Lugam	25	1,112	222	222	10
34. Sumapang Matanda	25	1,860	374	374	267
35. Atlag	25	1,313	263	263	23
36. Anilao	25	749	155	155	9
37. Longos	20	2,340	468	468	112
38. Santo Cristo	20	385	79	79	14
39. Barihan	20	1,113	223	223	12
40. Santor	15	1,243	249	249	20
41. Taal	15	317	66	66	4
42. Guinhawa	15	309	62	62	179
43. Balite	15	413	82	82	8
44. Mabolo	10	640	118	118	72
<b>MODERATELY SUSCEPTIBLE BARANGAYS</b>					
1. Sta. Isabel	5	172	34	34	64
2. Bungahan	5	133	24	24	22
3. Cofradia	5	190	35	35	6
4. Ligas	5	305	48	48	18
5. San Pablo	5	251	50	50	76
6. Sumapang Bata	5	121	39	39	10
7. Tikay	5	309	62	62	117
<b>GRAND TOTAL</b>		<b>77,984</b>	<b>15,435</b>		

Table No. 4 shows the effects of flooding in the City of Malolos and the extent of damage per sector.

**Table No. 4: Flooding Historical Data**

Year	Name/ Disaster	Effects			Response	
		Sector	Vulnerable Group	Extent Of Damages/Effects	Government	Others
2011	Typhoon Pedring	Fishery, Agriculture,	Fishermen, Farmers,	23 barangays (High and Medium Risk)/	179 uniformed personnel	408 Civilian volunteers



		Infrastructure, Education, Business	Children, Women, Senior Citizen, PWDs	9,633 affected population	6 Rescue Teams 51 Brgy. Officials - Provision of relief goods, livelihood and financial assistance	- manpower
		Fishery	Fishermen	1,305 fishermen affected	Provision of financial assistance	
		Agriculture	Farmers	556 farmers affected	Financial assistance and farm input subsidy	
		Infrastructure	Children, Women, Senior Citizen, PWD	15 totally damaged residential 212 partially damaged residential houses	Provision of construction materials and financial assistance	
		Education	Children	5 units school buildings damaged	Rebuilding of new schools and repair of damages	
<b>2012</b>	Southwest Monsoon	Fishery, Agriculture, Infrastructure, Education, Business		41 barangays 83,607 12,807 (IEC/OEC) 3 dead	179 uniformed personnel 6 Rescue Teams 36 Brgy. Officials	
		Agriculture	Farmers	1,464 farmers affected		
		Fishery	Fishermen	1,305 fisherman affected		
		Infrastructure	Children, Women, Senior Citizen, PWD	28 houses nearby rivers were totally damaged 340 houses in LOW LAND barangays were partially damaged	Provision of construction materials and financial assistance	
		Infrastructure		Concrete pavement – 80 km Asphalt – 15.24 km Earth Fill – 20.83	Repair and rehabilitation of road	



### **3.1.5. Tsunami**

Tsunami is a sea waves resulting from the disturbance of sea water, commonly by vertical displacement of the ocean floor associated with a strong and shallow earthquake. Tsunami is a Japanese term means harbor waves. It is also a long-period wave generated in the ocean by sudden displacement of large volume of water, disturbances such as underwater earthquakes, undersea landslides, volcanic eruptions, meteor impacts or on-shore slope failures can cause this displacement. Most tsunamis originate in the Pacific “Ring of Fire” that is the most active seismic feature on earth, which includes the Philippines.

Tsunami waves can travel at speed averaging 450-600 miles per hour. As it approach coastline, it speed diminishes, its wavelength decreases and its height increases greatly. Waves that are 10-20 feet high can be very destructive and cause many deaths and injuries. After a major earthquake, a tsunami could reach the shore within minutes.

Barangay Babatnin, Masile, Caliligawan, Namayan, Pamarawan and even Calero located along the shorelines of Manila Bay, which, according to PHIVOLCS can be affected by tsunamis base from historical earthquakes. This makes the City of Malolos prone to tsunami in case there would be an off-land earthquake that will trigger this hazard.

There is no record of tsunami impacting Malolos City or in the Province of Bulacan in recent centuries, but it remains a risk given the historic evidence of tsunami and the earthquake prone nature of the area around the Philippines.

### **3.1.6. Coastal Flooding and Storm Surge**

Coastal flooding is more likely to be the result of strong winds rather than surges in this area. It is not likely that the zone most vulnerable to coastal flooding will exceed the 3-m contour, which has been tentatively indicated on the multi-hazard map as the zone most vulnerable to coastal flooding.

Based on our characterization of the storm surge hazard, coastal barangays in the City of Malolos are prone this type of specific hazard. Wave surges from Manila Bay affect these areas during thunderstorms and typhoons bearing strong winds.

Among the coastal barangays, Pamarawan and Caliligawan have the highest population exposure to storm surge hazard occurrences. Though the exposure of these two barangays falls under the low category, there are still more than a thousand people involved.

### **3.1.7. Earthquake**

The Philippines lies between two tectonic plates, the Philippine Sea Plate to the east and the Eurasian Plate to the west. Between these two plates is the Philippine Fault Zone where the country’s most active faults are located. It includes the Valley Fault System, an active fault system composed of two fault segments: the 10-km long East Valley Fault (EVF) in Rizal and the 100 km long West Valley Fault (WVF) that runs through different cities and towns of Bulacan, Rizal, Metro Manila, Cavite, and Laguna. The WVF which passes the Province of Bulacan, is an





imaginary line marking the area where the different fault systems are located underground and are actively moving from where a big earthquake may originate.

One of the primary reasons for crafting a DRRM Plan is the threat of the Big One. It is the term coined by the Department of Science and Technology - Philippine Institute of Volcanology and Seismology (DOST-PHIVOLCS), referring to an earthquake with a magnitude of no less than 7.2 in the Richter scale that may be experienced in our lifetime. Also, there are specific locations that are considered most vulnerable to said earthquake because of their proximity to the so-called West Valley Fault. Considering the proximity of the City of Malolos to this active fault system, it predisposes the City to an Intensity 8 earthquake which poses grave threat to people, livelihood, buildings and infrastructures.

Below is the table of recorded earthquakes for the last 400 years that cause significant damage to the Province of Bulacan.

**Table No. 5: Historical Earthquake Data**

DESCRIPTION	POPULATION/AREAS AFFECTED	IMPACTS
30 November 1645 (Ms 7.9)	Earthquakes for the last 400 years that caused significant damage to the Province of Bulacan	Destructive earthquake consisting of vibrations followed by oscillatory movements. Damage to church structures, cracked walls and demolished bell towers at Bocaue, Polo, Santa Maria, Bulakan, Malolos, Sna Rafael, Angat, San Isidro, Guiguinto
16 September 1852 (Ms 7.6)		
03 June 1863 (Ms 6.5)		Reported 1,283 dead, 3,516 injured and 460 missing. 19 buildings in Baguio were totally destroyed. Severe to moderate damage to 104,614 buildings (damage cost P99B) – overall earthquake damage not specific to Bulacan only
01 October 1869 (Ms 6.6)		
18 July 1880 (Ms 7.6)		
02 August 1968 (Ms 7.3) Ruby Tower		
16 July 1990 (Ms 7.8)		

Ground shaking, ground rupture, liquefaction, landslides and rock fall, tsunami and fire are the key hazards associated with earthquakes. The City of Malolos is not as vulnerable to earthquakes as other areas of the Philippines, but the Disaster Risk and Vulnerability Assessment demonstrates that the City of Malolos, being a part of the Bulacan Province is exposed particularly to ground shaking and liquefaction.



### 3.1.8. Fire

The province of Bulacan is also noted as a leading manufacturer of pyrotechnics in the country. It is estimated that there are about 500 manufacturers both legally licensed to produce and operate and not. The pyrotechnics industry has grown rapidly in Bulacan due to the strong demand. However, this also resulted in the increasing incidents of fire and injury involving fire crackers explosives in almost all cities and municipalities because of illegally selling of those in public places such as public markets and main thoroughfare.



There are numerous factors that make fires a high risk in the city:

- There are houses that are built very close to each, with less than 5 meters between houses in most areas
- Many houses are built partly or wholly of wood;
- There is generally low water pressure and poor water supply;
- Non-existence of fire brigades in the barangay;
- People store gas and other flammable materials in their homes; and
- Inadequate firefighting equipment, nor trained fire fighters in the barangay.



ICSB Fire Incidence 2014

### 3.1.9. Human Health and Diseases

Human health and diseases have the potential to affect the city of Malolos. While many serious health concerns would not be classified as disasters, there are many that may accompany disasters such as dengue or leptospirosis, and many that could constitute disasters in their own right, such as avian influenza. Water contamination is also a factor of health hazard in the city. For those supplied with piped drinking water the risk of groundwater contamination may arise Health



hazards caused by drinking contaminated water are much more likely to affect the population without piped water. Although the piped water supply is also at risk because of the factors mentioned above, extending the piped water is a valid means of reducing the exposure of the population to the contaminated groundwater, because it is a lower risk. The risk of health problems related to contamination of surface waters (springs, gullies, and rivers) is again a serious issue because it is likely to occur, given sewage disposal problems, and, it can affect a large number of people. Water quality related diseases such as diarrhea, typhoid and gastro-enteritis may occur.

Health concerns like sanitation and malnutrition increase following disasters such as floods, along with diseases such as dengue fever and leptospirosis. For example, evacuation centers are a risk for spread of disease due to the close proximity of large numbers of people and the difficulty maintaining normal sanitary conditions. Flood waters can also lead to an increase in the breeding ground for dengue carrying mosquitoes, while leptospirosis can be spread through human contact with flood water.

Diseases such as avian influenza have the potential to be disasters in their own right. Swine flu and SARS are examples of recent diseases that have required significant responses in the Philippines and around the world.

The City Health Office is a key member of the CDRRMC in relation to human health risks. The Human Health Emergency Staff in the City Health Office have protocols for key health risks following disasters.

### **3.1.10. Animal Health and Diseases**

Animal health risks are of concern in Bulacan Province, also in the City of Malolos and have the potential to be disasters. Agriculture is a significant part of the economy, and some animal diseases such as rabies and avian influenza pose a significant current or potential risk to humans.

The African Swine Flu outbreak in 2019 affected majority of the commercial and backyard farms in the City of Malolos and the whole of Bulacan. It is first reported in September 2019, in some backyard farms near Manila that quickly spread to other parts of the main island of Luzon. The outbreak was linked to the pork smuggled from China, where millions of pigs were culled because of the disease. Incidence as such the City Veterinary Office provides a program to prevent animal diseases and conducts monitoring activity to control any disease outbreak.

## **3.2. RISK PROFILE**

To establish an effective and efficient response mechanism in place, a worst-case scenario for flood has been generated as basis to identify the critical sectors to respond to such situation. A worst-case scenario, with the assumption that the community and the people can no longer cope with devastation of the disaster and outside (local/international) support is required to address the needs and services of the affected areas and its constituents.

**Table No. 6: Summary of Elements at Risks**

<b>CITY OF MALOLOS</b>			
<b>Area:</b> 6,725 hectares <b>HH/Res. Structure:</b> 50,552	<b>No. of Barangays:</b> 51	<b>Population:</b> 252,074 (2015 NSO Data)	<b>Annual Growth Rate:</b> 1.41%
<b>Public/Private Buildings</b>			
<i>Day Care Centers:</i> 59	<i>Public School:</i> 59	<i>Private School:</i> 67	<i>C/M/B Halls:</i> 52
<i>Brgy. Health Station:</i> 42	<i>Rural Health Units:</i> 7	<i>Gov't Hospitals:</i> BMC (1) <i>Private Hospitals:</i> 12	<i>Clinics:</i> 140 (Private)
<i>Covered Court:</i> 9	<i>Multi Purpose Hall:</i> 6	<i>Convention Center:</i> 2	<i>Public Market:</i> 1 <i>Fish port:</i> 2
Prov'l Capitol Building Camp Alejo Santos Phil National Red Cross Provincial Jail RTC Building Post Office DILG Building	DPWH (1 <sup>st</sup> Engineering District) National Food Authority Fire Station (Panasahan, Mojon & MAPUMA)	Land Bank of the Philippines DepEd Building Casa Real Museum Building Senior Citizen Center	MRF Building TESDA Building Malolos Water District Mun. Trial Court BSP and GSP
<b>Livelihood</b>			
<b><i>Fishery:</i></b> Area: 250 has ( <i>fresh water</i> ) 2,002 has ( <i>brackish water</i> ) No. of Fisherman: 1,309 Fish Catch: 772 metric tons ( <i>municipal water</i> ) 979 metric tons (inland water) No. of Fish pond: 6 (only with business permit)	<b><i>Agriculture:</i></b> Areas: 1525.21 has. No. of Farmers: 1,287 Livestock and Poultry: 35,012	<b><i>Trade and Industry:</i></b> 5,047 business establishments (2019 data)  <b><i>Others:</i></b> Resorts: 14 Hotel: 14 Restaurants: 95	

# CHAPTER IV

## CAPACITY





## CHAPTER IV. CAPACITY

### 4.1. CDRRMO Capacity

The City Disaster Risk Reduction and Management Council, in discharging its functions utilizes the facilities and services of the City Disaster Risk Reduction and Management Office, Operation Center and Malolos Rescue Team, which coordinate and provide call tracking, dispatching, emergency medical service and fire alerts.

Outside of disasters it operates 24/7 to provide a rescue and emergency services for accidents and emergencies, and supports disaster management activities such as training and information and education campaigns. During disasters they play a vital role in coordinating responses and undertaking rescue activities as part of the CDRRMC response.

The CDRRMO works with the PDRRMO, BDRRMCs, OCD, other national agencies and NGOs and CSOs to develop capabilities through regular training, exercises, workshop and seminars which may include:

1. Incident Command System;
2. First Aid Training and Competitions;
3. REDAS Earthquake Assessment;
4. Rapid Damage Assessment and Needs Analysis;
5. Swift Water Rescue and Fast Craft Rescue
6. Earthquake and Fire Readiness and Evacuation drills.
7. Local Climate Change and Adaptation Workshop
8. Basic and Advance life support
9. Collapsed Vehicle/Structure Rescue
10. Information and Education Campaigns
11. Formulation of Localized Warning System and IEC materials
12. Community Based Save the Children Training and Workshop
13. Management of Communicable Diseases

### 4.2. Early Warning System

Aside from the having the City of Malolos Operation Center for command, control and coordination, there are also other early warning systems installed in various areas of the city for ensuring public safety. Table 7 provides the feature and location of these community-based early warning systems.

**Table No. 7: Inventory of Community-Based Early Warning Systems**

HAZARD	SYSTEM/DEVICE	BARANGAY	LOC./LANDMARK
Hydromet	Automated Weather Station(AWS)	Matimbo	MRF
Flooding	Staff Gauge	Anilao	Tabing Ilog
	Staff Gauge (2)	Atlag	Atlag bridge; Sevilla



	Staff Gauge	Babatnin	bridge
	Staff Gauge (3)	Bulihan	Bulihan bridge (MAH); Domsal; Grand Royale gate
	Staff Gauge (2)	Calero	near BHC bridge near DCC
	Staff Gauge	Caliligawan	bridge
	Staff Gauge	Canalate	Port area
	Staff Gauge	Catmon	near Puregold Jr.
	Staff Gauge	Dakila	Dakila bridge (MAH)
	Staff Gauge	Guinhawa	near Sacred Heart Hosp.
	Staff Gauge	Liang	near Brgy. Hall
	Staff Gauge	Longos	Florida Subd.
	Staff Gauge	Masile	Port area
	Staff Gauge	Mojon	near Digna's Restau
	Staff Gauge (2)	Namayan	sea wall; bridge
	Staff Gauge	Pamarawan	Port area
	Staff Gauge	San Agustin	Spratly
	Staff Gauge	Sto. Cristo	near Brgy. Hall
	Staff Gauge	Sto. Niño	near old CGM bldg
	Staff Gauge	Sto. Rosario	Sabitan St.
	Staff Gauge	SumapangMtda	near tricycle terminal
Flooding	Flood Marker (3)	Longos	Mac Arthur Village; Kanto Iba; Dreamcrest; Longos ES
	Flood Marker	Canalate	Tabing Ilog
	Flood Marker	Babatnin	near the chapel
	Flood Marker (2)	Pamarawan	near Brgy. Hall; port
	Flood Marker (3)	Caingin	Maunlad Phase 2; Hipolito St.; Enriquez St.
	Flood Marker (4)	Sto. Rosario	Zulueta St.; Sabitan; Kanto boy; Sampaguita St.
	Flood Marker	Pinagbakahan	near Brgy. Hall
	Flood Marker (5)	Bulihan	BPC Tulay; Heritage Village; Tabing Ilog; Bliss; Domsal
	Flood Marker (3)	Anilao	Tabing Ilog; Poblacion St.; Anilao ES
	Flood Marker	San Vicente	Apitong St.
	Flood Marker	Atlag	Desta Subd; Sevilla
	Flood Marker	Panasahan	Williamville 1
	Flood Marker	Look 2 <sup>nd</sup>	Tabing Sapa
	Flood Marker	Tikay	Mac Arthur Hiway
	Flood Marker	Dakila	Main road
Flood Marker	Sumapang Matanda	Main road	
Tsunami	Luminous Warning Signage	Calero	Port
	Luminous Warning Signage	Babatnin	Port
	Luminous Warning Signage	Caliligawan	Port
	Luminous Warning Signage	Namayan	Court
	Luminous Warning Signage	Masile	Port
	Luminous Warning Signage	Pamarawan	Barangay Hall





All City Government agencies are available to participate in Disaster Management. Certain agencies have key roles in different phases, such as the City Social Welfare and Development Office, City Health Office - Rural Health Unit during responses and evacuations, and the City Engineer's Office during mitigation, recovery and rehabilitation activities.

The CDRRMC can provide relief and recovery goods such as food and water, medicines, housing materials, and agriculture stocks such as seeds and fingerlings. It can also coordinate additional supplies of goods donated from outside the City.

All LGUs in the Philippines are required by RA10121 to have and utilize their own Disaster Risk Reduction and Management Funds, comprising no less than 5% of estimated revenue from regular sources. The DRRM Fund of the City provides funding for risk reduction programs across the city government and for response and relief when disasters occur. The Joint Memorandum Circular, issued by the National Disaster Risk Reduction and Management Council, Department of Budget and Management and Department of the Interior and Local Government, serves as a guide in the allocation and use of the DRRM Fund, and how to enhance transparency and accountability in their use.

#### 4.3. Evacuation Center

The City of Malolos, through the assistance of the Office of Civil Defense and the Department of Public Works and Highways, has been able to establish a permanent Evacuation Center that will serve as a safe place for persons and families displaced from their homes during a disaster. Completed in 2021, the Regional Evacuation Center consists of different facilities which are vital to meet the needs of the evacuees especially the special population group (eg: women/pregnant women, children, elderly and PWDs) of our society.



**Table No. 8: Regional Evacuation Building and Facilities**

Facility	Purpose
1. Accommodation Building and other facilities	
a. Child Friendly area	A space that offers activities such as psychosocial counseling, games, educational activities, art therapy sessions, and supplementary feeding, among others.
b. Breastfeeding Room	To provide breastfeeding mothers with





	a private space to pump or nurse
c. Prayer Room	A place to meet the spiritual needs
d. Communication Room	For monitoring, communication and information dissemination
e. Kitchen	Includes food preparation and cooking area
f. Dining area	
g. Conjugal Room	To provide married couples privacy in meeting their physiological needs during evacuation
h. Accommodation Room	A space to billet the evacuees where temporary partitions can be installed to provide privacy to the families
i. Storage area	An area to store supplies/equipment
<b>2. Infirmary Building</b>	
a. Clinic	Provision of health and medical needs of the displaced population
b. Pharmacy	
c. Administration Office	
3. Male toilet	Separate bathing and toilet facilities for men and women with an area specially designed for PWDs
4. Female Toilet	
5. Laundry and Drying Building	
6. Pump Room	Houses water supply equipment
7. Generator Room	Houses generator set to provide power in case of outage
8. Garbage Disposal	For proper waste management

List of Primary Evacuation Centers and Evacuees can be accommodated



Republic of the Philippines  
Province of Bulacan  
City of Malolos  
City Government of Malolos

Y-Coordinates	X-Coordinates	NAME OF EVACUATION CENTER	LOCATION	PERMANENT EVACUATION CENTER (YES/NO)	CAPACITY INDIVIDUAL	CAPACITY FAMILY	FLOOR AREA (IN SQ. MTR)/ PER CLASSROOM	REMARKS/ NO OF CLASSROOMS	FEMALE CR	MALE CR	COMMON CR	POTABLE WATER	USED AS COVID FACILITY
14°51'40" N	120°48'38" E	Regional Evacuation Center	New City Hall of Malolos, Bulihan City of Malolos	Yes	250	60	150	3 Floors	5	5		Prime Water	NO
14°51'39" N	120°48'34" E	Malolos Sport Conviction Center	New City Hall of Malolos, Bulihan City of Malolos	No	480	120	2816	1	2	2		Prime Water	Yes
14°50'51" N	120°49'42" E	Marcelo H. Del Pilar Highschool	Sta. Isabel	No	1500		7x5m	44	12	12		MWD & WP Motor	NO
14°50'27" N	120°50'06" E	Sta. Isabel Elementary School	Sta. Isabel	No	400		7x6	3			3	MWD	NO
14°49'27" N	120°50'59" E	Teodulo C Natividad Highschool	Bangka Malolos Bulacan	No	400		7x5	8	10	10		MWD	NO
14°50'24" N	120°48'51" E	City of Malolos Integrated School - Sto. Rosario	Sto. Rosario City of Malolos	No	800		7 x 8	5	0	0	1	MWD	NO
14°50'36" N	120°48'25" E	Caingin Elementary School	Caingin	No	50	10	6.1m x 7.7 m	1	0	0	1	MWD	NO
14°51'47" N	120°51'08" E	Ligas Covered Court	Ligas	No	400	20	7x9	6	5	5	2	MWD	NO
14°52'34" N	120°49'32" E	Malolos City HS-Stma. Trinidad	Stma. Trinidad	No	300	30	7x7	10	10	10	2	MWD	NO
14°49'45" N	120°49'13" E	City of Malolos Integrated School - Atlag	Atlag	No	400		7x9	4	2	2	4	MWD	NO
14°49'37" N	120°50'07" E	Balite Elementary School	Balite	No	30		6.65x8.75	2	1	1	1	Malolos Water District ( Prime Water )	NO
14°51'26" N	120°49'02" E	Barasoain Memorial Elementary School	Mojon City of Malolos	No	75		7x7	5			5	Malolos Water District ( Prime Water )	NO
14°52'46" N	120°50'00" E	Barihan Elementary School	Barihan	No	25		7x15	3	5	5		Malolos Water District ( Prime Water )	NO
14°51'23" N	120°48'42" E	Bulihan Elementary School	Bulihan	No	150	50	7X9	5	4	4	3	Malolos Water District ( Prime Water )	NO
14°51'45" N	120°50'33" E	Bungahan Elementary School	Bungahan	No	200		6x8	12	2	2	1	Malolos Water District ( Prime Water )	NO
14°51'01" N	120°48'48" E	City of Malolos Integrated School Catmon	Catmon	No	50	5	6.85x7.8	3	3	3	3	Malolos Water District ( Prime Water )	NO
14°51'01" N	120°50'08" E	Dakila Elementary School	Dakila	No			9x9	1	1	1	2	Malolos Water District ( Prime Water )	NO
14°51'47" N	120°51'08" E	Ligas Elementary School	Ligas	No								Malolos Water District ( Prime Water )	NO
14°52'21" N	14°52'21" N	Longos Elementary School	Longos	No	500		7x9	20	8	8	4	Bulacan Waters	NO
14°49'21" N	120°51'42" E	Look 2nd Elementary School	Look 2nd	No	80		6 x 7	8			8	Malolos Water District ( Prime Water )	NO
14°53'04" N	120°48'35" E	Look 1st Elementary School	Look 1st	No	120	12	7X9	4	0	0	4	Malolos Water District ( Prime Water )	NO
14°52'49" N	120°48'49" E	Lugam Annex Elementary School	Lugam	No	35	4	7X9	4	0	0	4	Bulacan Waters	NO
14°50'27" N	120°49'47" E	Mabolo Elementary School	Mabolo	No			7x9	13	1	1	9	Malolos Water District ( Prime Water )	NO
14°50'38" N	120°50'12" E	San Pablo Elementary School	San Pablo	No	80		4x9	1	0	0	1	Malolos Water District ( Prime Water )	NO
14°49'58" N	120°51'21" E	Santor Elementary School	Santor	No	200		7x9	6	4	4	0	Malolos Water District ( Prime Water )	NO
14°50'21" N	120°50'03" E	Sta. Isabel Elementary School	Sta Isabel	No	20		7x6	3				Malolos Water District ( Prime Water )	NO
14°52'32" N	120°49'31" E	Santissima Trinidad Elementary School	Stma. Trinidad	No			7x9	3			3	Malolos Water District ( Prime Water )	NO
14°51'28" N	120°49'58" E	Sumapang Bala Elementary School	Sumapang Bala	No	100		7x9	4	0	0	4	Malolos Water District ( Prime Water )	NO
14°51'25" N	120°49'40" E	Sumapang Matanda Elementary School	Sumapang Matanda	No	100		7x9	6	0	0	5	Malolos Water District ( Prime Water )	NO
14°50'26" N	120°51'14" E	Tikay Elementary School	Tikay	No	200	40	7x9	6	2	2	1	Malolos Water District ( Prime Water )	NO
14°52'30" N	120°49'09" E	Pinagbakahan Elementary School	Pinagbakahan	No	20							Malolos Water District ( Prime Water )	NO
14°50'39" N	120°49'48" E	Cofradia Elementary School	Cofradia	No	20	2	6x5	2	0	0	2	Malolos Water District ( Prime Water )	NO
14°50'52" N	120°48'32" E	San Agustin Elementary School	San Agustin	No	55		7 x 8	3	0	0	3	Malolos Water District ( Prime Water )	NO
14°52'21" N	120°47'32" E	Longos II Elementary School	Longos	No								Malolos Water District ( Prime Water )	NO
14°50'32" N	120°47'52" E	Anilao Elementary School	Anilao	No	100	30	7x9	8	1	1	1	Malolos Water District ( Prime Water )	NO
14°46'47" N	120°49'03" E	City of Malolos Integrated School Babatnin	Babatnin	No	200	20	7x9	10	2	2	1	Malolos Water District ( Prime Water )	NO
14°49'35" N	120°49'24" E	Bagna Elementary School	Bagna	No	30		7x8	4	1	1	3	Malolos Water District ( Prime Water )	NO
14°49'37" N	120°50'07" E	Balayong Elementary School	Balayong	yes	100	30	7x7	8	4	4	4	Malolos Water District ( Prime Water )	NO
14°46'02" N	120°49'09" E	Calligawan Elementary School	Calligawan	No	50	5	7x6	3	0	0	1	Malolos Water District ( Prime Water )	NO
14°50'46" N	120°48'56" E	Canalate Elementary School	Canalate	No	25		7x8	2			2	Malolos Water District ( Prime Water )	NO
14°50'44" N	120°49'05" E	Canioagan Elementary School	Canioagan	No	92	9	7x9	2	2	0	6	Malolos Water District ( Prime Water )	NO
14°49'14" N	120°49'55" E	Gen. Isidro Torres Memorial Elementary School	Matimbo	No	120	12	7X9	12	6	6	3	WP Motor	NO
14°48'30" N	120°50'50" E	Mambog Elementary School	Mambog	No			7x8	1	1	1	13	Malolos Water District ( Prime Water )	NO
14°47'05" N	120°48'36" E	Masile Elementary School	Masile	No	85	5	7x9	2	2	1	6	Malolos Water District ( Prime Water )	NO
14°46'29" N	120°48'53" E	Namayan Elementary School	Namayan	No								Malolos Water District ( Prime Water )	NO
14°45'31" N	120°48'51" E	Pamarawan Elementary School	Pamarawan	No			7 x 7	4	0	0	4	amarawan Rural Waterworks and Sanita	NO
14°49'24" N	120°49'36" E	Panasahan Elementary School	Panasahan	No			6x7	3	0	0	3	Malolos Water District ( Prime Water )	NO
14°49'58" N	120°48'51" E	San Juan Elementary School	San Juan	No			6x7	3	0	0	3	Malolos Water District ( Prime Water )	NO
14°48'59" N	120°51'16" E	Taal Elementary School	Taal	No	160	32	7x9	8	1	1	8	Malolos Water District ( Prime Water )	NO
14°49'24" N	120°49'51" E	Bangka Elementary School	Bangka Malolos Bulacan	No			7x9	3		2	1	Malolos Water District ( Prime Water )	NO
14°49'36" N	120°49'13" E	Sto. Cristo Elementary School	Sto. Cristo	No	20	4	7x9	2	1	1	1	Malolos Water District ( Prime Water )	NO
14°49'48" N	120°48'41" E	Calero Elementary School	Calero	No	15	3	7x6	1	0	0	1	Malolos Water District ( Prime Water )	NO
14°51'27" N	120°48'02" E	Bulihan National Highschool	Bulihan	No	90		7x8	3	1	1	1	Malolos Water District ( Prime Water )	NO
14°52'34" N	120°49'32" E	Malolos City Highschool (Stma. Trinidad)	Stma. Trinidad	No	20		7x7	10				Malolos Water District ( Prime Water )	NO
14°49'27" N	120°50'59" E	Cong. Teodulo Natividad Highschool	Bangka Malolos Bulacan	No	80	16	7x5	8	2	1	1	Malolos Water District ( Prime Water )	NO
14°50'38" N	120°48'16" E	As. Corazon Cojuangco Aquino Memorial Highsch	Mojon City of Malolos	No								Malolos Water District ( Prime Water )	NO
14°49'37" N	120°50'07" E	Malolos Marine Fishery School and Laboratory	Balite	No	130	26	7x7	13	3	3	0	Malolos Water District ( Prime Water )	NO
14°45'33" N	120°48'51" E	Pamarawan Highschool	Pamarawan	No	20							Malolos Water District ( Prime Water )	NO



#### 4.4. Barangays and Other Organizations

There are 51 Barangays in the City of Malolos, with a range of resources and capabilities. All have disaster management committee, and most have an organized Barangay Emergency Response/Rescue Team. A summary of the capabilities of the BDRRMC's is shown in the table below.

**Table No. 9: BDRRMC Capabilities**

BARANGAY	INSTITUTIONALIZED BDRRMC	WITH EXISTING BDRRM PLAN	ORGANIZED BERT	DRRM-CCA TRAININGS	EQUIPAGE				
					RESCUE VEHICLES	MEDICAL/ RESCUE EQUIPMENT	CSSR EQUIPMENT	WASAR EQUIPMENT	COMMUNICATION
1. Anilao	/	/	/	/		/	/	/	/
2. Atlag	/	/	/	/		/	/	/	/
3. Babatnin	/	/	/	/		/	/		/
4. Bagna	/	/	/	/		/	/	/	/
5. Bagong Bayan	/	/	/	/		/	/	/	/
6. Balayong	/	/	/	/		/	/		/
7. Balite	/	/	/	/		/	/	/	/
8. Bangkal	/	/	/	/		/	/	/	/
9. Barihan	/	/	/	/		/	/	/	/
10. Bulihan	/	/	/	/	/	/	/	/	/
11. Bungahan	/	/	/	/		/			/
12. Caingin	/	/	/	/		/	/	/	/
13. Calero	/	/	/	/		/	/		/
14. Caliligawan	/	/	/	/		/	/	/	
15. Canalate	/	/	/	/		/	/	/	/
16. Caniogan	/	/	/	/		/	/	/	/
17. Catmon	/	/	/	/		/	/		/
18. Cofradia	/	/	/	/		/	/		/
19. Dakila	/	/	/	/			/	/	
20. Guinhawa	/		/	/		/	/		/
21. Liang	/	/	/	/		/	/	/	/
22. Ligas	/	/	/	/			/	/	
23. Longos	/	/	/	/			/	/	
24. Look 1 <sup>st</sup>	/	/	/	/		/	/		/
25. Look 2 <sup>nd</sup>	/	/	/	/		/	/	/	/
26. Lugam	/	/	/	/	/	/	/		/
27. Mabolo	/	/	/	/		/	/	/	/



28. Mambog	/	/	/	/		/	/		/
29. Matimbo	/		/	/			/	/	
30. Masile	/	/	/	/		/	/	/	
31. Mojon	/	/	/	/			/	/	
32. Namayan	/		/	/			/	/	
33. Niugan	/	/	/	/		/	/	/	/
34. Pamarawan	/	/	/	/		/	/		/
35. Panasahan	/	/	/	/		/	/	/	/
36. Pinagbakahan	/	/	/	/		/	/	/	/
37. Stma Trinidad	/	/	/	/		/	/	/	/
38. Santiago	/	/	/	/		/	/	/	/
39. San Agustin	/	/	/	/		/	/	/	/
40. San Gabriel	/	/	/	/		/	/	/	/
41. San Juan	/	/	/	/		/	/		/
42. San Pablo	/	/	/	/		/	/		/
43. San Vicente	/	/	/	/			/	/	
44. Santor	/	/	/	/	/	/	/	/	/
45. Sto. Cristo	/	/	/	/			/	/	
46. Sto. Niño	/	/	/	/		/	/		/
47. Sto. Rosario	/	/	/	/		/	/	/	/
48. S. Bata	/	/	/	/	/	/	/	/	/
49. S. Matanda	/	/	/	/		/	/	/	/
50. Taal	/	/	/	/		/	/	/	/
51. Tikay	/	/	/	/	/	/	/	/	/

The local Philippine National Police provides substantial support during emergencies, including maintaining law and order, and assisting in rescue and evacuations. The Bureau of Fire Protection also provides support, including personnel, transport and other resources.

Civil Society Organizations contribute during all phases of emergency management in the City of Malolos. For example, the Bulacan Chapter of the Red Cross provided first aid training and supports other preparedness activities, and assists in the response to disasters. Other agencies such as Save the Children have provided substantial assistance in capacity development of the CDRRMC.

# CHAPTER V

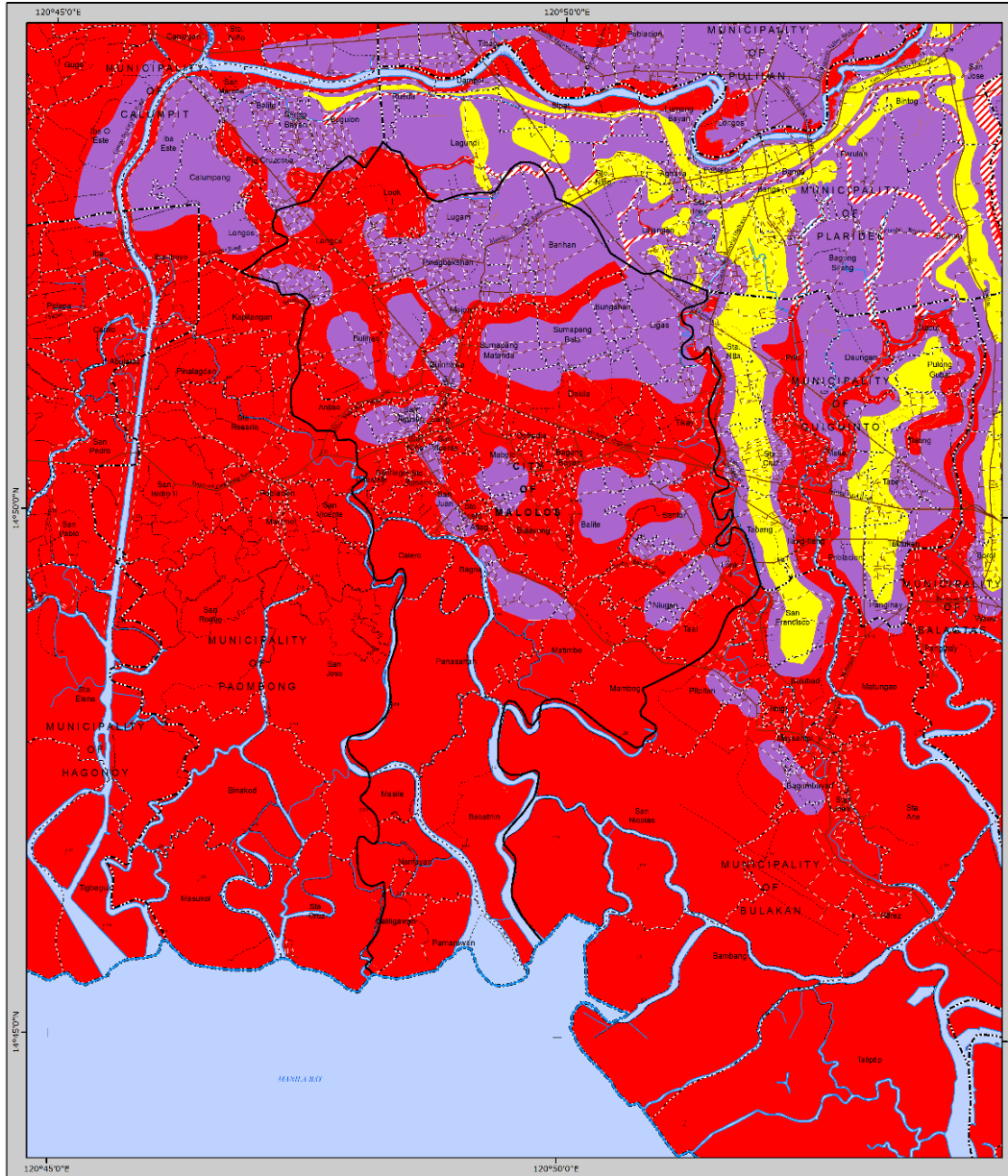
## RISK ASSESSMENT MAPS





**READY FOR GGMA PROJECT: FLASH FLOOD HAZARD MAP OF MALOLOS**

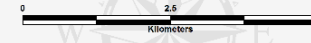
Luzon, Philippines



**CITY OF MALOLOS**

PROVINCE OF BULACAN  
REGION III (CENTRAL LUZON)

Scale 1:50,000



Coordinate System: Luzon 1911 UTM Zone 51N  
Projection: Transverse Mercator  
Datum: Luzon 1911  
False Easting: 500,000.0000  
False Northing: 123.0000  
Scale Factor: 0.9996  
Latitude of Origin: 0.0000  
Units: Meter

**BASE MAP LEGEND**

×117.6	Spot Elevation	—	River
—	Provincial Boundary	—	Coastline
—	Municipality Boundary	—	Water Boundary
—	Barangay Boundary	—	Contour Index
—	Malolos Boundary	—	Contour Depression
—	Bridges	—	Contour Intermediate
—	Main Road	—	Contour Supplementary
—	Secondary Road		
—	Trail		

**LEGEND**

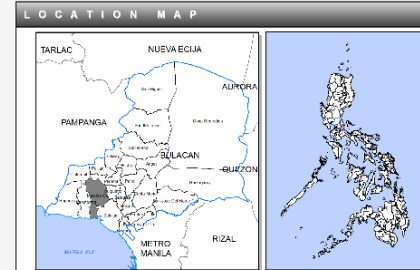
Red	High Susceptibility
Purple	Moderate Susceptibility
Yellow	Low Susceptibility
White	Less likely to be flooded
Red with diagonal lines	Flashflood

**EXPLANATION**

This flood and flash flood hazard map is based on empirical analysis and is DRR-GCA adaptive.

Mapping methods included:

1. Geomorphological analysis using aerial photographs, satellite imageries and topographic maps;
2. Review and validation of historical flood data (1976, Pedring, Ondoy, Habagat and other Monsoon floods);
3. Perceptions and actual accounts of respondents on the frequency and depth of floods.



**SOURCES OF DATA**

Hazard Data, Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) 2014  
Administrative boundary, Provincial Planning & Development Office (PPDO) of Bulacan and National Statistics Office (NSO)  
Contour, River, and Road, National Mapping and Resource Information Authority (NAMRIA) Topographic Map 1:50,000 scale  
Hazard Data 1:10, 000 scale

**Disclaimer:**  
Administrative boundaries are approximate.



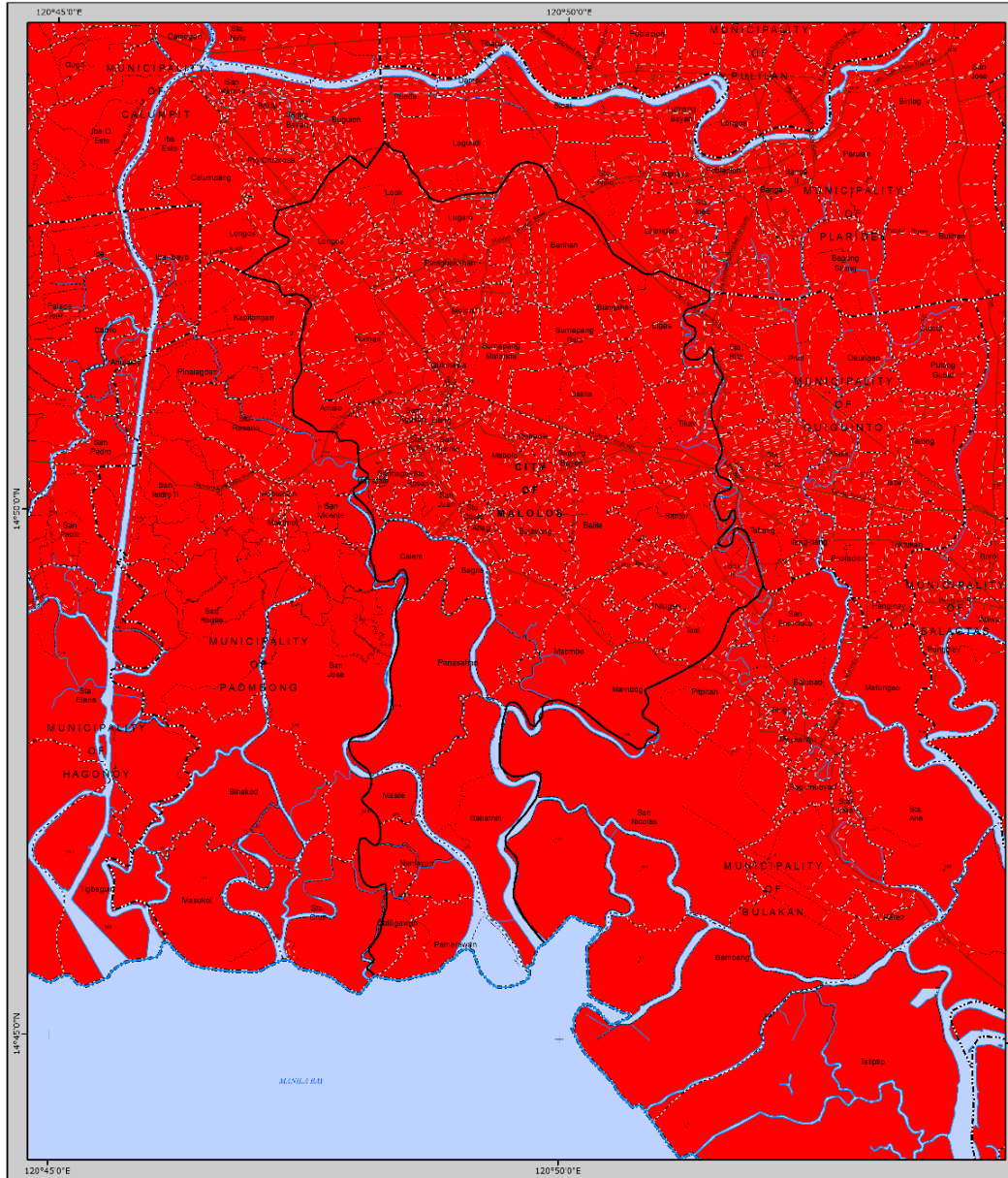
Map No. 1: Flood Hazard

Map Malolos Number 334  
City of Malolos, Bulacan  
Date Issued: June 2015



# READY FOR GMMa PROJECT: GROUND SHAKING HAZARD MAP OF MALOLOS

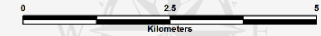
Luzon, Philippines



Date Issued: November 2017  
Scale: Horizontal: 1:50,000  
Scale Printed: June 23, 2014

## CITY OF MALOLOS PROVINCE OF BULACAN REGION III (CENTRAL LUZON)

Scale 1:50,000



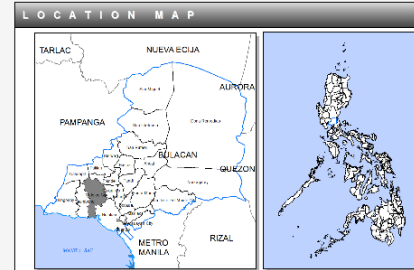
Coordinate System: Luzon 1911 UTM Zone 51N  
 Projection: Transverse Mercator  
 Datum: Luzon 1911  
 False Easting: 500,000.0000  
 False Northing: 123,000.0  
 Scale Factor: 0.9996  
 Latitude of Origin: 0.0000  
 Units: Meter

BASE MAP LEGEND			
	Spot Elevation		River
	Provincial Boundary		Coastline
	Municipality Boundary		Water Boundary
	Barengay Boundary		Contour Index
	Malolos Boundary		Contour Depression
	Bridges		Contour Intermediate
	Main Road		Contour Supplementary
	Secondary Road		
	Trail		

LEGEND	
	PEIS Intensity VIII and above
	PEIS Intensity VII
	PEIS Intensity VI
	PEIS Intensity Lower than VI
PEIS - PHIVOLCS Earthquake Intensity Scale	

**EXPLANATION**

- This is a composite map of estimates of maximum intensities for various earthquake scenarios that may affect the study area. Intensities were determined using a deterministic method. Fault parameters and maximum credible magnitude used for different earthquake scenarios were based on instrumental seismicity, historical seismicity and mapped active earthquake generators in the area. The attenuation of groundshaking with distance was corrected for the type of underlying materials based on surface geology and/or results of microtremor surveys. All Ground Shaking Hazard boundaries are approximate and/or gradational.
- The groundshaking hazard maps do not restrict construction of any structure or land development in areas with expected high intensities as long as the national building code is followed.
- This map is ideal for land use, emergency response and mitigation planning, but should not replace site specific evaluations for the building of critical structures.



**SOURCES OF DATA**

Hazard Data from Philippine Institute of Volcanology and Seismology (PHIVOLCS - DOST) 2014  
 Administrative boundary, Provincial Planning & Development Office (PPDO) of Bulacan and National Statistics Office (NSO)  
 Contour, River, and Road: National Mapping and Resource Information Authority (NAMRIA) Topographic Map 1:50,000 scale

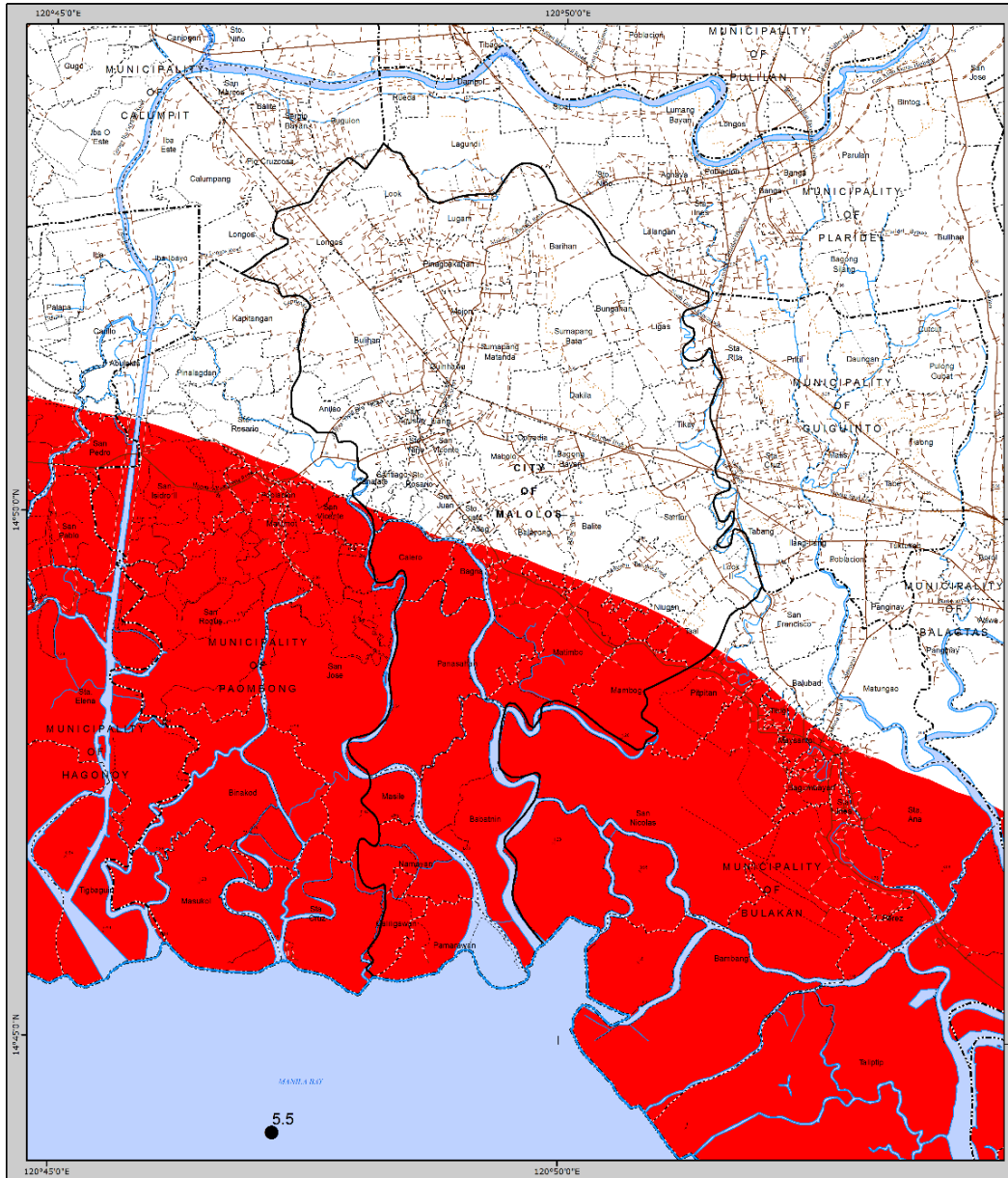
**Disclaimer:**  
 Administrative boundaries are approximate.



Map No. 2: Ground Shaking Hazard Map

**READY FOR GMMa PROJECT: TSUNAMI HAZARD MAP OF MALOLOS**

Luzon, Philippines



**CITY OF MALOLOS  
PROVINCE OF BULACAN  
REGION III (CENTRAL LUZON)  
Scale 1:50,000**

0 2.5 5  
Kilometers

Coordinate System: Luzon 1911 UTM Zone 51N  
Projection: Transverse Mercator  
Datum: Luzon 1911  
False Easting: 500,000.0000  
False Northing: 123,0000  
Scale Factor: 0.9996  
Latitude of Origin: 0.0000  
Units: Meter

**BASE MAP LEGEND**

×1176	Spot Elevation	—	River
—	Provincial Boundary	—	Coastline
—	Municipality Boundary	—	Water Boundary
—	Barangay Boundary	—	Contour Index
—	Malolos Boundary	—	Contour Depression
—	Bridges	—	Contour Intermediate
—	Main Road	—	Contour Supplementary
—	Secondary Road		
—	Trail		

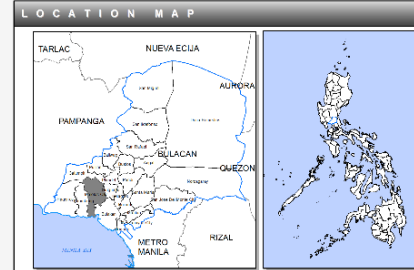
**LEGEND**

■	Tsunami Inundation Area
●	Wave height

**EXPLANATION**

The tsunami hazard map was generated using available tsunami software, earthquake and tectonic data, topographic data and bathymetric maps. Modeled tsunami wave height and inundation generated by the movement along the Manila Trench segment between 14.0 to 16.0 degrees latitude associated with shallow depth, Magnitude 8.3 earthquake. It is recommended that the evacuation site should be beyond the inundated area.

Limitations of the map:  
The extent of tsunami inundation based on current physical conditions of the study area. It does not reflect the hazard that could be generated by far-field tsunami. This map does not cover earthquake-induced submarine landslides that could also generate tsunami. Significant erosion or deposition along the shore in the future could affect the level of tsunami hazard and may need hazard reassessment. The resolution of the near-shore bathymetry satisfy the numerical requirements but may not capture very small features such as sand pits, jetties, sea walls and dikes. Rise in sea level due to the passage of typhoons would add to estimate tsunami wave height at the coast and may also affect the extent of the inundation lines. The tsunami wave velocity is not shown in this map.



**SOURCES OF DATA**

Hazard Data from Philippine Institute of Volcanology and Seismology (PHIVOLCS - DOST) 2014  
Administrative boundary, Provincial Planning & Development Office (PPDO) of Bulacan and National Statistics Office (NSO)  
Contour, River, and Road: National Mapping and Resource Information Authority (NANRIA) Topographic Map 1:50,000 scale

**Disclaimer:**  
Administrative boundaries are approximate.



Scale 1:50,000, November, 2011  
City Regional Office, Disaster Risk  
City Office, June 2016

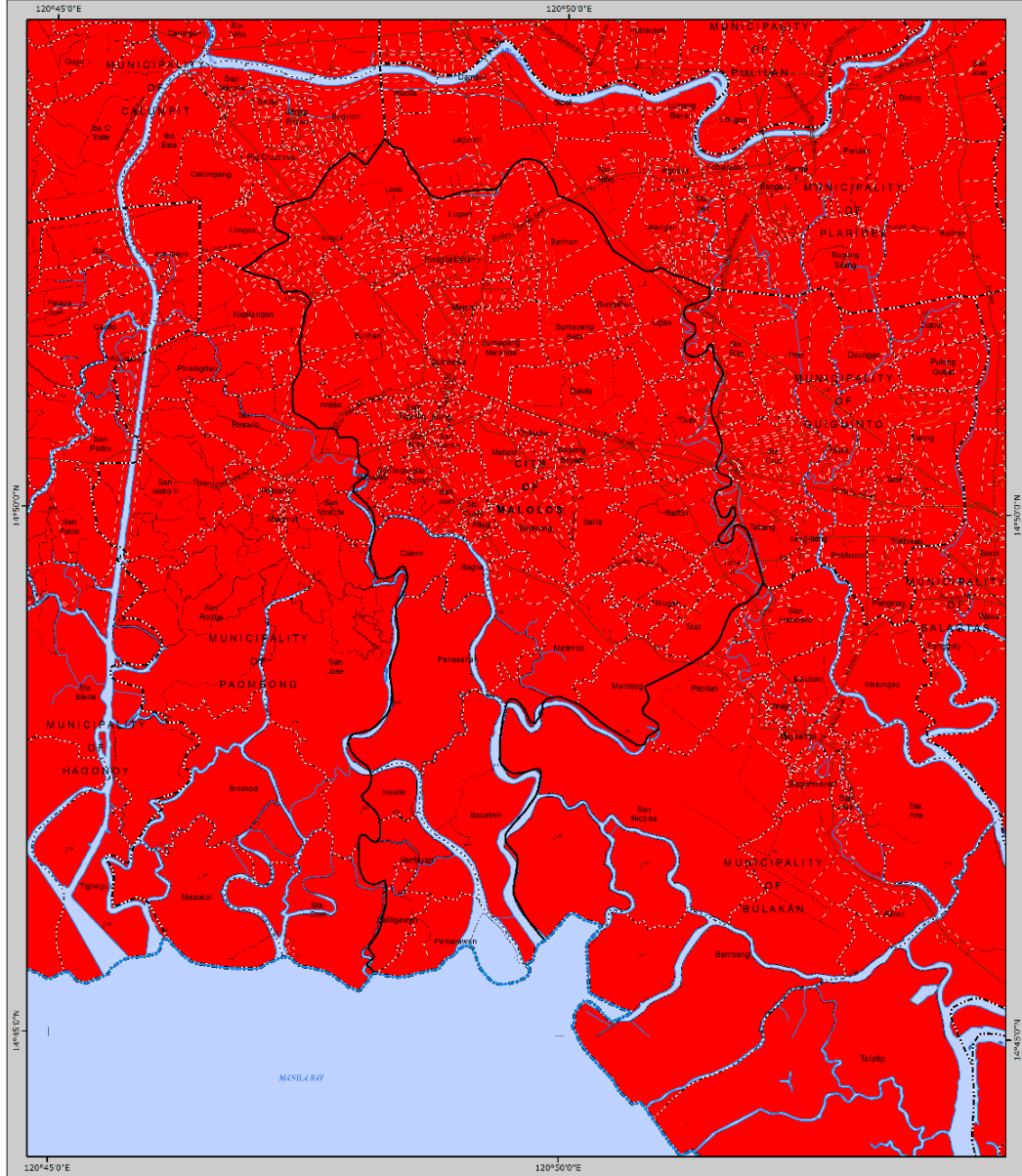
Map No. 3: Tsunami Hazard Map





# READY FOR GMMA PROJECT: LIQUEFACTION HAZARD MAP OF MALOLOS

Luzon, Philippines



## CITY OF MALOLOS PROVINCE OF BULACAN REGION III ( CENTRAL LUZON ) Scale 1:50,000



Coordinate System: Luzon 1911 UTM Zone 51N  
 Projection: Transverse Mercator  
 Datum: Luzon 1911  
 False Easting: 500,000.0000  
 False Northing: 123,000.0000  
 Scale Factor: 0.9996  
 Latitude of Origin: 0.0000  
 Units: Meter

### BASE MAP LEGEND

×1178	Spot Elevation	—	River
—	Provincial Boundary	—	Coastline
—	Municipality Boundary	—	Water Boundary
—	Barangay Boundary	—	Contour Index
—	Malolos Boundary	—	Contour Depression
—	Bridges	—	Contour Intermediate
—	Main Road	—	Contour Supplementary
—	Secondary Road		
—	Trail		

### LEGEND

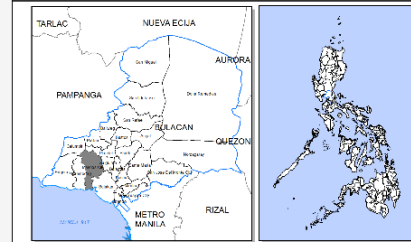
#### Liquefaction Potential

Red	High
Purple	Moderate
Yellow	Low

### EXPLANATION

1. The map was based on the geology, earthquake source zone faults, historical accounts of liquefaction, geomorphology, and hydrology of the area. Preliminary microtremor survey data was utilized to validate the type of underlying materials. All hazard boundaries are approximate and/or gradational.
2. This map is semi-detailed and may be used for land use, emergency response and mitigation planning, and should not be used for site specific evaluation.
3. The liquefaction hazard maps do not restrict construction of any structures and development in areas susceptible to liquefaction as long as proper engineering considerations are applied.

### LOCATION MAP



### SOURCES OF DATA

Hazard Data from Philippine Institute of Volcanology and Seismology (PHIVOLCS - DOST) 2014  
 Administrative boundary, Provincial Planning & Development Office (PPDO) of Bulacan and National Statistics Office (NSO)  
 Contour, River, and Road, National Mapping and Resource Information Authority (NAMRIA) Topographic Map 1:50,000 scale

#### Disclaimer:

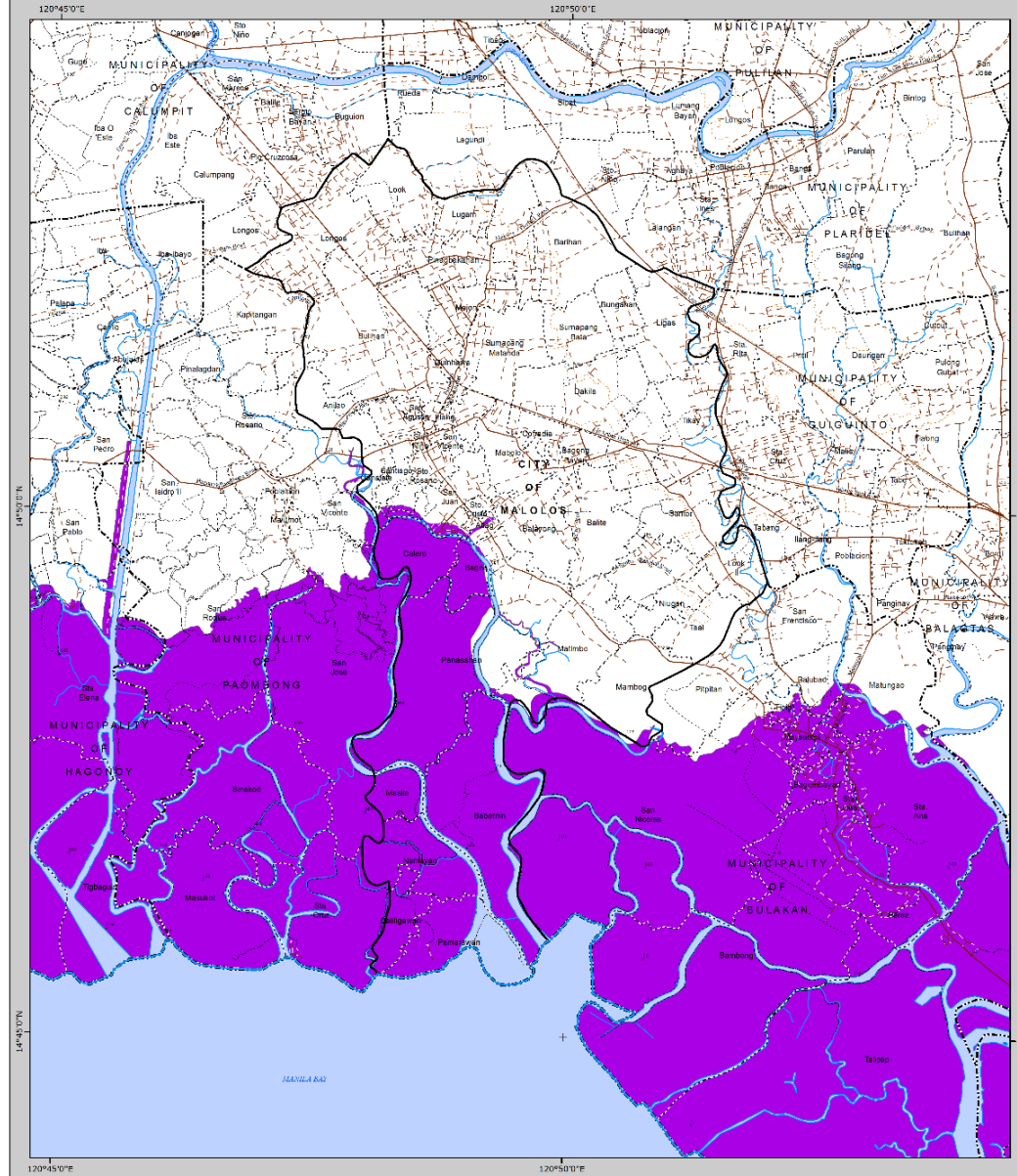
Administrative boundaries are approximate.



Map No. 4: Liquefaction Hazard Map

**READY FOR GMMMA PROJECT: STORM SURGE HAZARD MAP OF MALOLOS**

Luzon, Philippines



120°45'0"E 120°50'0"E  
14°50'0"N 14°55'0"N  
120°45'0"E 120°50'0"E

**CITY OF MALOLOS**  
PROVINCE OF BULACAN  
REGION III (CENTRAL LUZON)  
Scale 1:50,000



Coordinate System: Luzon 1911 UTM Zone 51N  
Projection: Transverse Mercator  
Datum: Luzon 1911  
False Easting: 500,000,000  
False Northing: 123,000  
Scale Factor: 0.9996  
Latitude of Origin: 0.0000  
Units: Meter

**BASE MAP LEGEND**

x 1276	Spot Elevation	River
-----	Provincial Boundary	Coastline
-----	Municipality Boundary	Water Boundary
-----	Barangay Boundary	Contour Index
-----	Malolos Boundary	Contour Depression
-----	Bridges	Contour Intermediate
-----	Main Road	Contour Supplementary
-----	Secondary Road	
-----	Trail	

**LEGEND**

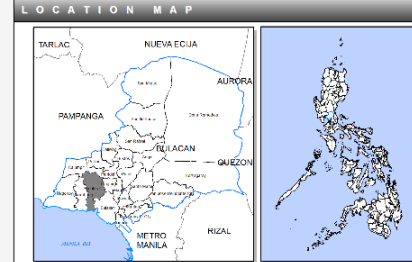
Red	Inundations of >4 meters to 12 meters surge height
Purple	Inundations of >1 meter to 4 meters surge height
Yellow	Inundations of 1 meter surge height

**EXPLANATION**

The inundation coverage is estimated based on geomorphologic analysis and observation in the areas during interviews/surveys. The surge heights are computed using the data gathered during surveys in reference to the significant tropical cyclone occurrences and from storm surge model results.

The classification of tropical cyclone considered in the analysis are Tropical Storm with maximum winds from 64 Kilometers Per Hour (KPH) to 117 Kilometers Per Hour (KPH) and Typhoon with maximum winds greater than 117 Kilometers Per Hour (KPH).

The surge heights and inundations delineated on the map are determined mainly from the observed data. Model results are used for analysis and checking only.



**SOURCES OF DATA**

Hazard Data, Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST - PAGASA) 2013  
Administrative boundary, Provincial Planning & Development Office (PPDO) of Bulacan and National Statistics Office (NSO)  
Contour, River, and Road, National Mapping and Resource Information Authority (NAMRIA) Topographic Map 1:50,000 scale  
Hazard Data 1:10,000 scale

**Disclaimer:**  
Administrative boundaries are approximate.

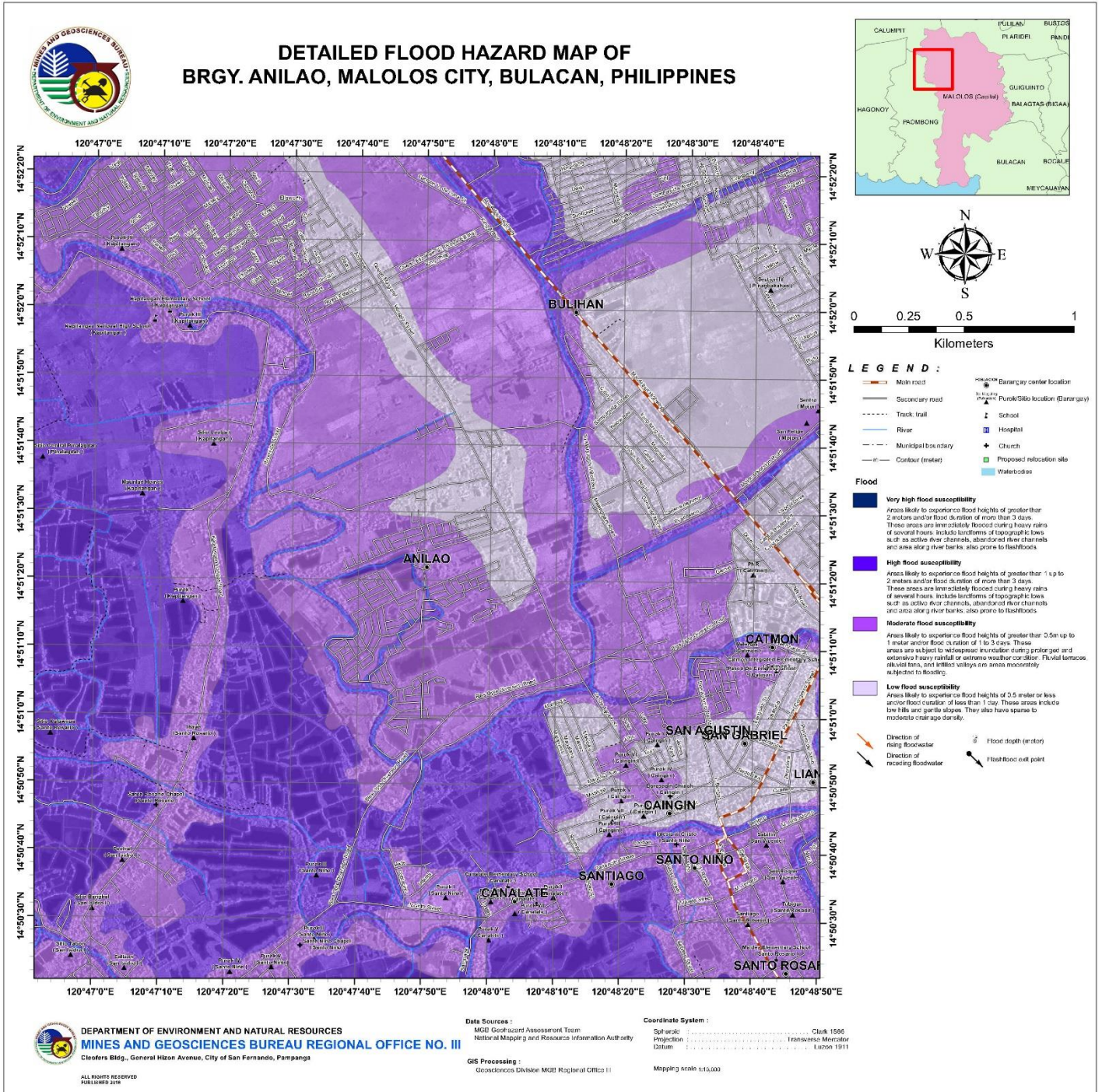


Map No. 5: Storm Surge Hazard Map



# FLOOD HAZARD MAPS PER BARANGAY

*Brgy. Anilao*

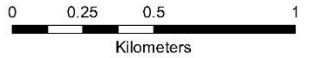






Brgy. Atlag

**DETAILED FLOOD HAZARD MAP OF BRGY. ATLAG, MALOLOS CITY, BULACAN, PHILIPPINES**



**LEGEND :**

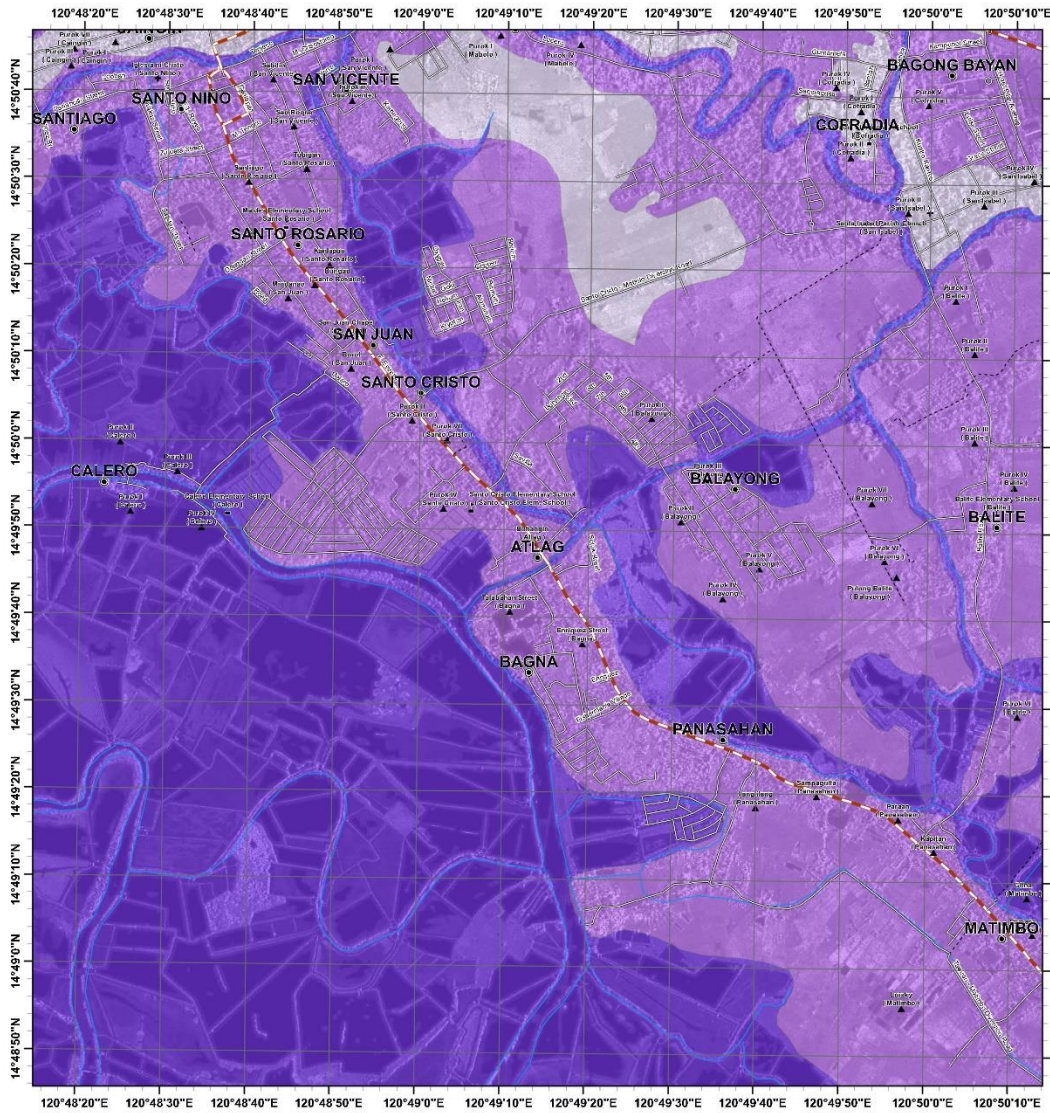
- Main road
- Secondary road
- Track, trail
- River
- Municipal boundary
- Contour (meter)
- Barangay center location
- Purok/Sitio location (Barangay)
- School
- Hospital
- Church
- Proposed relocation site
- Waterbodies

**Flood**

- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along their banks, also prone to flashflows.
- High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along their banks, also prone to flashflows.
- Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and impact valleys are areas moderately subjected to flooding.
- Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate chair age density.

Direction of rising floodwater      Flood depth (meter)

Direction of receding floodwater      Flashflood exit point



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
 Cleofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
 MGB Geohazard Assessment Team  
 National Mapping and Resource Information Authority

**GIS Processing :**  
 Geosciences Division MGB Regional Office III

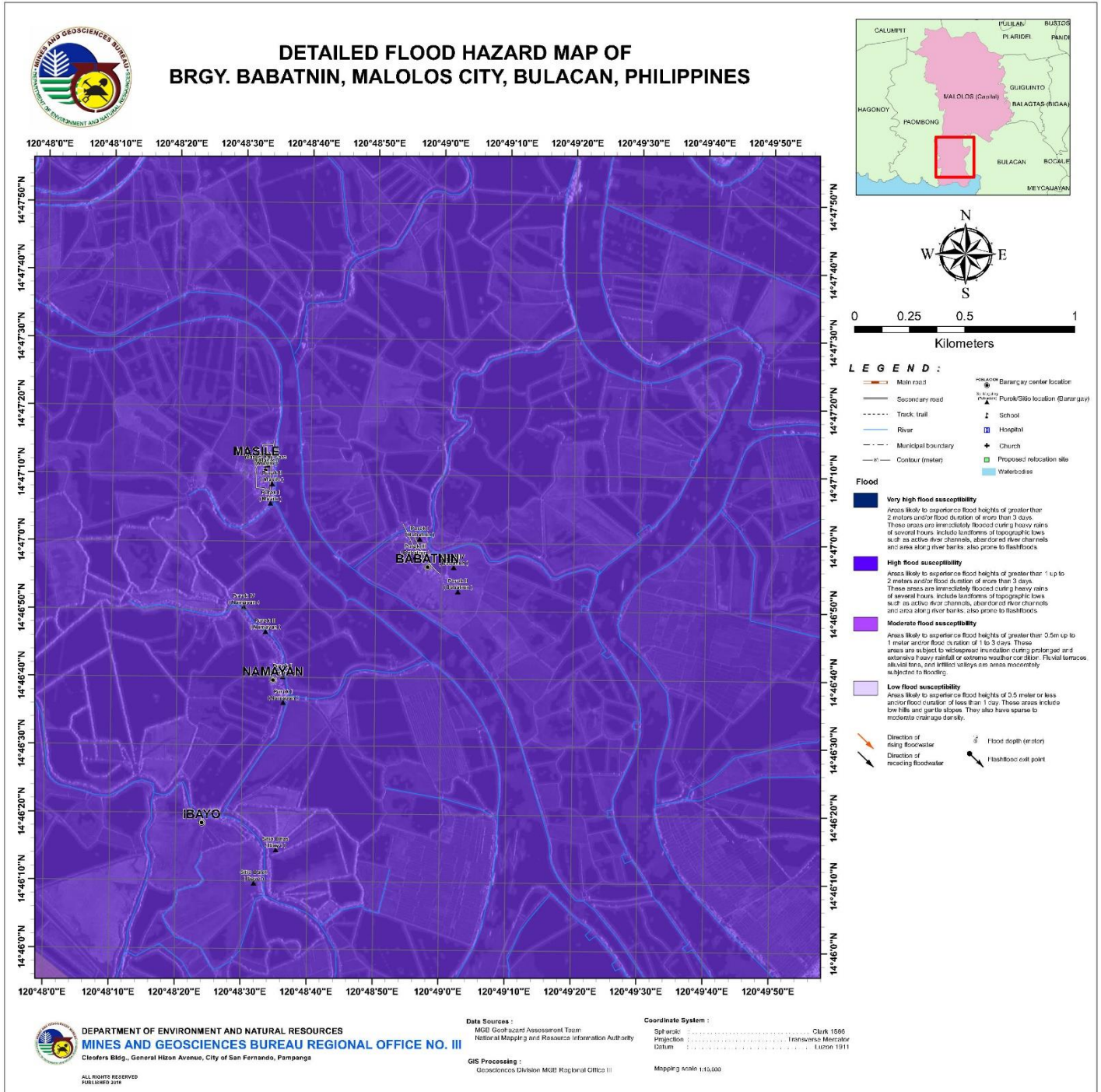
**Coordinate System :**  
 Spheroid : Clark 1866  
 Projection : Transverse Mercator  
 Datum : Luzon 1911

Mapping scale 1:10,000





Brgy. Babatnin

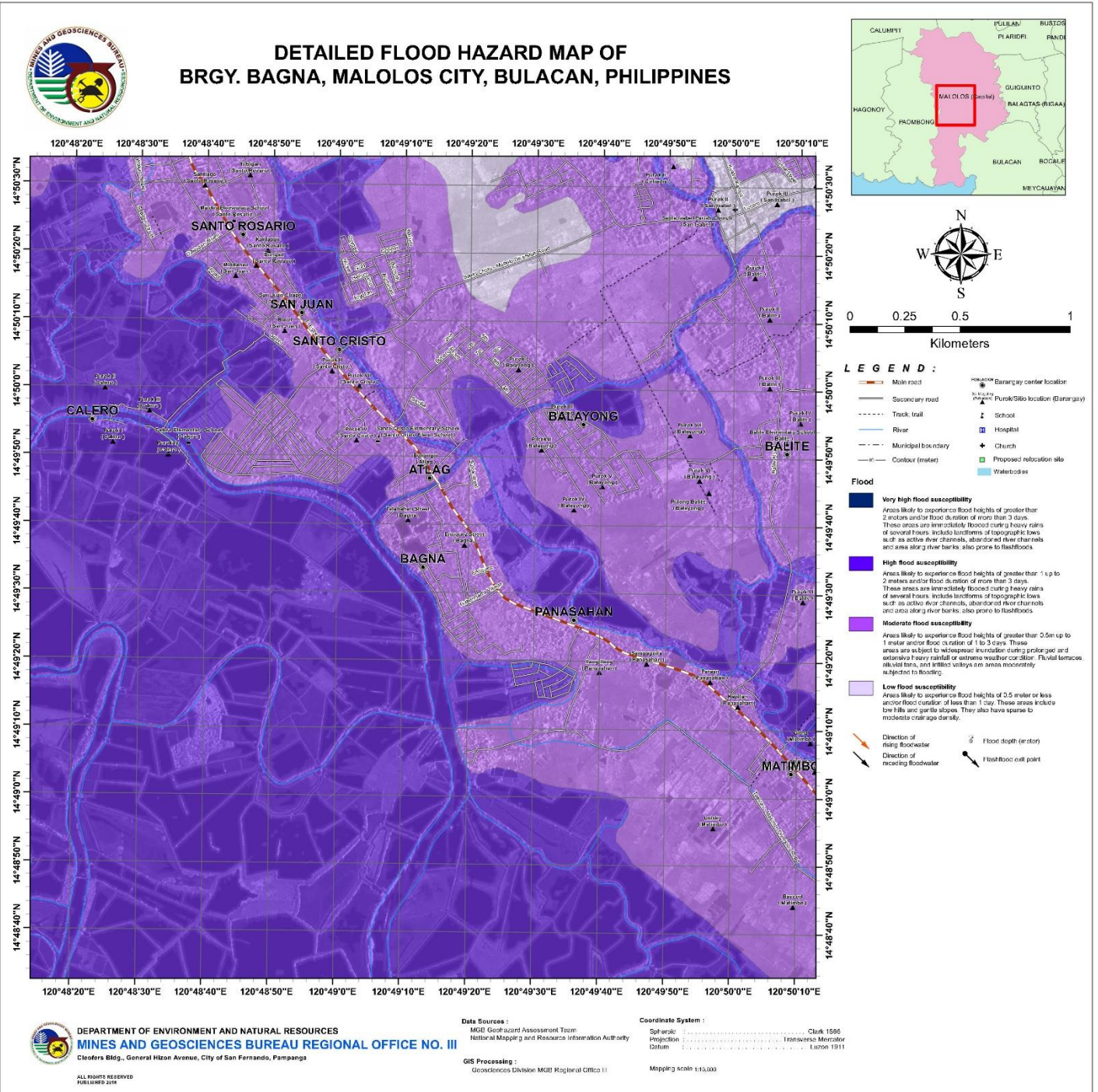






Brgy. Bagna

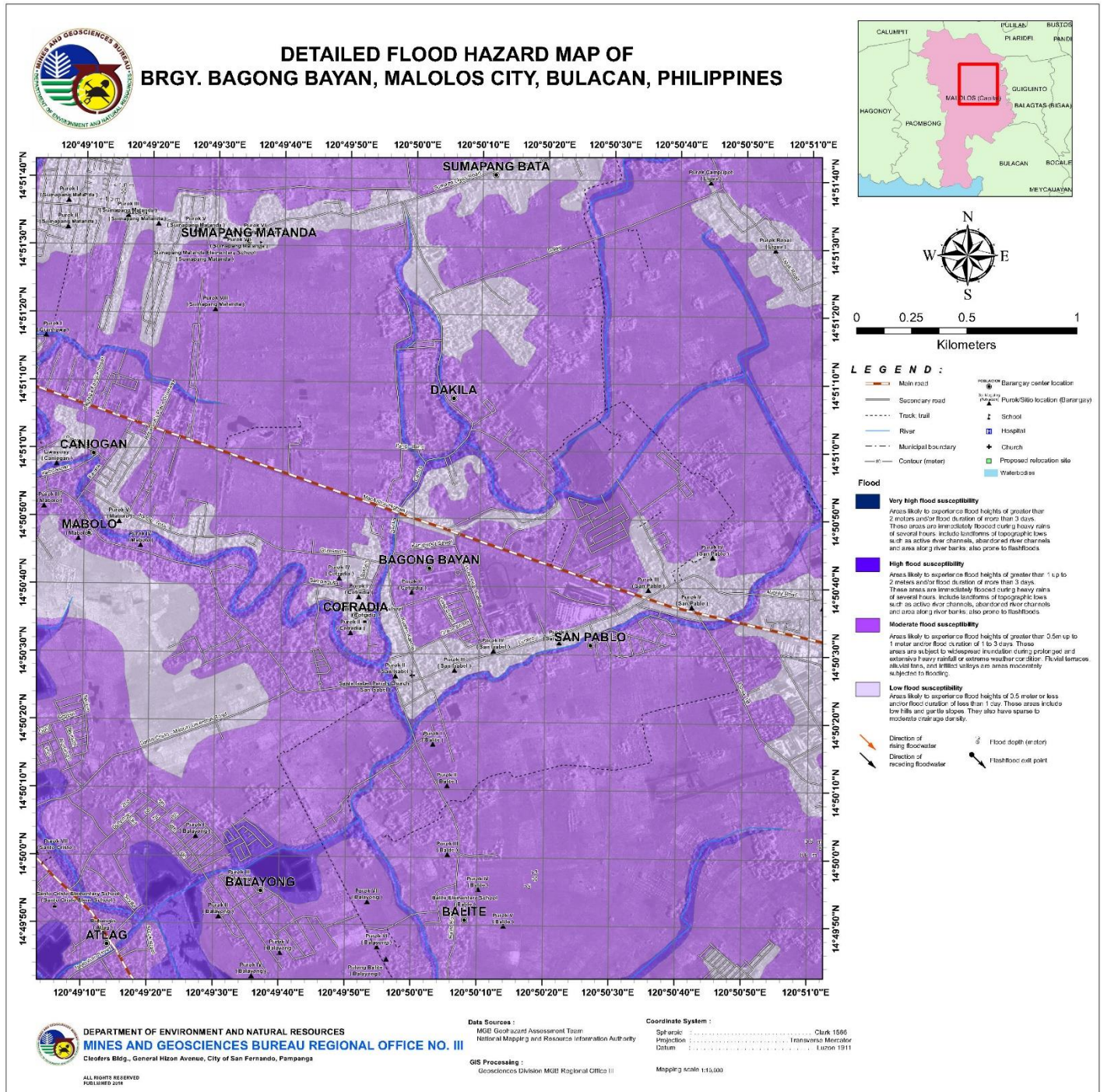
**DETAILED FLOOD HAZARD MAP OF BRGY. BAGNA, MALOLOS CITY, BULACAN, PHILIPPINES**







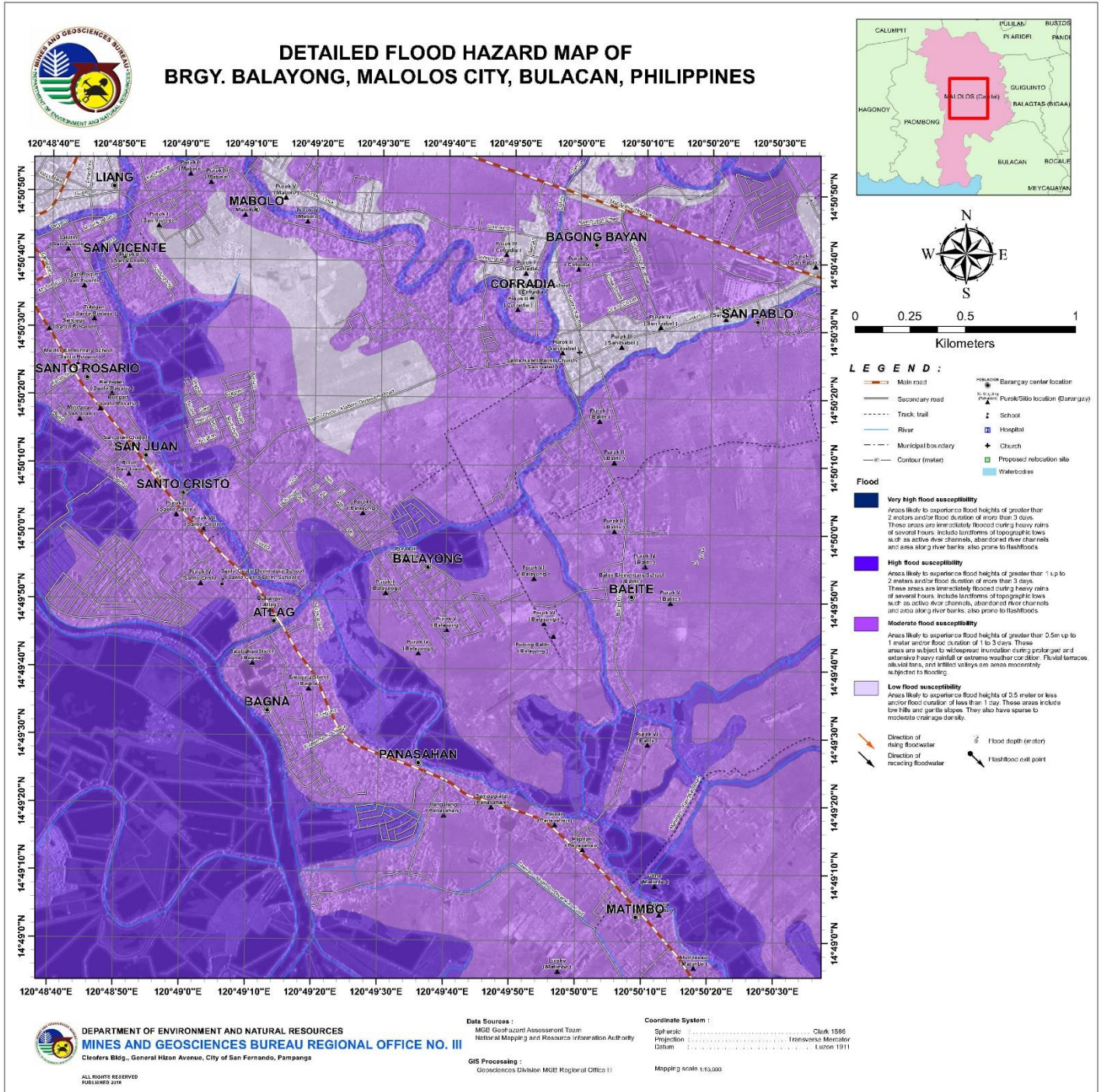
Brgy. Bagong Bayan







Brgy. Balayong







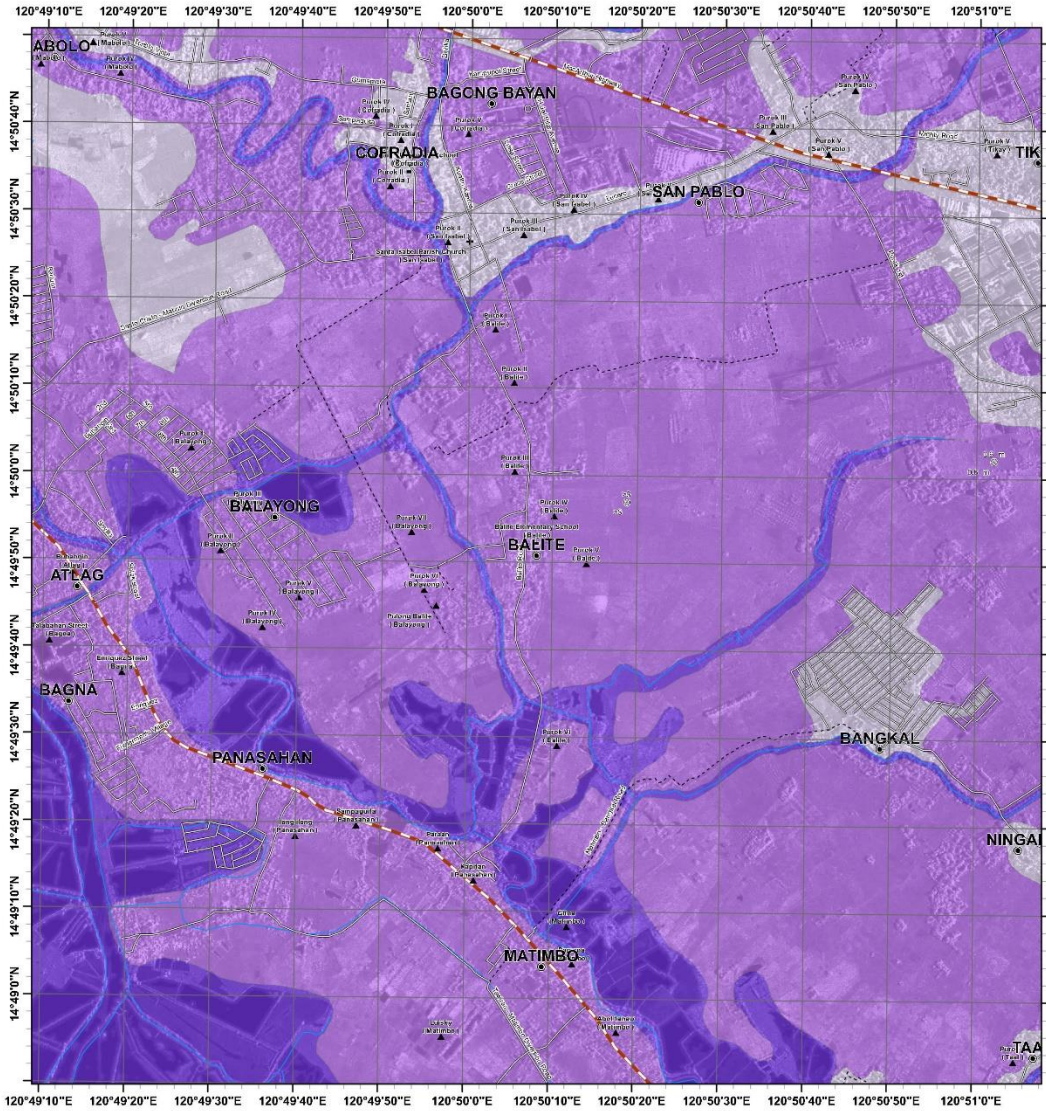
Brgy. Balite

**DETAILED FLOOD HAZARD MAP OF  
BRGY. BALITE, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather conditions. Fluvial terraces, alluvial fans, and other valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate drainage density.
- Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (in story)  
Flashflood call point



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MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Clodfers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGD Geohazard Assessment Team  
National Mapping and Resource Information Authority

**GIS Processing :**  
Geosciences Division MGR Regional Office III

**Coordinate System :**  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

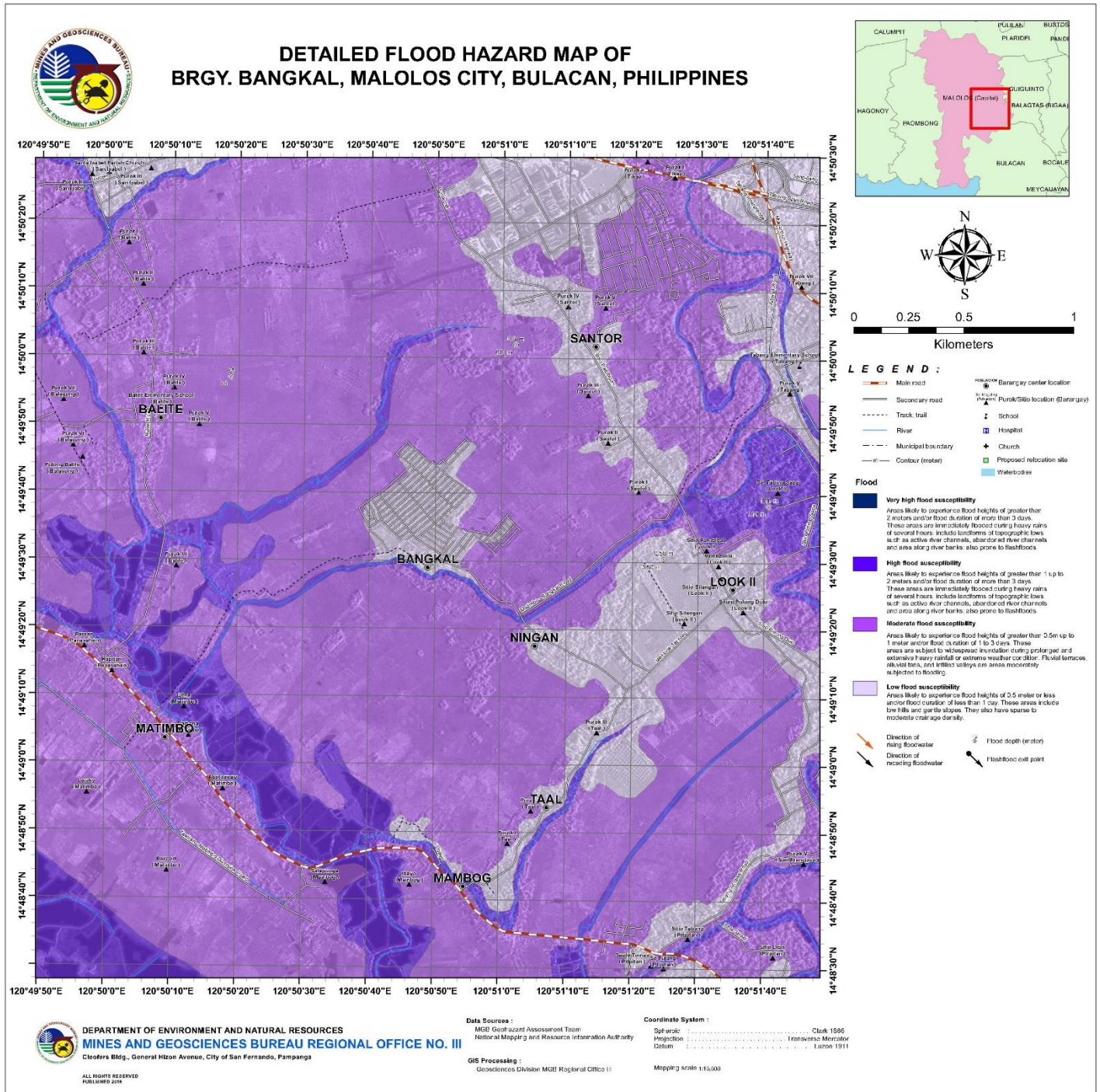
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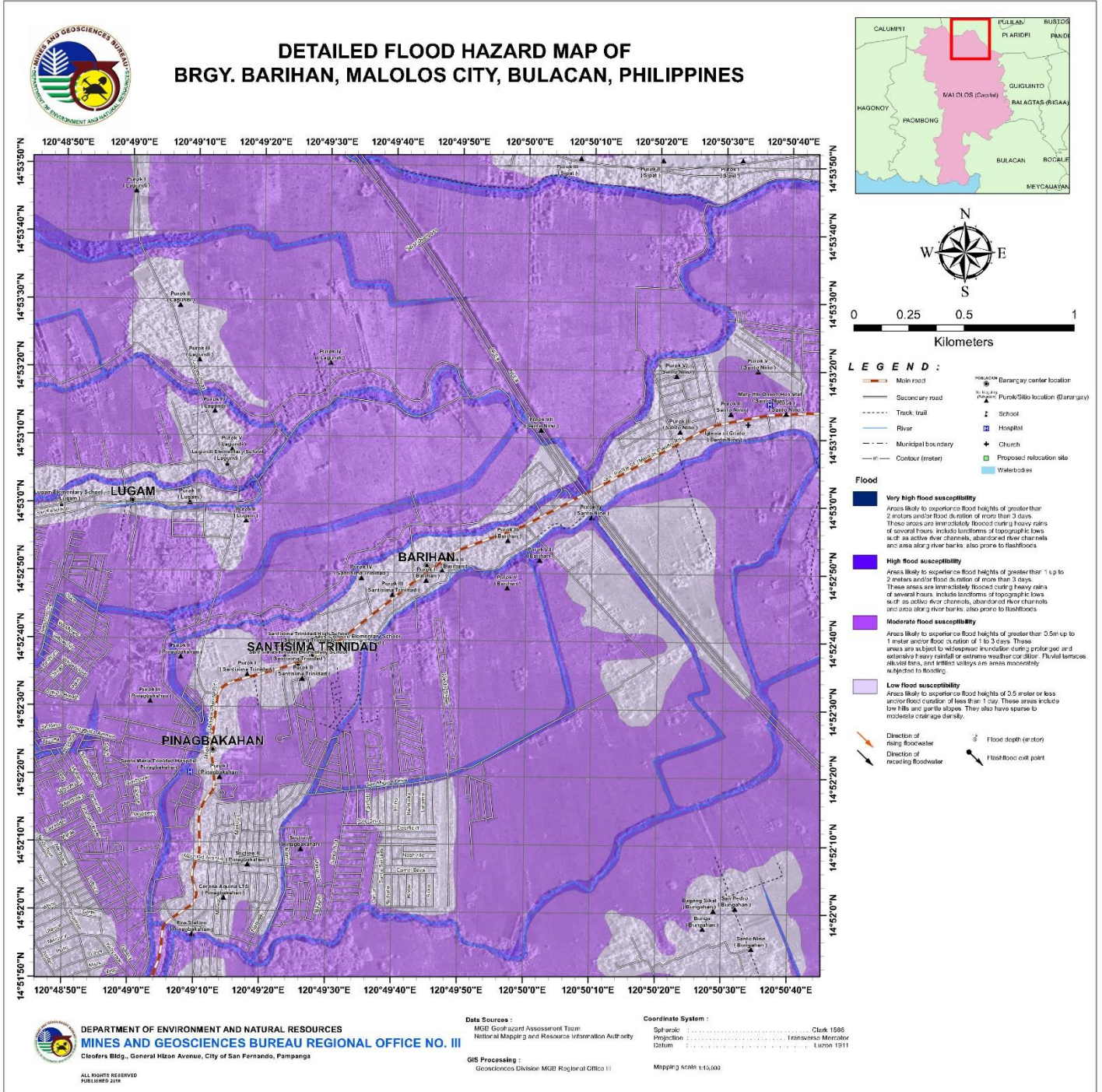
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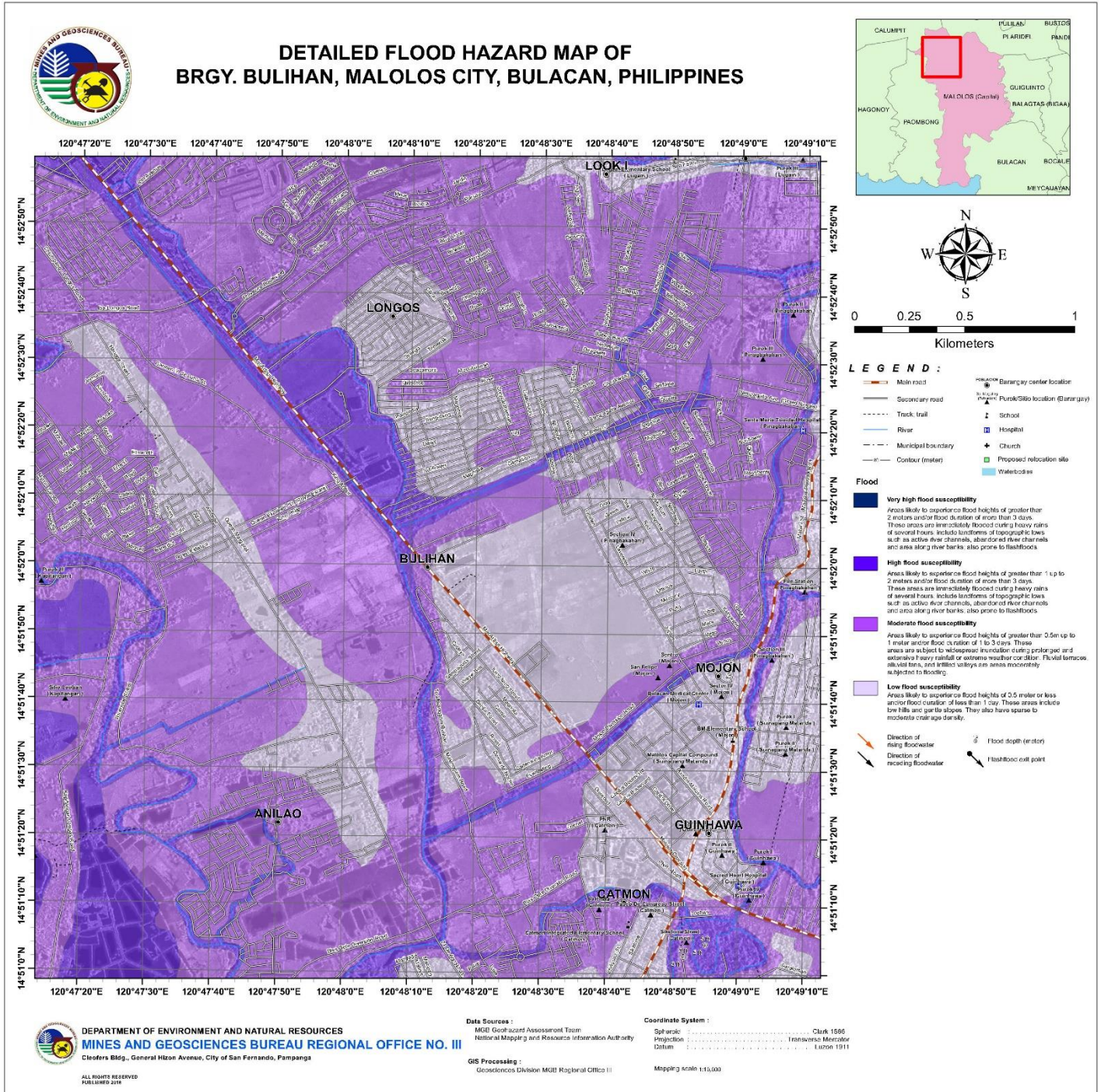
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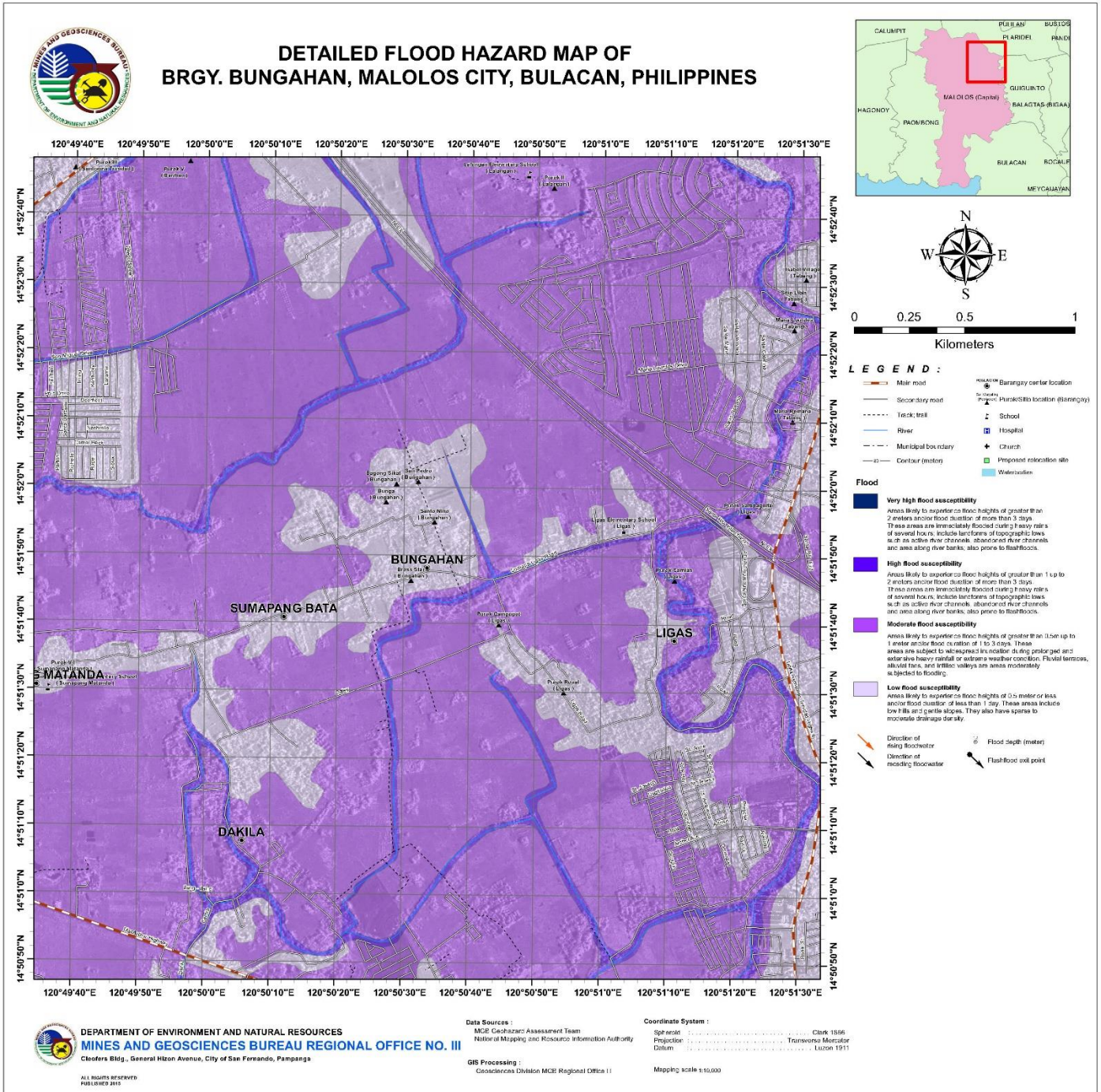
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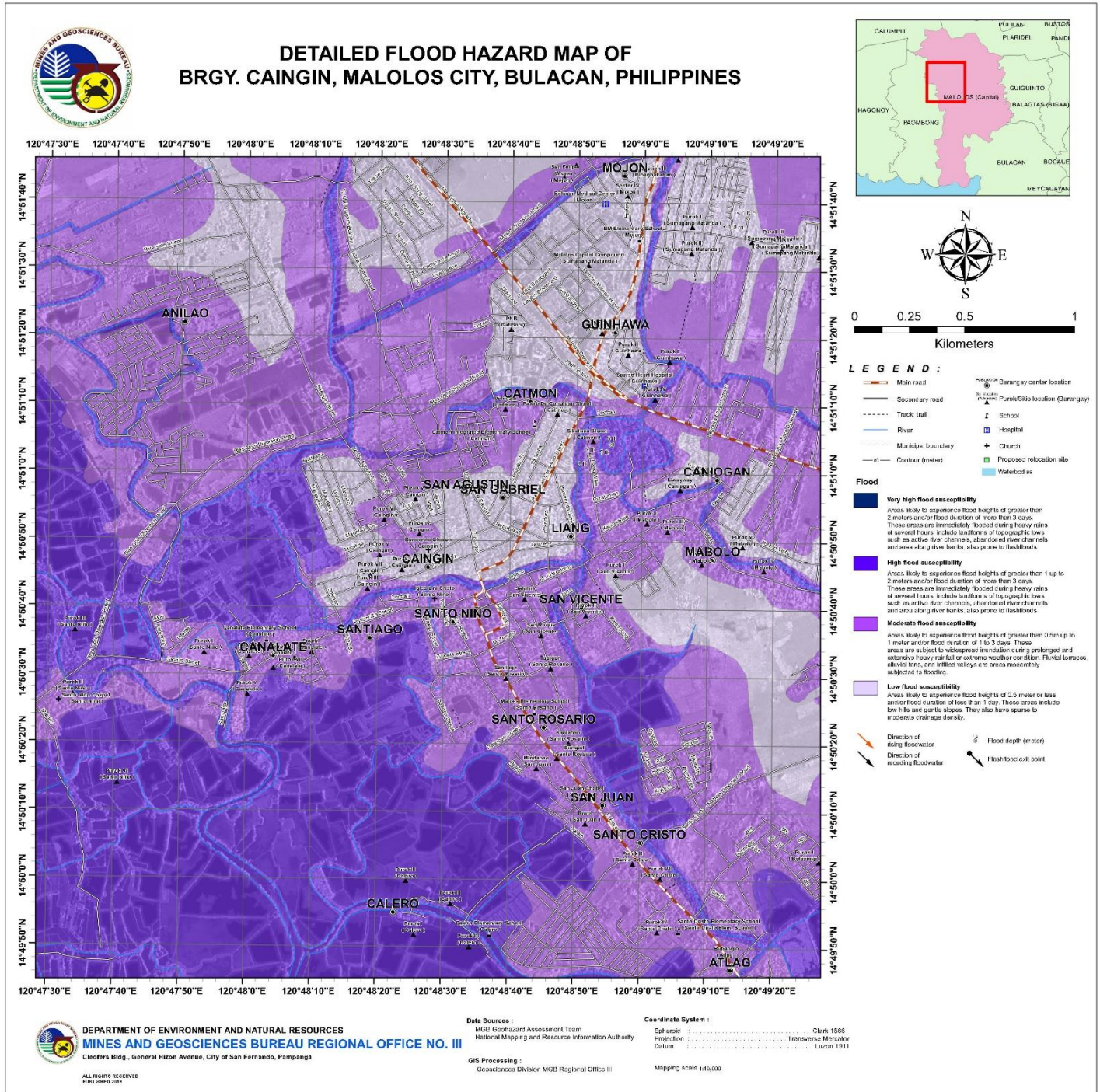
Brgy. Bungahan







Brgy. Caingin

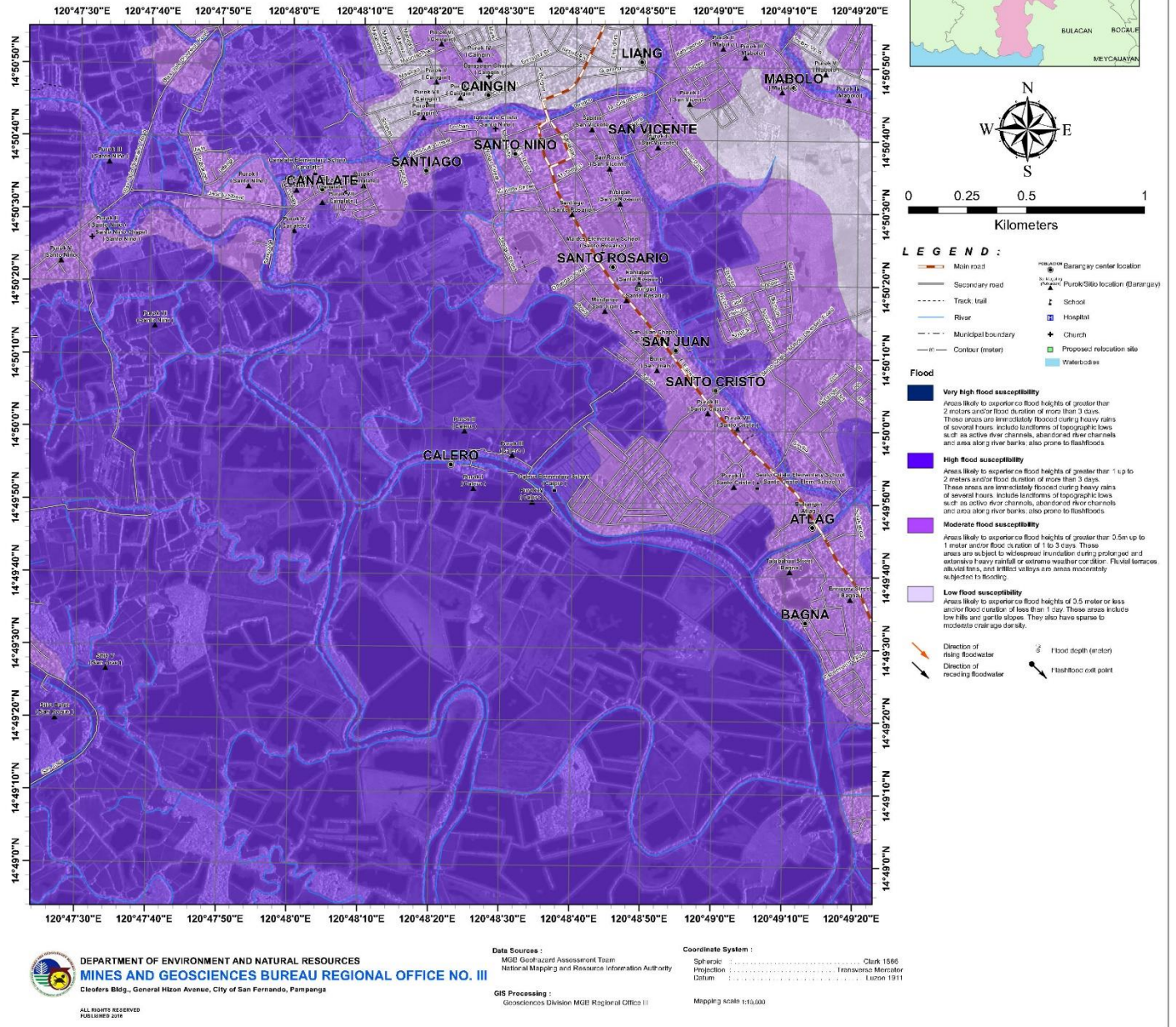






Brgy. Calero

**DETAILED FLOOD HAZARD MAP OF  
BRGY. CALERO, MALOLOS CITY, BULACAN, PHILIPPINES**







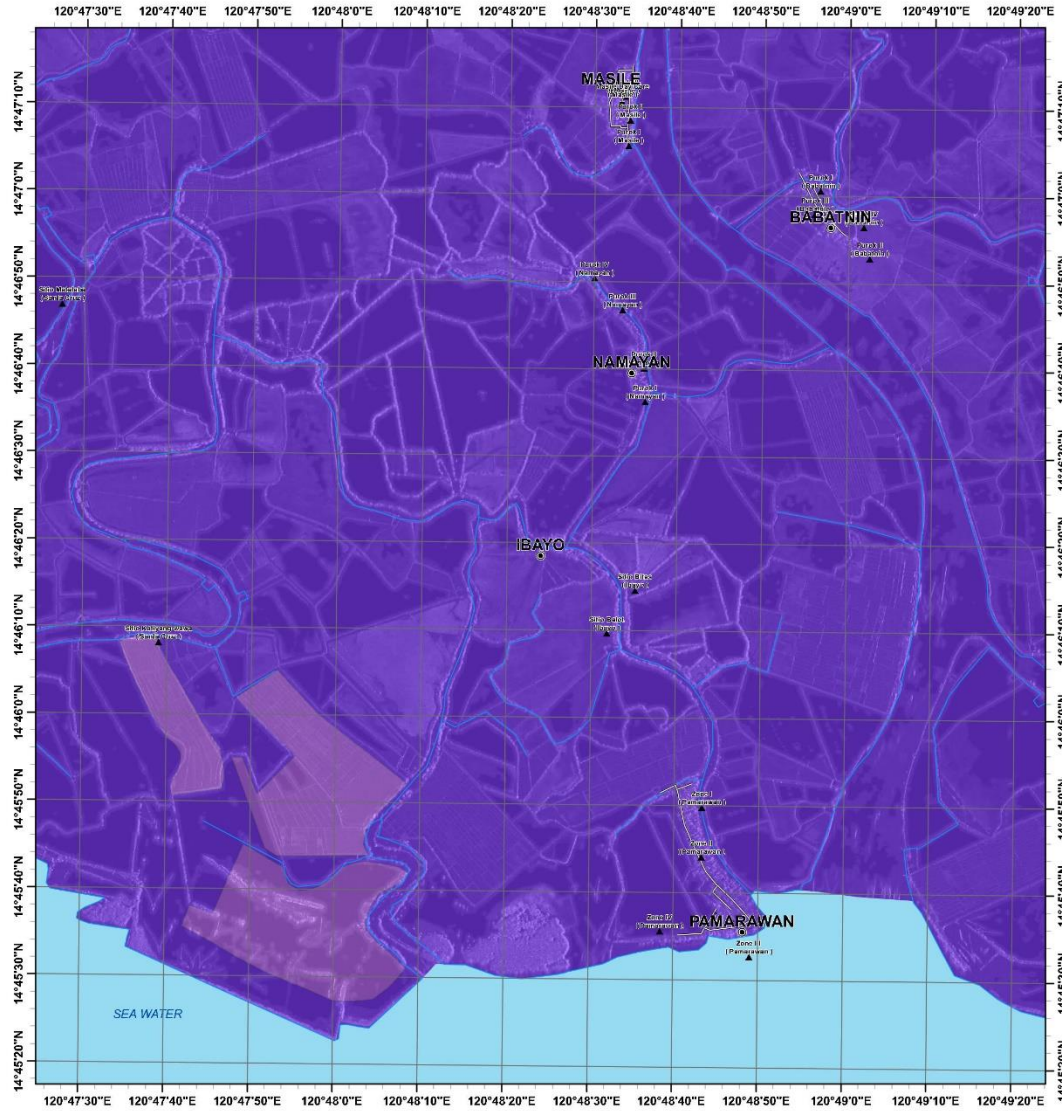
Brgy. Caliligawan

**DETAILED FLOOD HAZARD MAP OF  
BRGY. IBAYO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitip location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels, and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels, and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and other valleys are areas moderately subject to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate drainage density.
- Direction of rising floodwater  
Direction of moving floodwater  
Flood depth (entry)  
Flashflood exit point



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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Ciofeters Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

**Coordinate System :**  
Spheroid : Clark 1886  
Projection : Transverse Mercator  
Datum : Luzon 1911

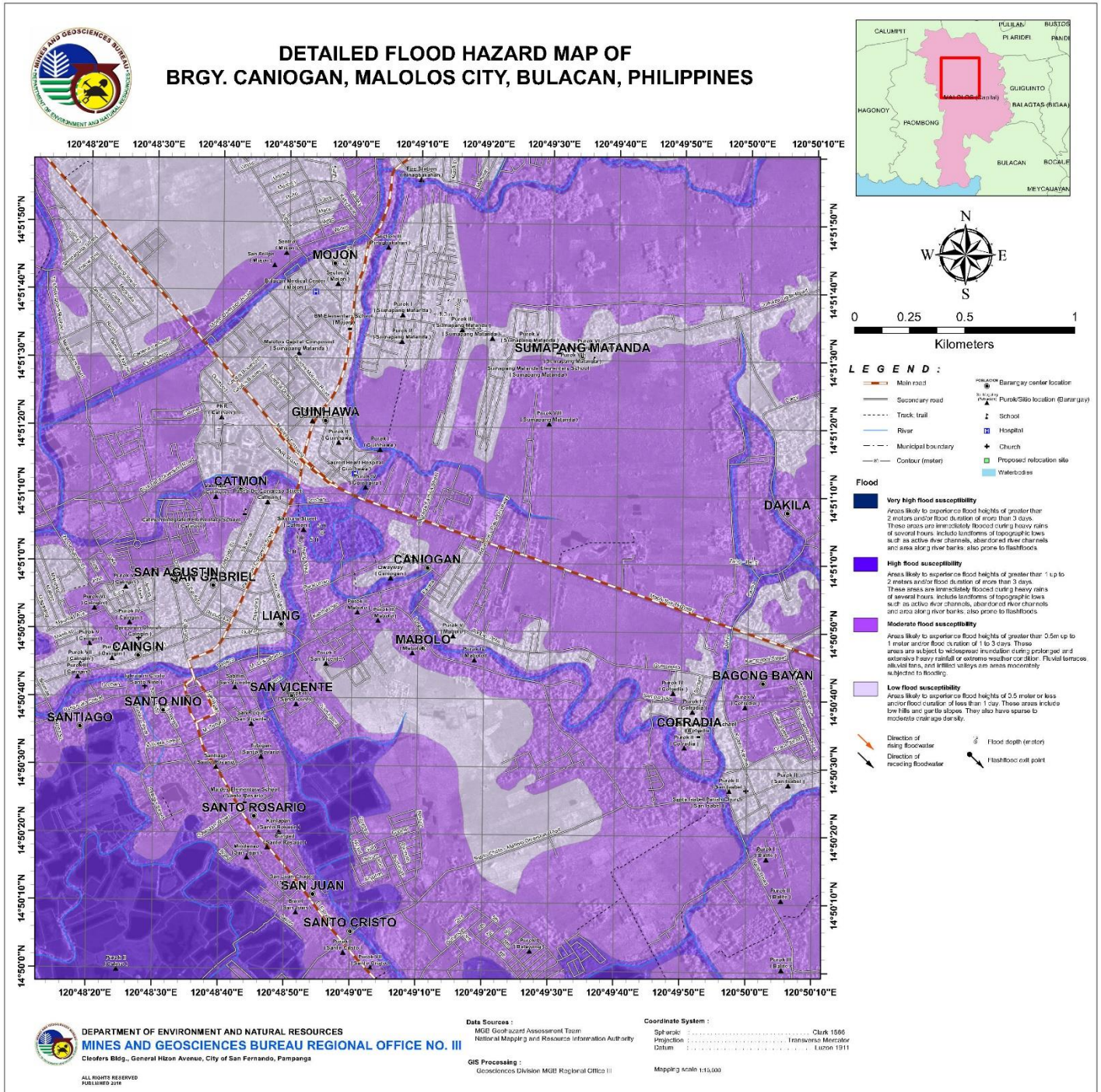
**GIS Processing :**  
Geosciences Division MGB Regional Office III  
Mapping scale 1:50,000

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Brgy. Caniogan

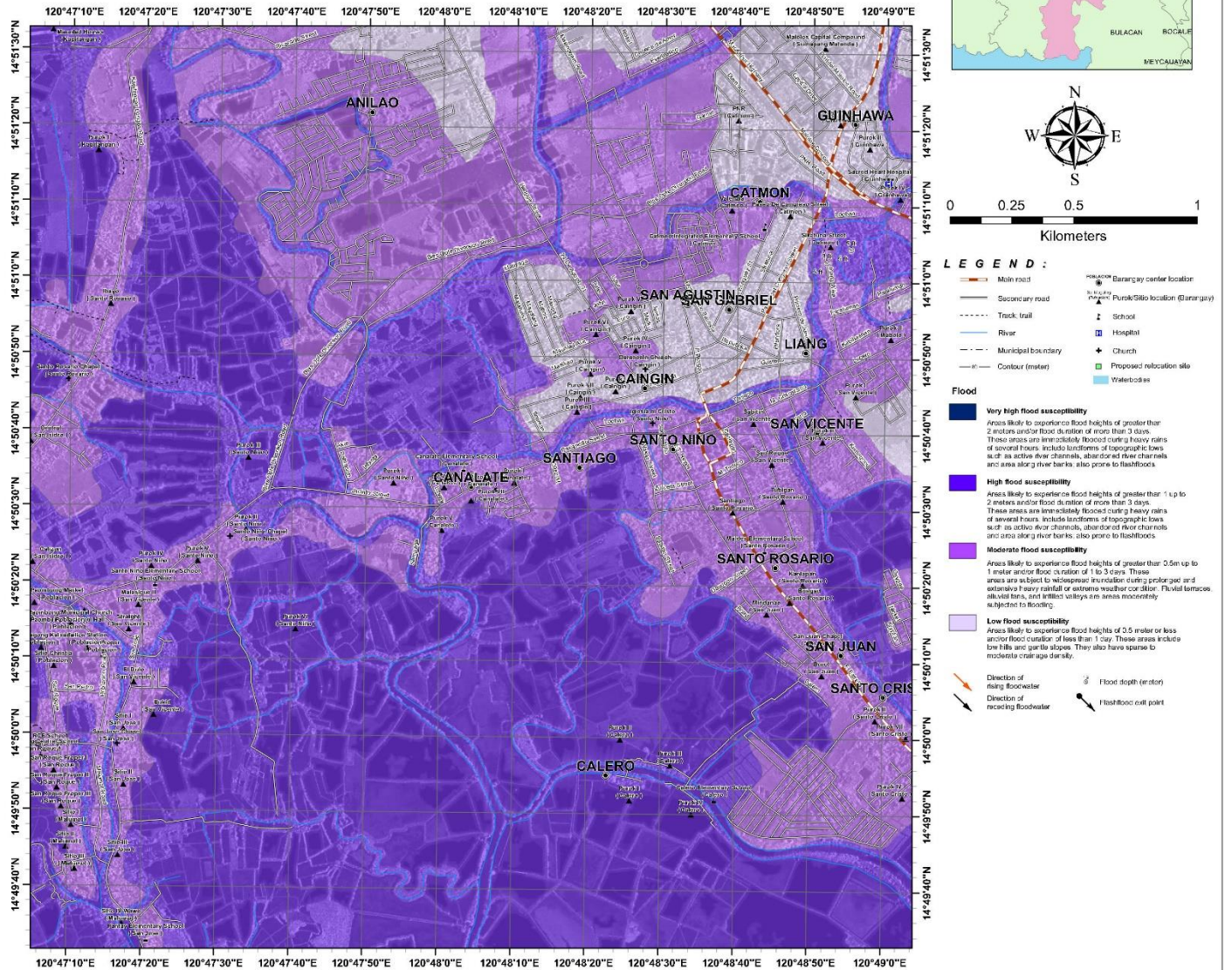






Brgy. Canalate

**DETAILED FLOOD HAZARD MAP OF  
BRGY. CANALATE, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Flooded terraces, alluvial fans, and areas valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate challenges density.
- Direction of rising floodwater
- Direction of receding floodwater
- Flood depth (in meter)
- Flashflood call point

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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cioferra Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geohazard Assessment Team  
National Mapping and Resource Information Authority

**GIS Processing :**  
Geosciences Division MGB Regional Office III

**Coordinate System :**  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

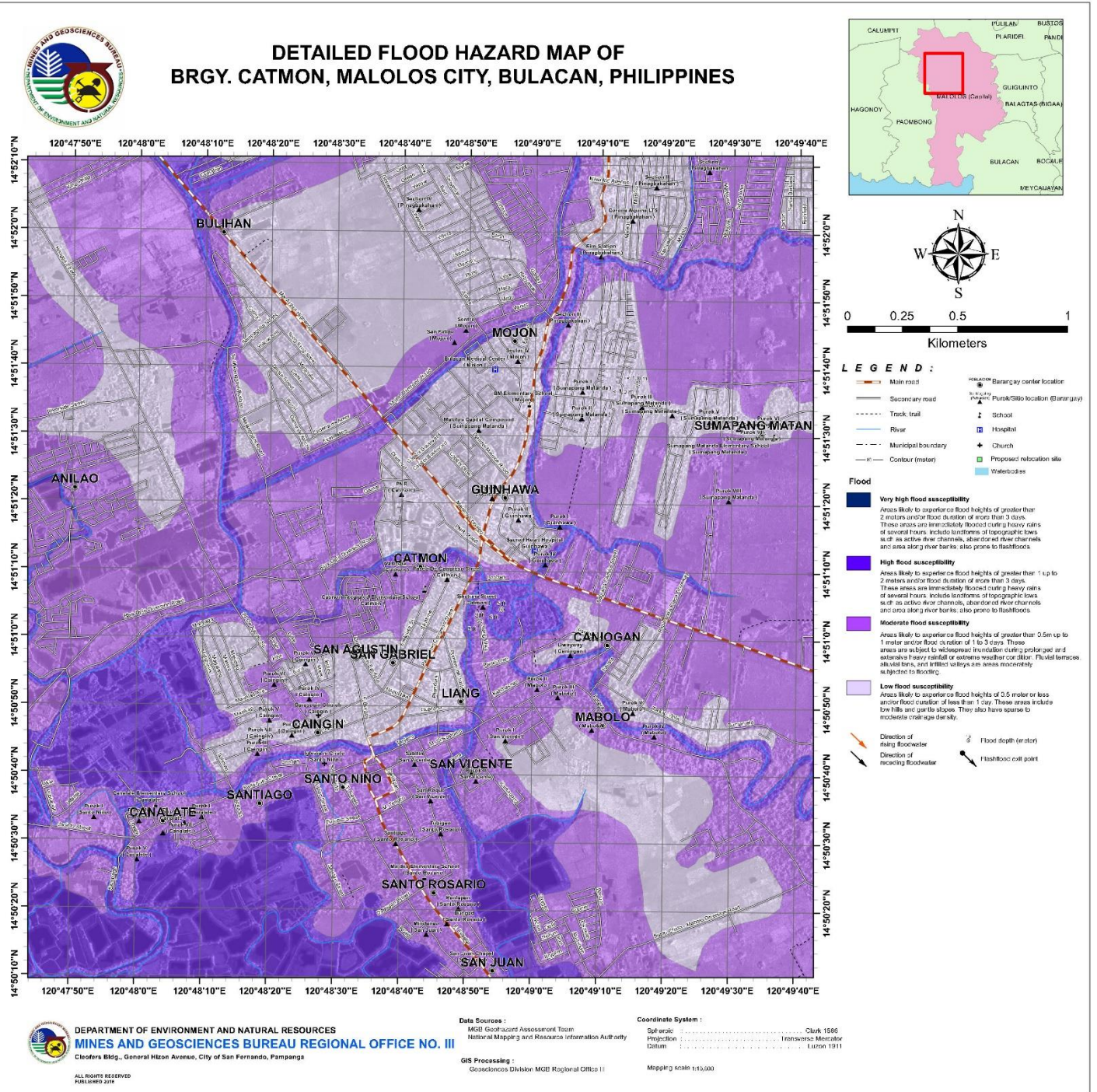
Mapping scale 1:15,000





Brgy. Catmon

**DETAILED FLOOD HAZARD MAP OF  
BRGY. CATMON, MALOLOS CITY, BULACAN, PHILIPPINES**

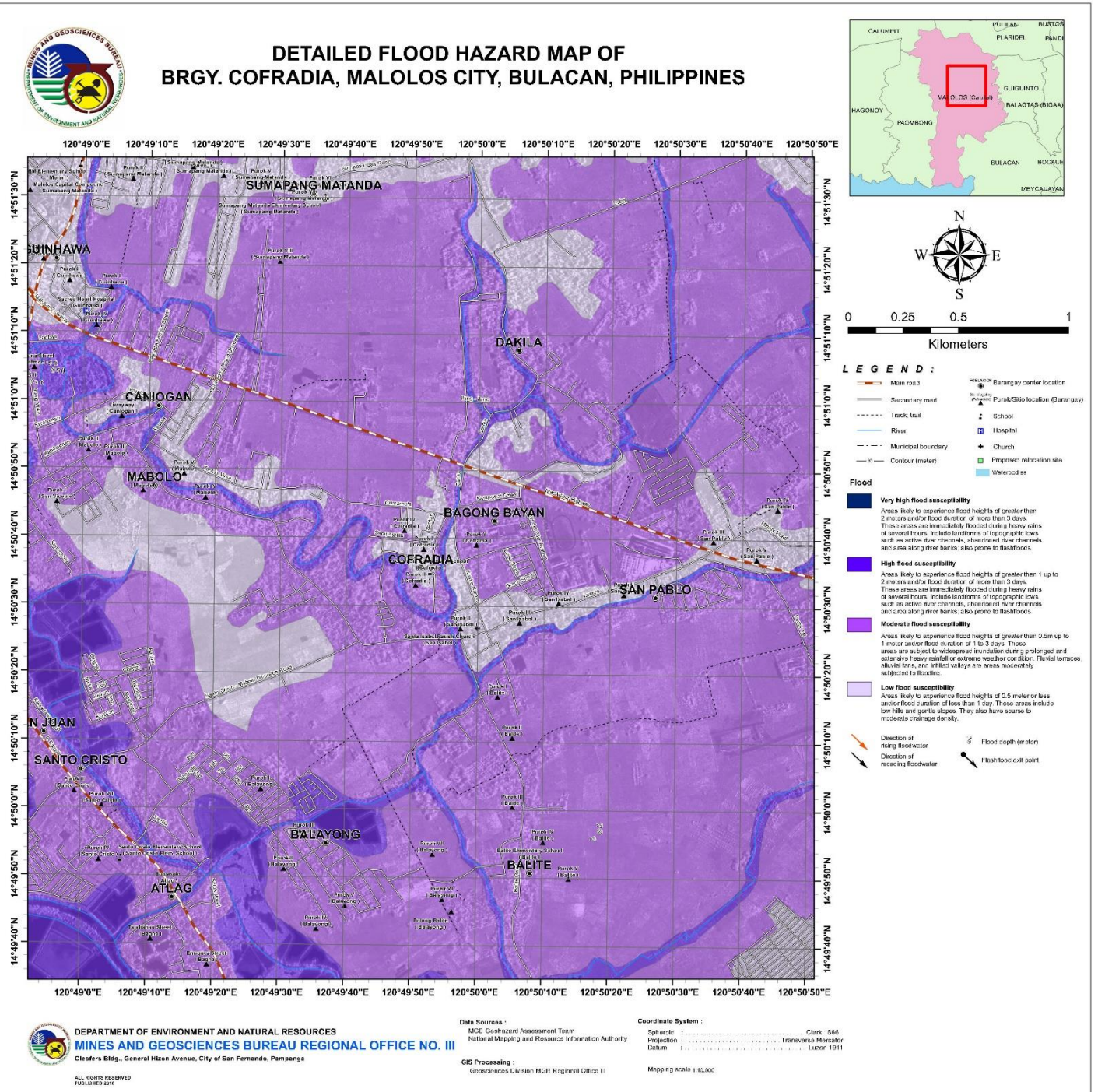






Brgy. Cofradia

**DETAILED FLOOD HAZARD MAP OF  
BRGY. COFRADIA, MALOLOS CITY, BULACAN, PHILIPPINES**







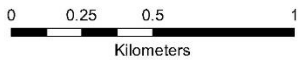




Brgy. Guinhawa



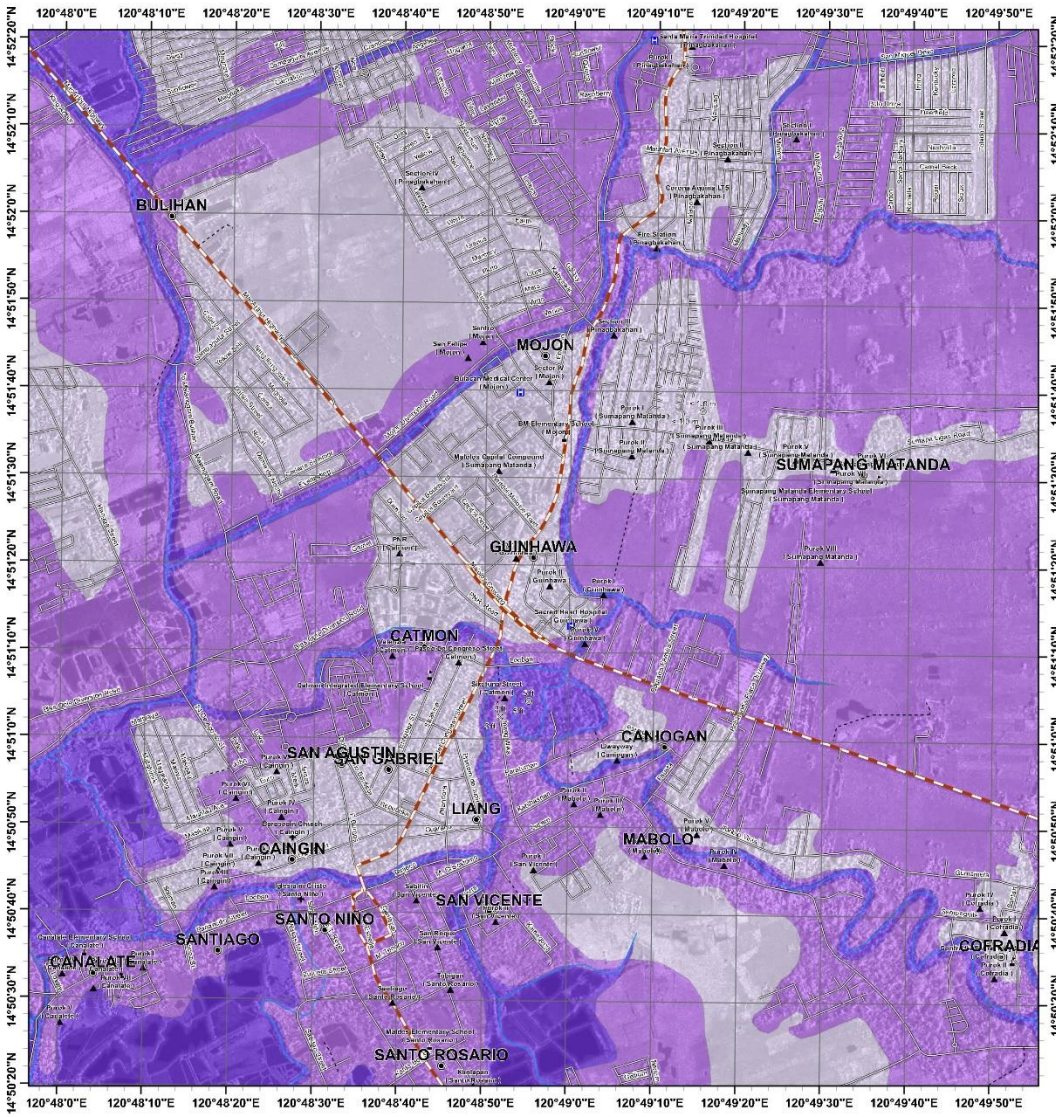
**DETAILED FLOOD HAZARD MAP OF  
BRGY. GUINHAWA, MALOLOS CITY, BULACAN, PHILIPPINES**



**LEGEND :**

- Main road
- Secondary road
- Truck trail
- River
- Municipal boundary
- Contour (meter)
- Barangay center location
- Purok/Site location (Barangay)
- School
- Hospital
- Church
- Proposed relocation site
- Watercourse

- Flood**
- Very High flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and area along river banks; also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and area along river banks; also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. These terraces alluvial fans, and interbed valleys are areas moderately subject to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate coverage density.
- Direction of rising floodwater  
 Direction of receding floodwater  
 Flood depth (meter)  
 Floodflow cut point



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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofes Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGI Geospatial Assessment Team  
National Mapping and Resource Information Authority

GIS Processing :  
Geosciences Division MGR Regional Office III

Coordinate System :  
Software : ..... Clark 1986  
Projection : ..... Transverse Mercator  
Datum : ..... Luzon 1911

Mapping Scale 1:10,000

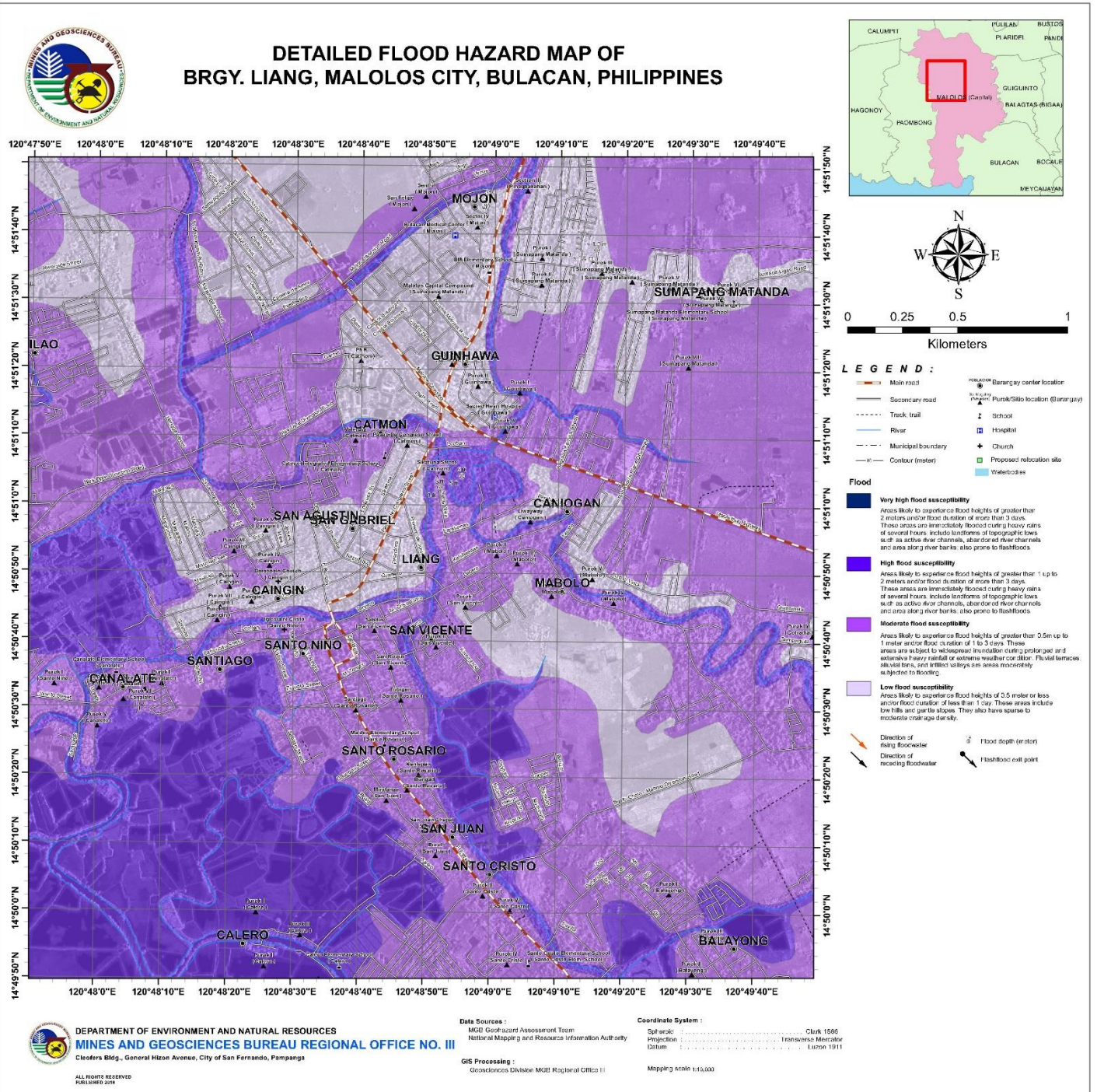
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Brgy. Liang

**DETAILED FLOOD HAZARD MAP OF  
BRGY. LIANG, MALOLOS CITY, BULACAN, PHILIPPINES**

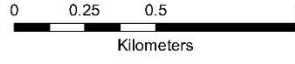






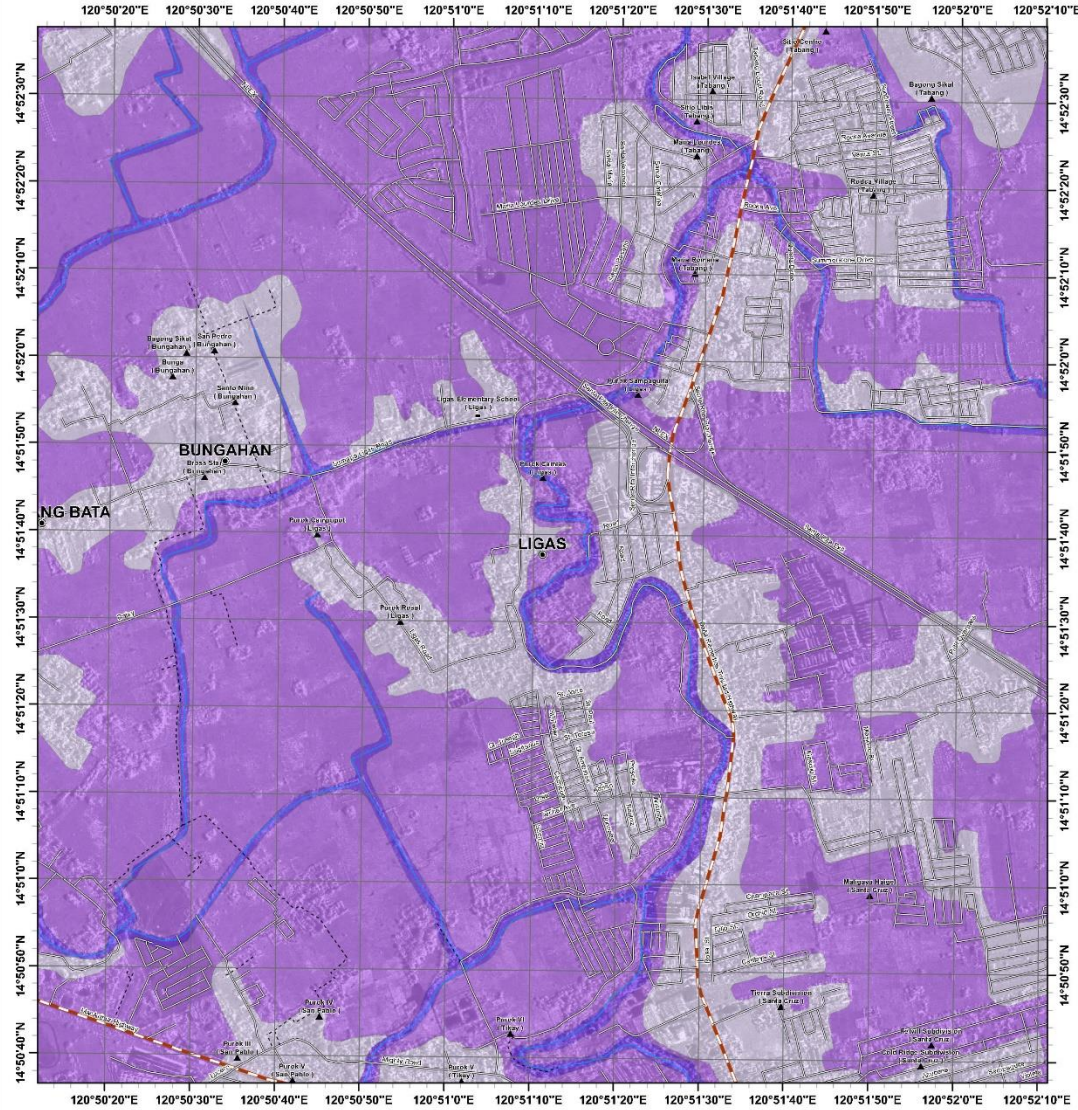
Brgy. Ligas

**DETAILED FLOOD HAZARD MAP OF  
BRGY. LIGAS, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Silo location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and limited valleys are areas commonly subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate drainage density.
- Direction of rising floodwater
- Direction of receding floodwater
- Flood depth (meter)
- Floodflow exit point



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MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Ciofiers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geohazard Assessment Team  
Historical Mapping and Resource Information Authority

**GIS Processing :**  
Geosciences Division MGB Regional Office III

**Coordinate System :**  
Spheroid: Clark 1866  
Projection: Transverse Mercator  
Datum: Luzon 1911

Mapping scale 1:15,000

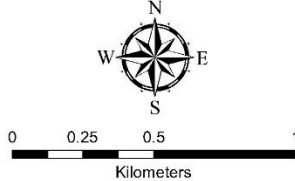
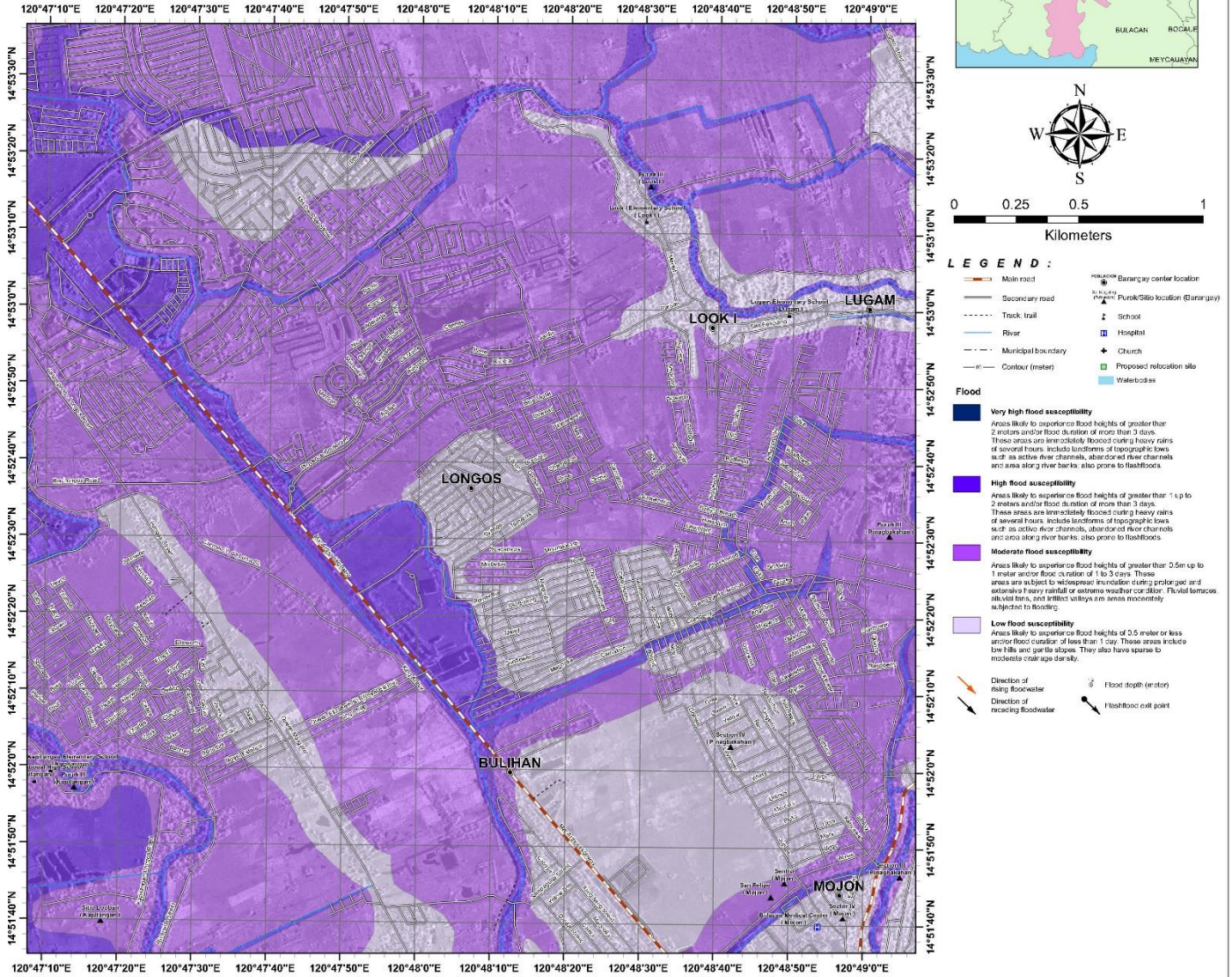
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Brgy. Longos

**DETAILED FLOOD HAZARD MAP OF  
BRGY. LONGOS, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies
- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are inevitably flooded during heavy rains of several hours. Include landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are inevitably flooded during heavy rains of several hours. Include landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to occasional inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and intact valleys are areas moderately susceptible to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate cropland density.
- Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (meter)  
Flashflood exit point

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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofers Bldg., General Nizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

**GIS Processing :**  
Geosciences Division MGB Regional Office III

**Coordinate System :**  
Spheroid : Clark 1886  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:50,000

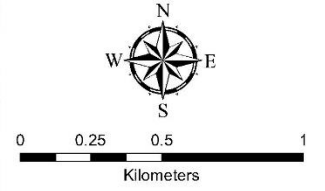
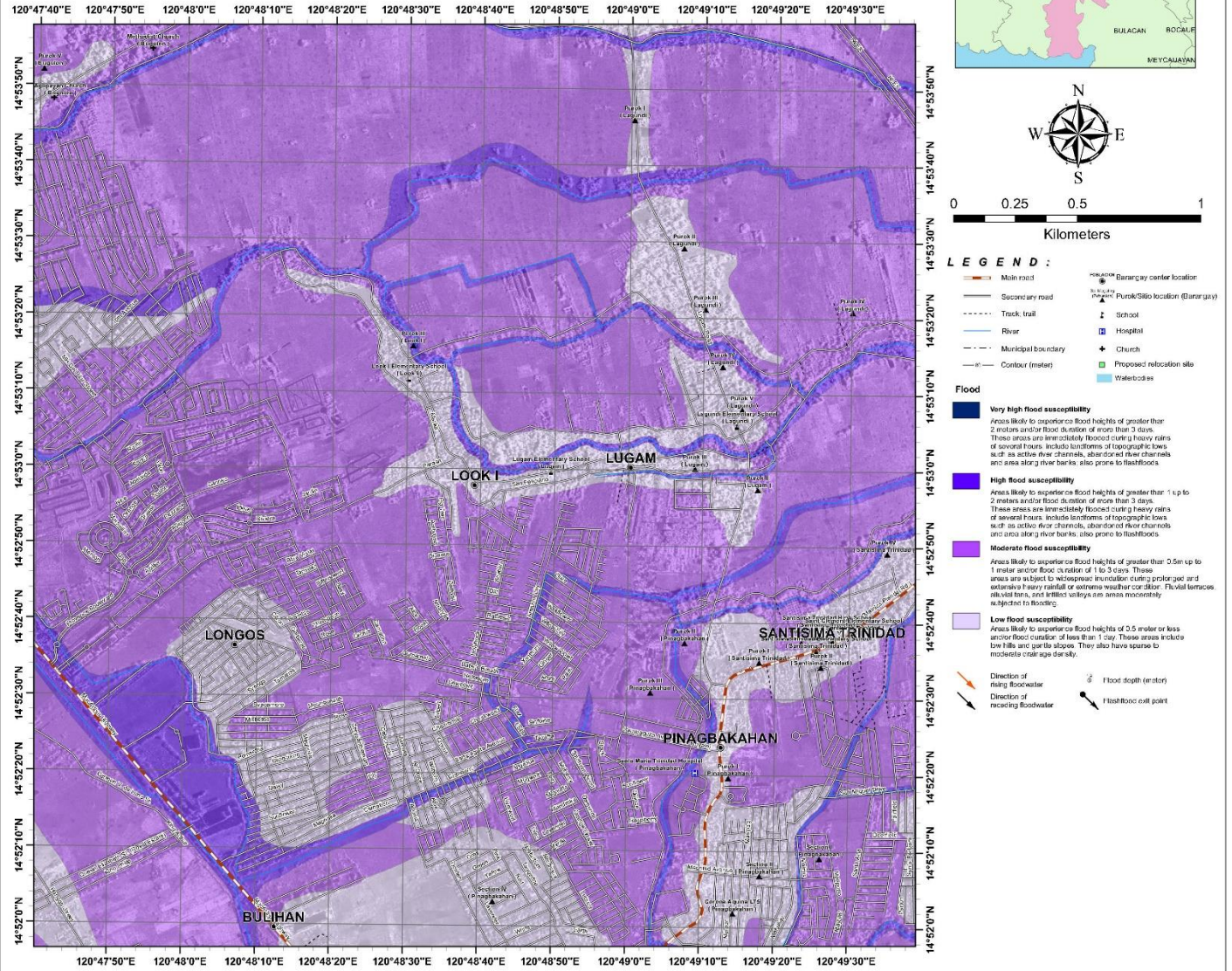
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Brgy. Look 1<sup>st</sup>

**DETAILED FLOOD HAZARD MAP OF  
BRGY. LOOK I, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Old location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include lowlands of topographic lows, such as active river channels, abandoned river channels and areas along river banks; also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include lowlands of topographic lows, such as active river channels, abandoned river channels and areas along river banks; also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather conditions. Flooded farmlands, alluvial fans, and intertidal valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate vegetation density.
- Direction of rising floodwater      Flood depth (meter)
- Direction of receding floodwater      Flashflood out point

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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Clerofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

GIS Processing :  
Geosciences Division MGB Regional Office III

Coordinate System :  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:50,000

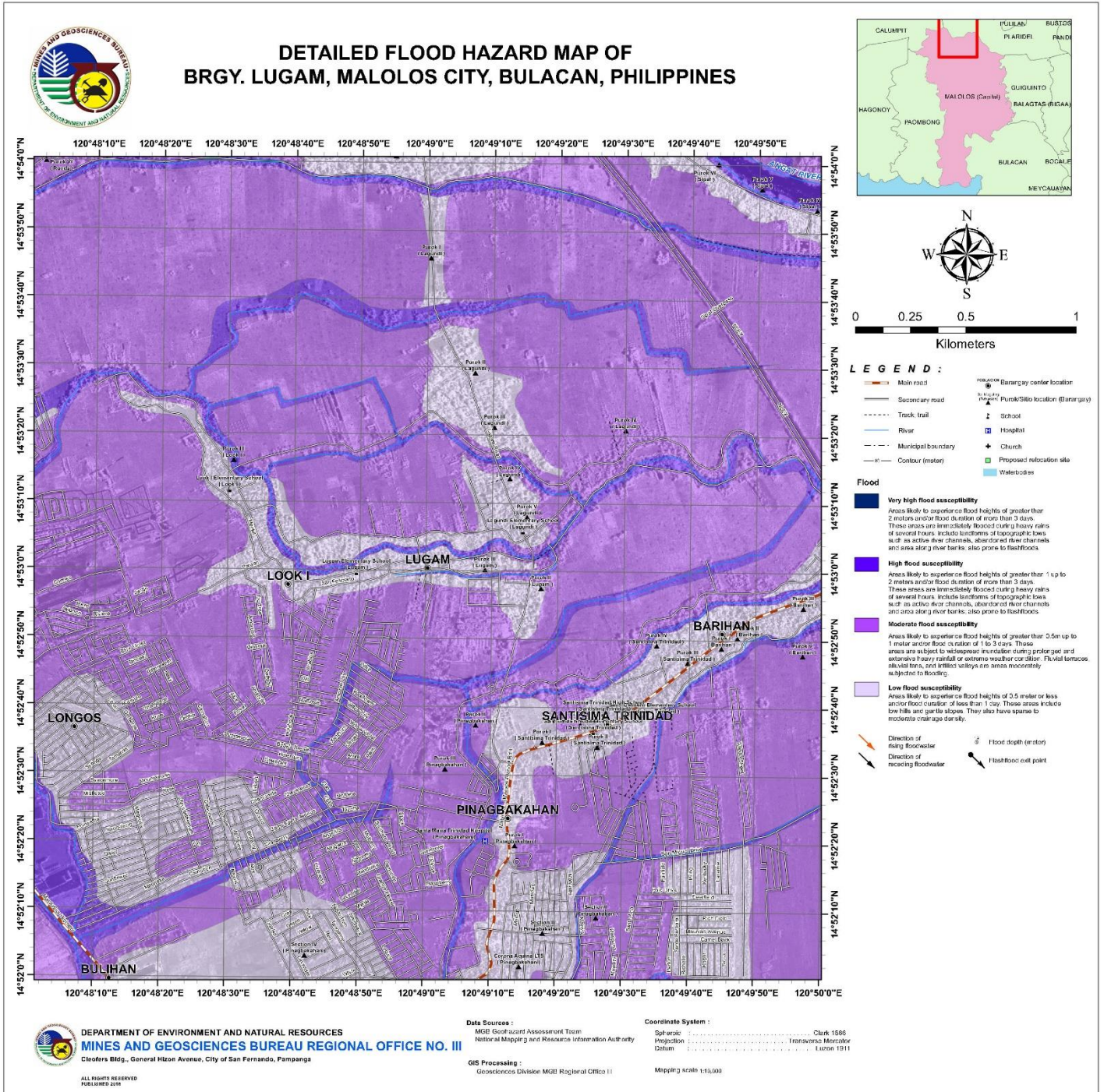








Brgy. Lugam

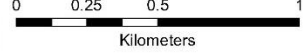
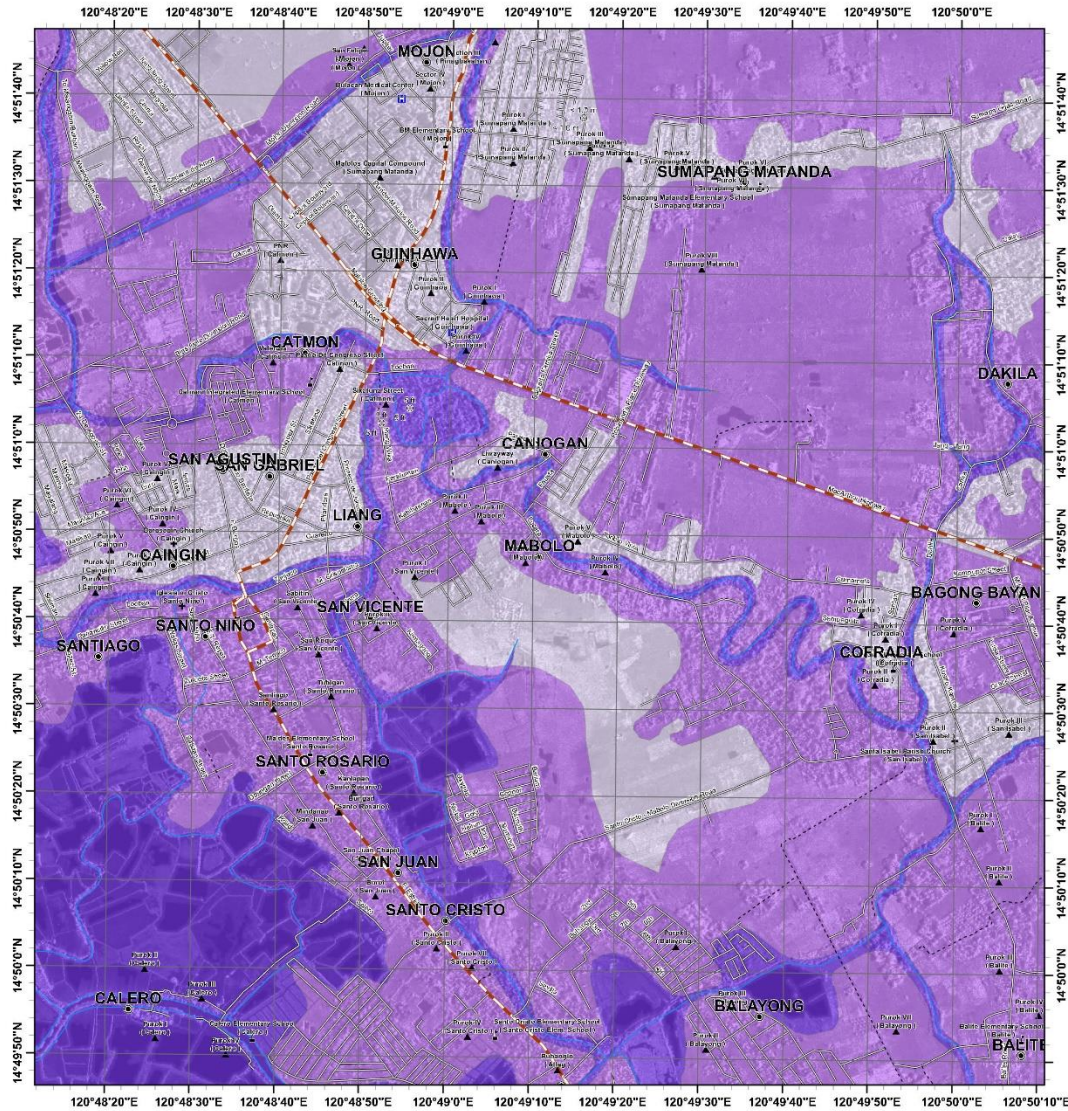






Brgy. Mabolo

**DETAILED FLOOD HAZARD MAP OF  
BRGY. MABOLO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND:**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters under flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters under flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 2 meters under flood duration of more than 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and erosion valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less under flood duration of less than 1 day. These areas include low fills and gentle slopes. They also have sparse to moderate drainage density.
- Direction of rising floodwater  
Direction of moving floodwater  
Flood depth (in story)  
Flashflood call point



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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Claudens Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGD Geohazard Assessment Team  
National Mapping and Resource Information Authority  
GIS Processing :  
Geosciences Division MGR Regional Office III

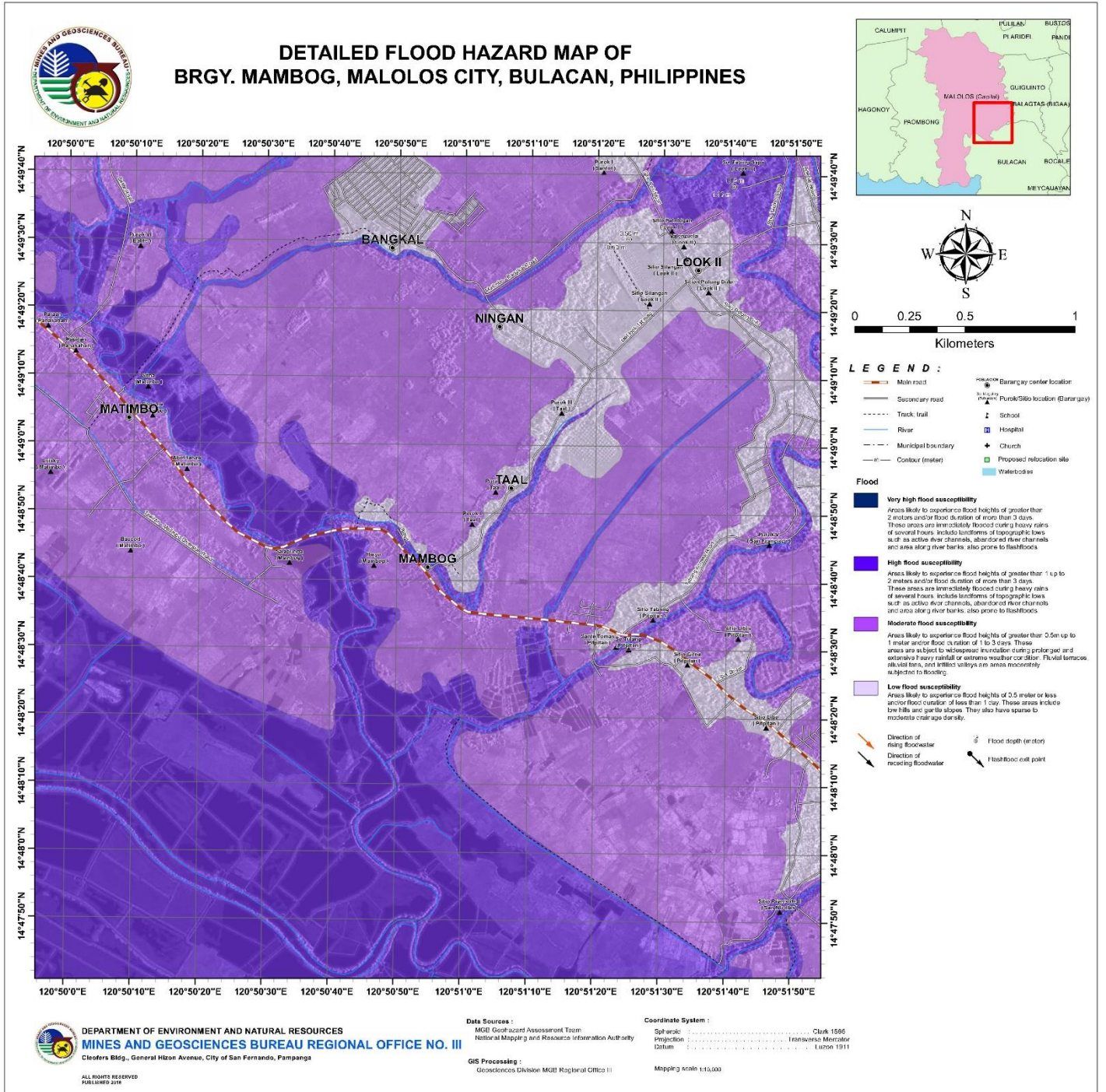
Coordinate System :  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911  
Mapping Scale : 1:15,000

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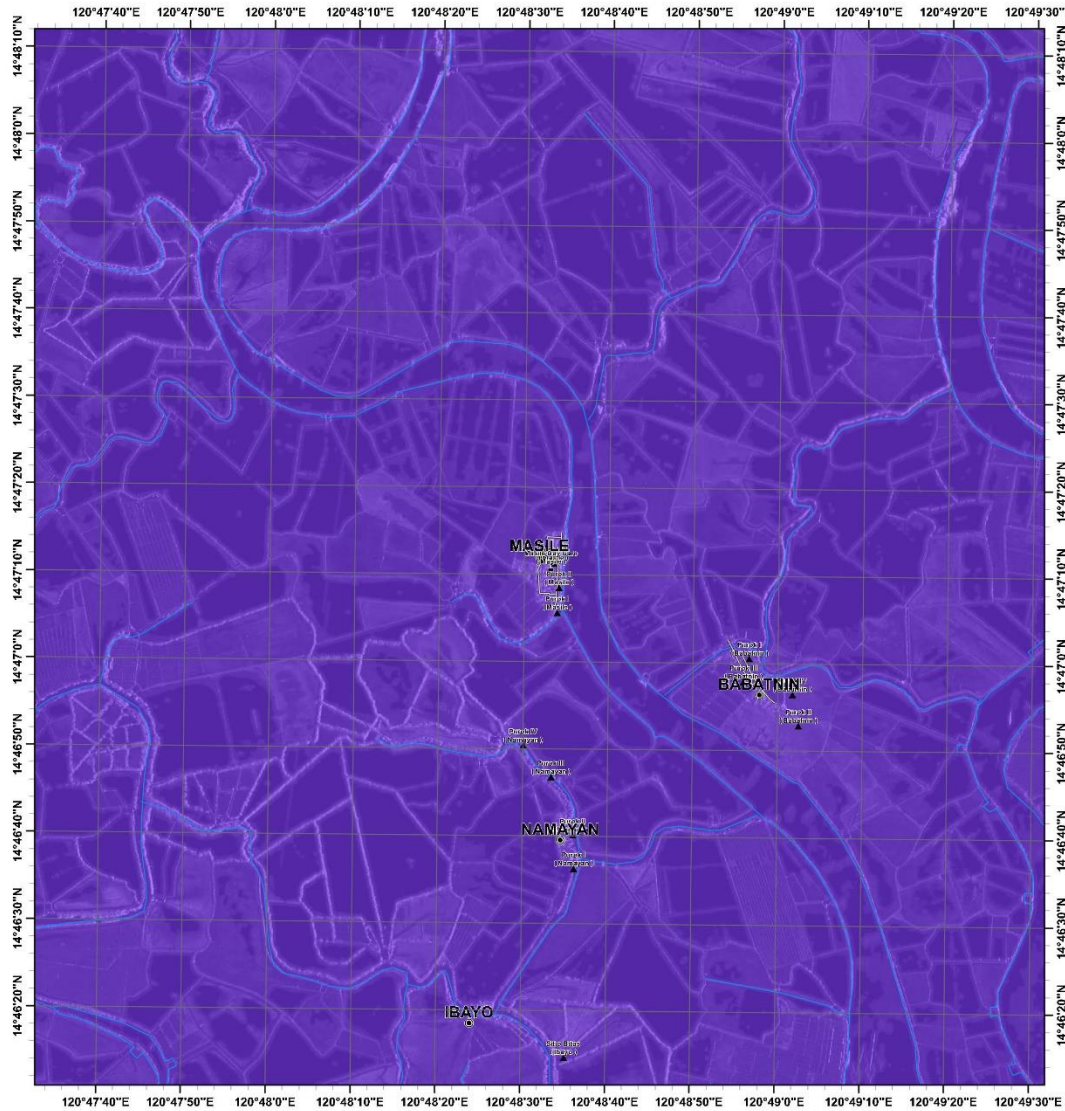
Brgy. Mambog





Brgy. Masile

**DETAILED FLOOD HAZARD MAP OF  
BRGY. MASILE, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track/trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks; also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks; also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather conditions. Fluvial terraces, old river beds, and wetland valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate tree age density.
- Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (or story)  
Flashflood cell point

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Ciofeters Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geohazard Assessment Team  
National Mapping and Resource Information Authority

**GIS Processing :**  
Geosciences Division MGB Regional Office III

**Coordinate System :**  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:15,000

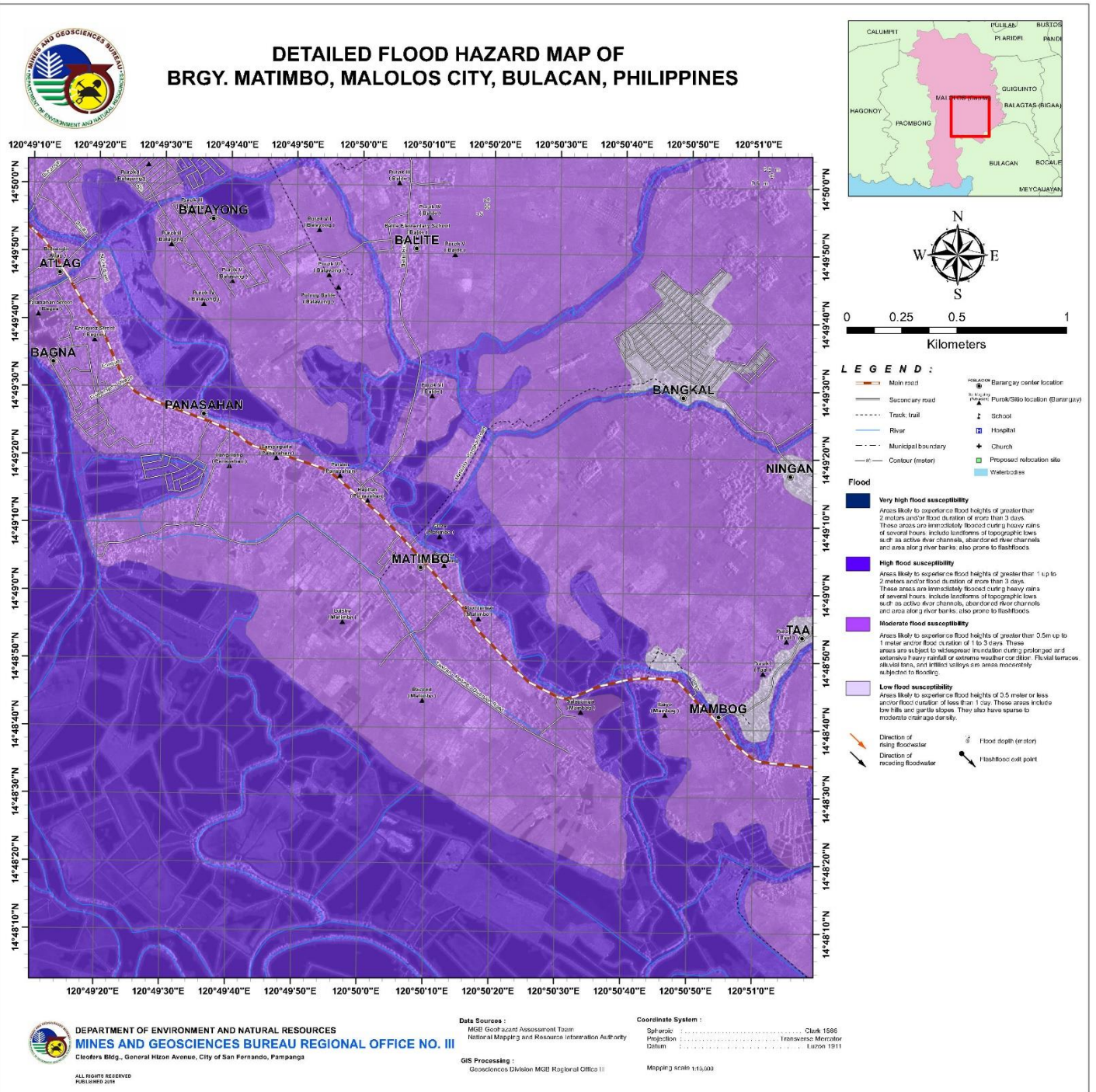
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Brgy. Matimbo

**DETAILED FLOOD HAZARD MAP OF  
BRGY. MATIMBO, MALOLOS CITY, BULACAN, PHILIPPINES**

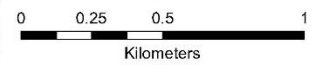
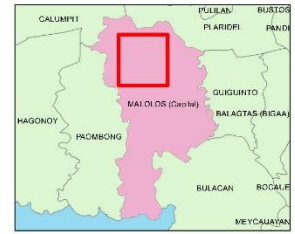






Brgy. Mojon

**DETAILED FLOOD HAZARD MAP OF  
BRGY. MOJON, MALOLOS CITY, BULACAN, PHILIPPINES**



**LEGEND :**

- Main road
- Secondary road
- Track trail
- River
- Municipal boundary
- Contour (meter)
- Barangay center location
- Purok/Old location (Barangay)
- School
- Hospital
- Church
- Proposed relocation site
- Watercubes

**Flood**

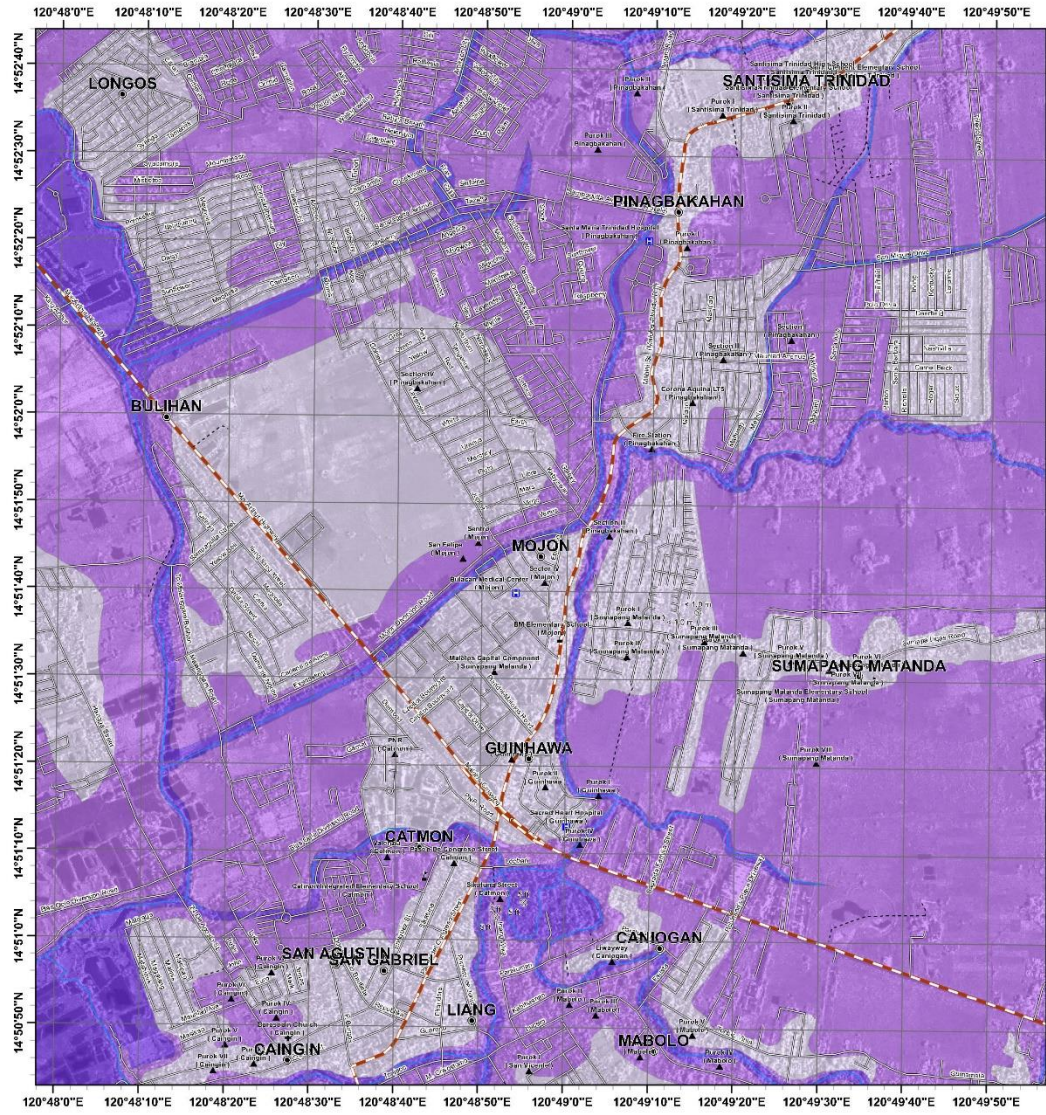
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters under flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks; also prone to flashfloods.
- High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters under flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks; also prone to flashfloods.
- Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter under flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and sustained heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and landslides in areas immediately subjected to flooding.
- Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less under flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate cross-slope darity.

Direction of rising floodwater

Direction of receding floodwater

Flood depth (meter)

Floodflow exit point



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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

**Coordinate System :**  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

**GIS Processing :**  
Geosciences Division MGB Regional Office II

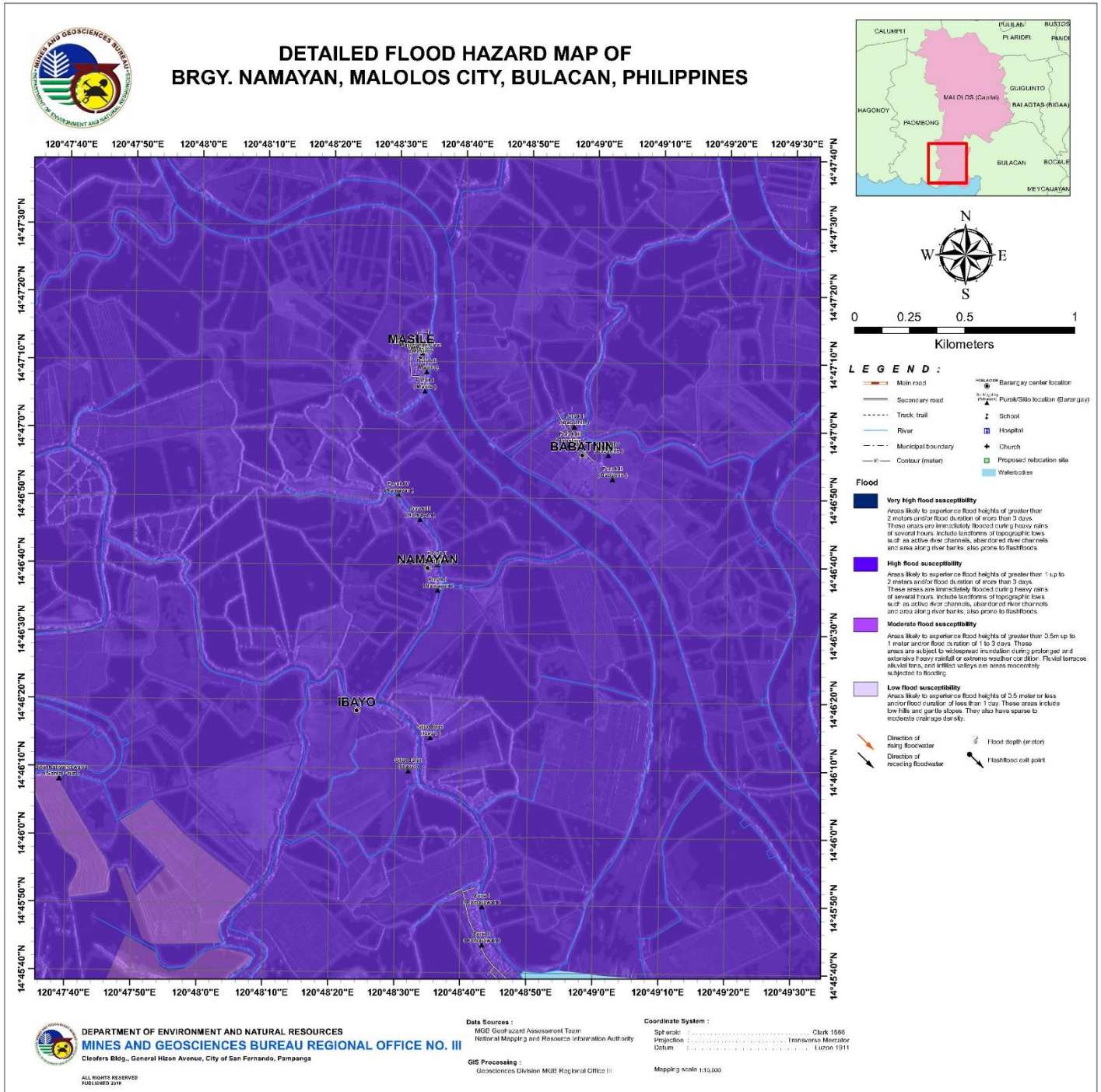
**Mapping scale :** 1:50,000

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Brgy. Namayan

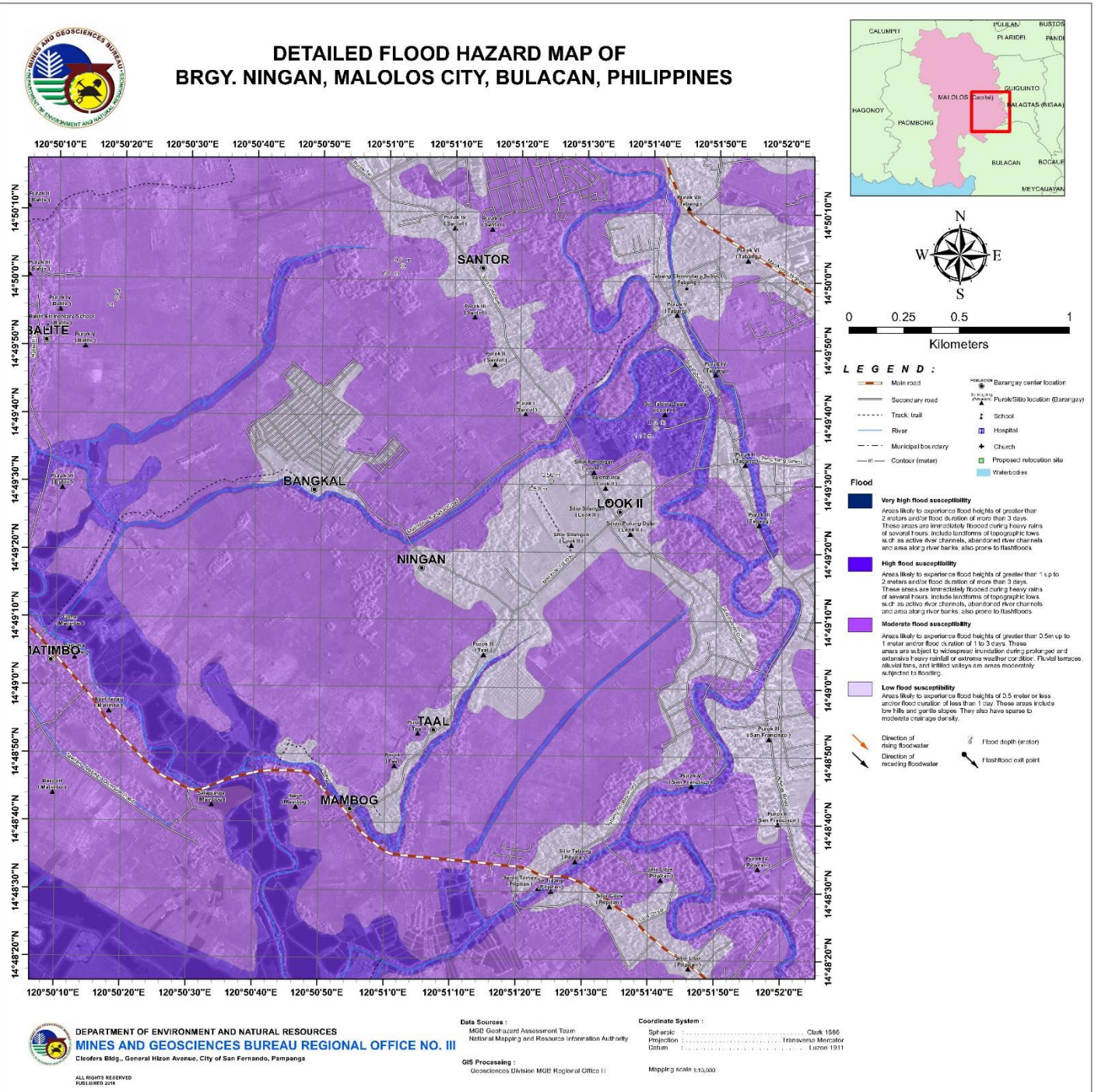






Brgy. Niungan

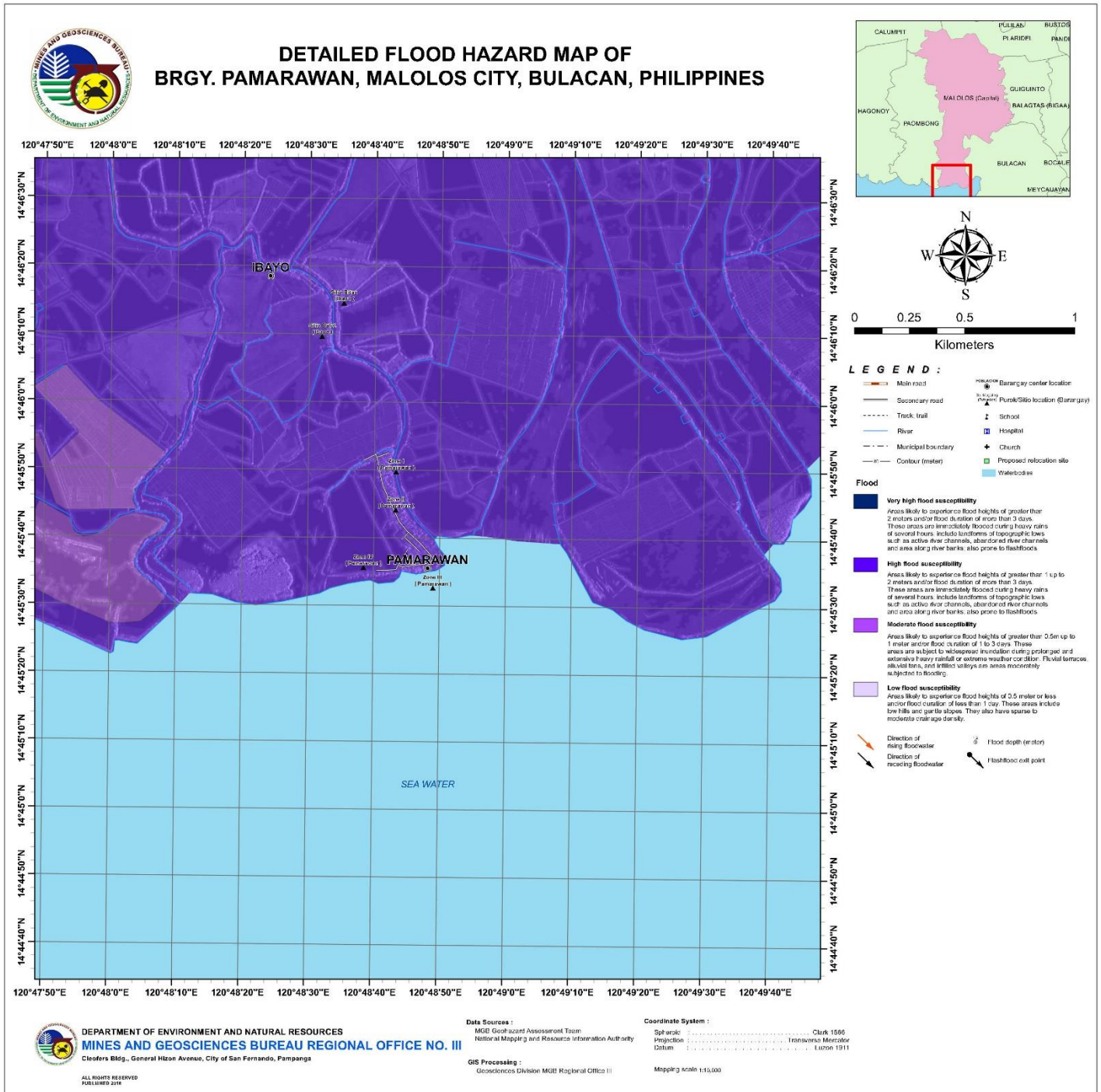
**DETAILED FLOOD HAZARD MAP OF  
BRGY. NINGAN, MALOLOS CITY, BULACAN, PHILIPPINES**





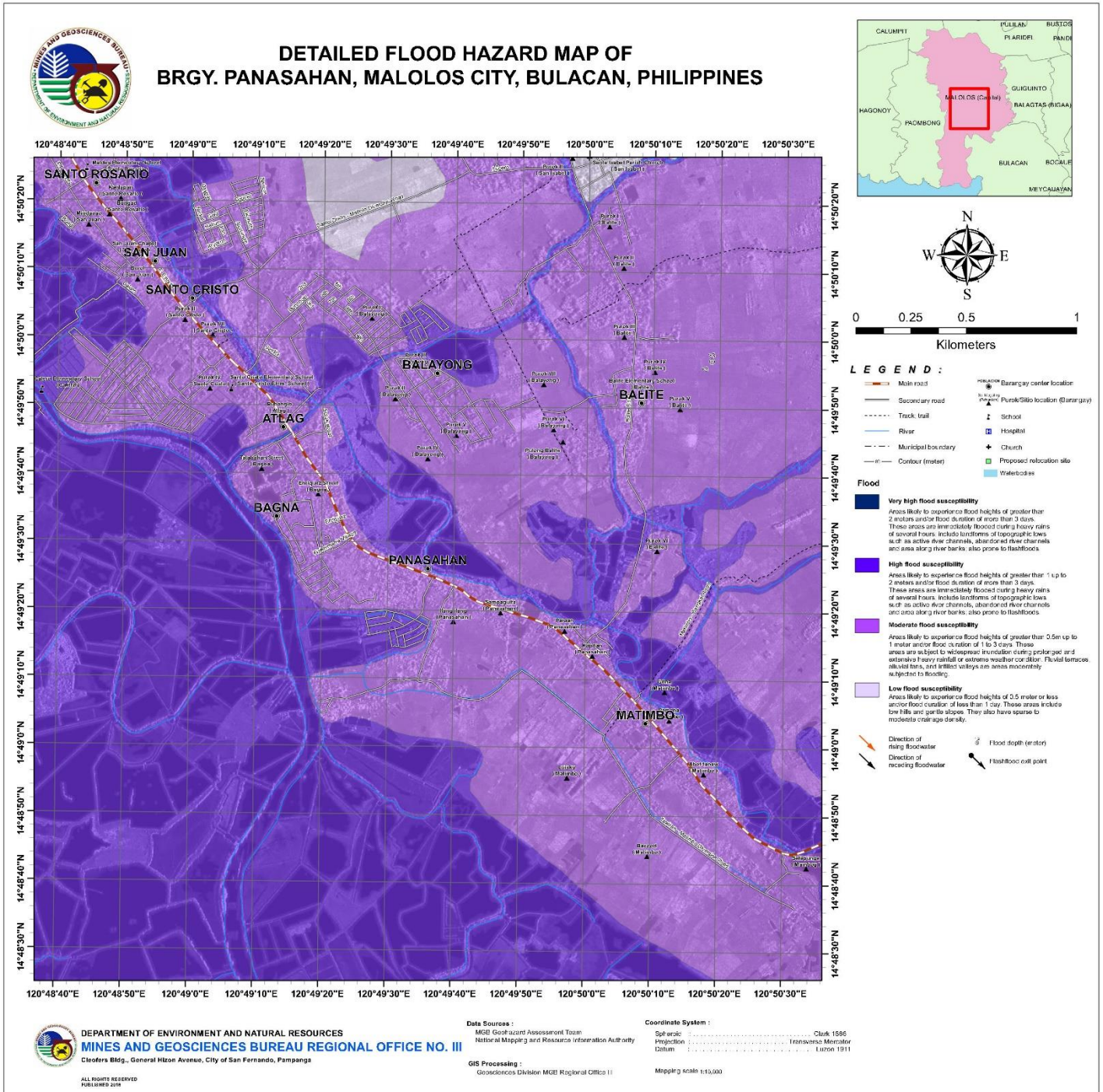


Brgy. Pamarawan





Brgy. Panasahan



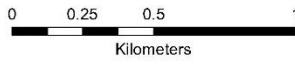
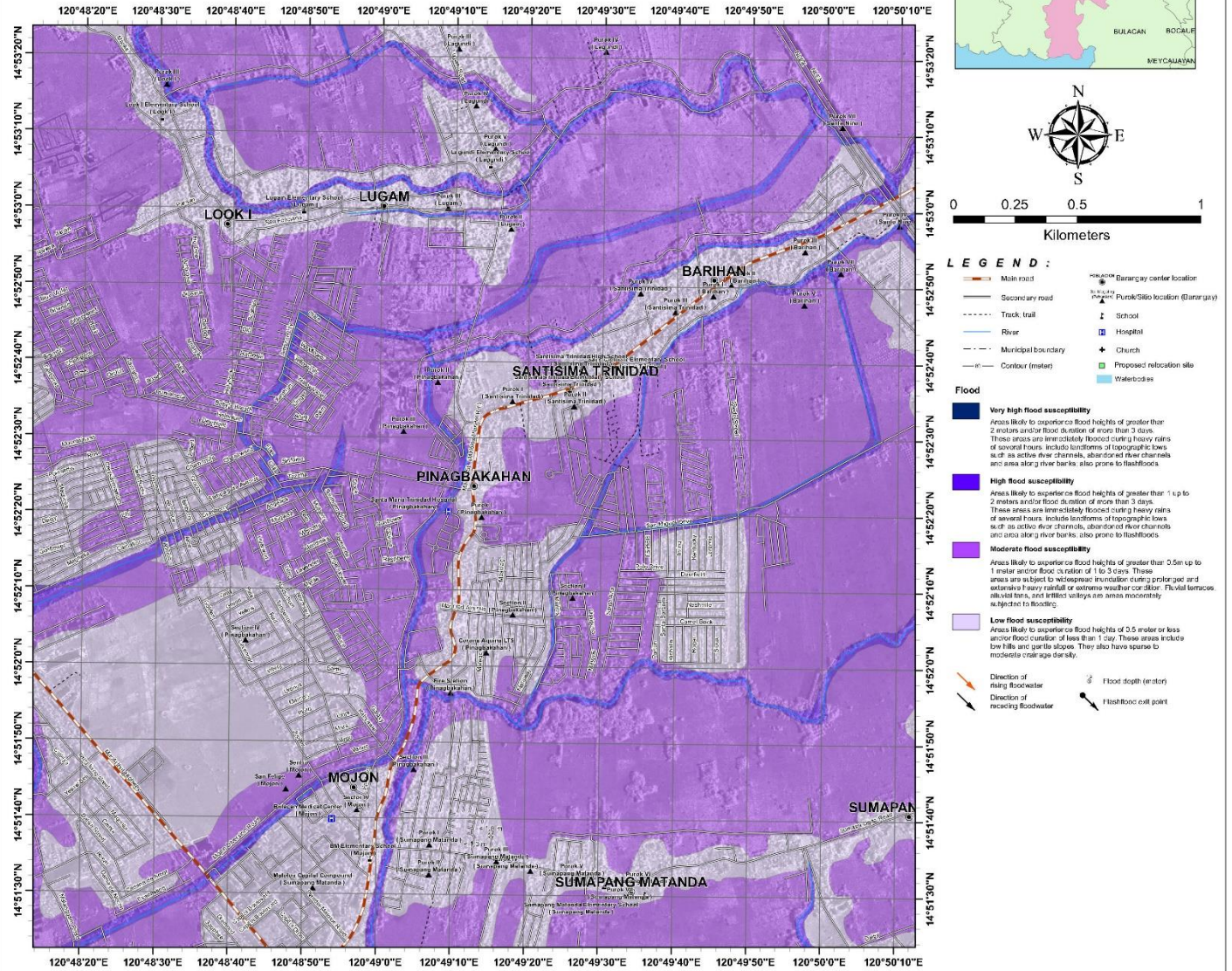




Brgy. Pinagbakahan



**DETAILED FLOOD HAZARD MAP OF  
BRGY. PINAGBAKAHAN, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very High flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include lowlands, topographic lows, such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include lowlands, topographic lows, such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and sustained heavy rainfall or extreme weather conditions. Flood terraces, alluvial fans, and alluvial valleys are areas moderately susceptible to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate vegetation density.
- Direction of rising floodwater
- Direction of receding floodwater
- Flood depth (meter)
- Flashflood out point

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Citeferra Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geohazard Assessment Team  
National Mapping and Resource Information Authority

GIS Processing :  
Geosciences Division MGB Regional Office III

Coordinate System :  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:50,000

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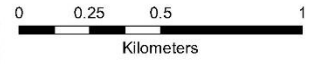




Brgy. San Agustin

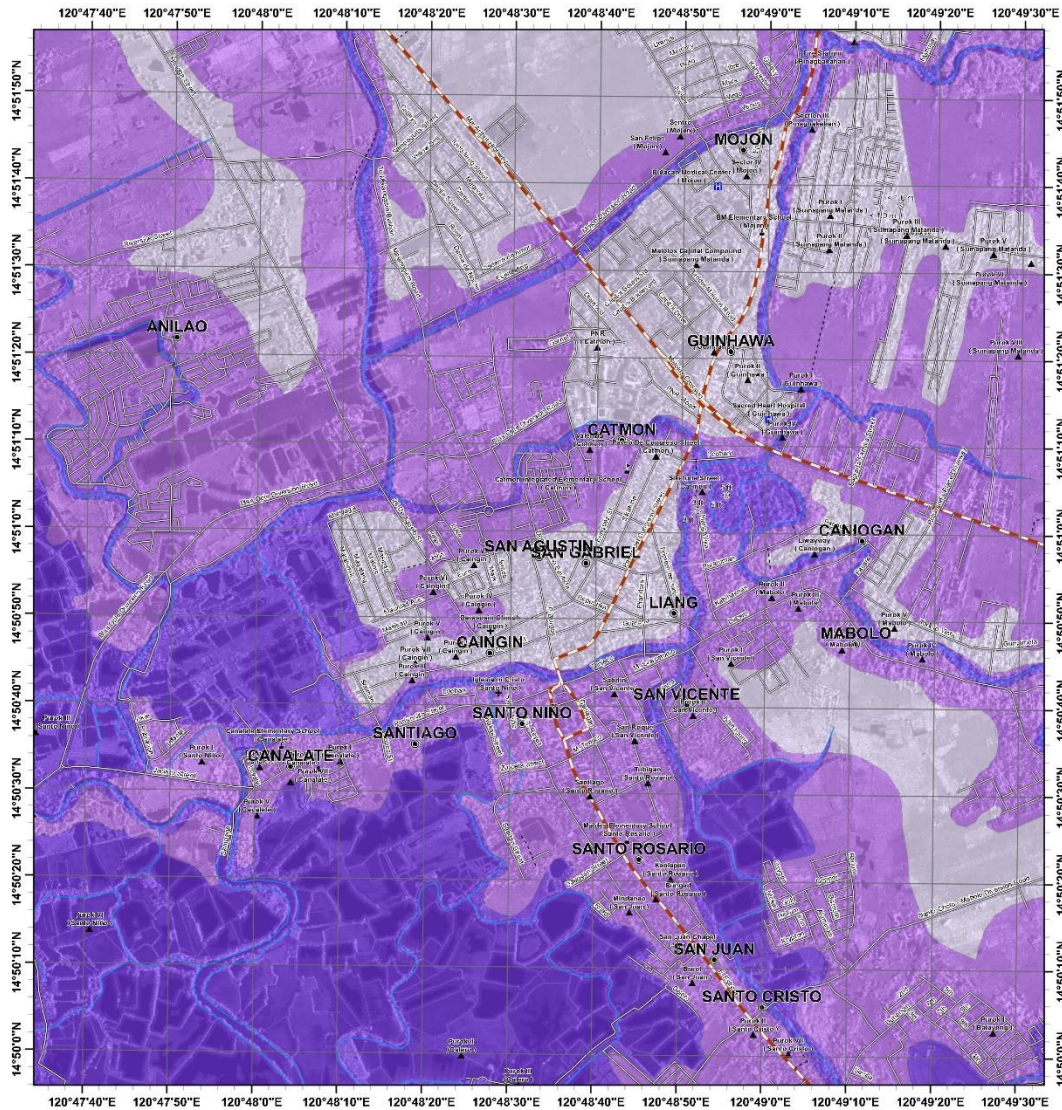


**DETAILED FLOOD HAZARD MAP OF  
BRGY. SAN AGUSTIN, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Barangay/Sito location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks. Also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks. Also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Flood-prone alluvial fans, and limited valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate coverage density.
- Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (meter)  
Flashflood exit point



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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cioferra Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geohazard Assessment Team  
National Mapping and Resource Information Authority

Coordinate System :  
Spheroid : Clark 1886  
Projection : Transverse Mercator  
Datum : Luzon 1911

GIS Processing :  
Geosciences Division MGB Regional Office III

Mapping scale : 1:10,000

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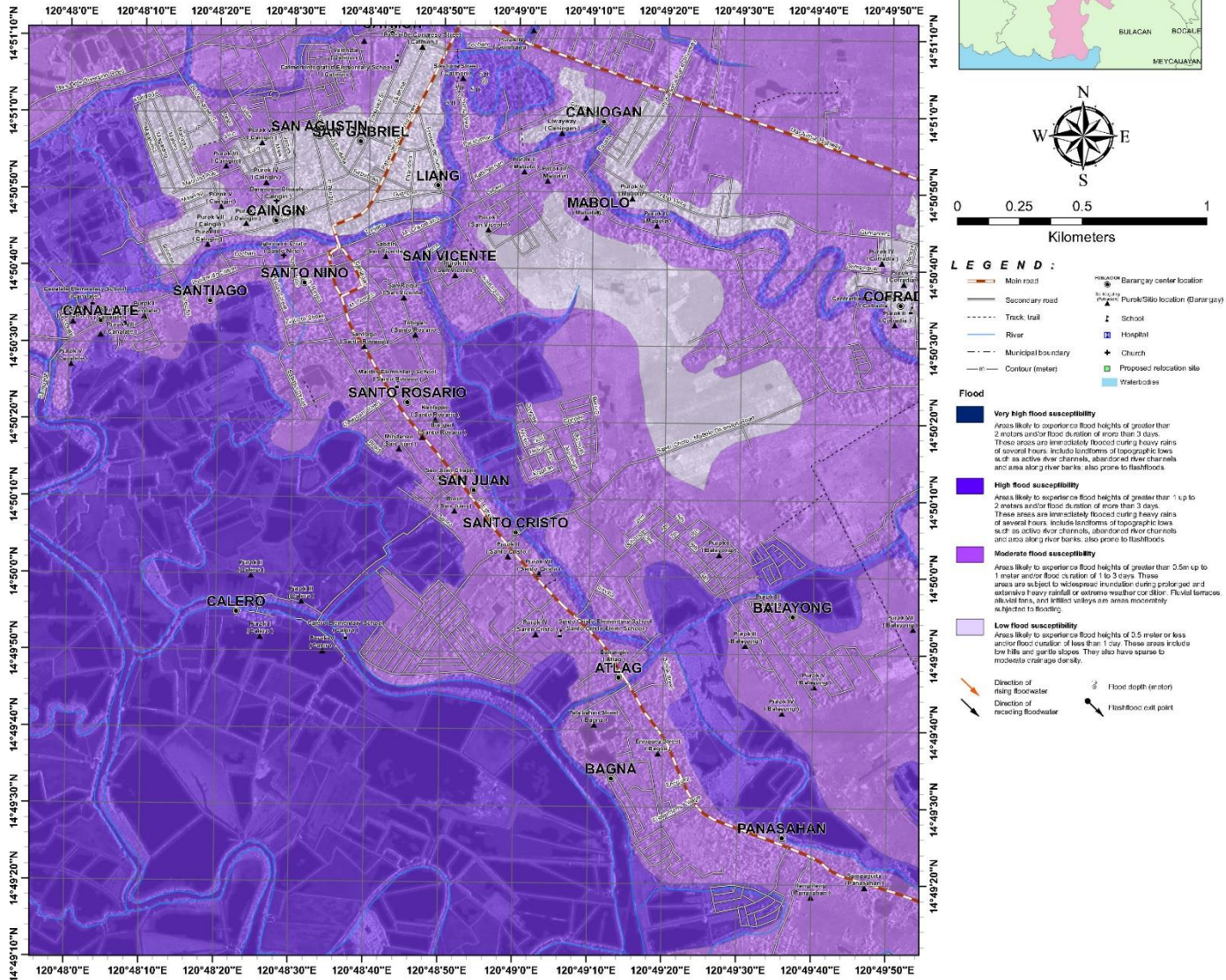






Brgy. San Juan

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SAN JUAN, MALOLOS CITY, BULACAN, PHILIPPINES**



**LEGEND :**

- Main road
- Secondary road
- Track, trail
- River
- Municipal boundary
- Contour (meter)
- Barangay center location
- Purok/Sitio location (Barangay)
- School
- Hospital
- Church
- Proposed relocation site
- Waterbody

**Flood**

- Very High flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours, include landforms of topographic lows such as active river channels, abandoned river channels and area along river banks, also prone to flashfloods.
- High Flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of 1 to 3 days. These areas are immediately flooded during heavy rains of several hours, include landforms of topographic lows such as active river channels, abandoned river channels and area along river banks, also prone to flashfloods.
- Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and wetland valleys in areas immediately subjected to flooding.
- Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate drain age density.

Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (meter)  
Flashflood cut point

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

Coordinate System :  
Spheroid : Clarke 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

GIS Processing :  
Geosciences Division MGB Regional Office III

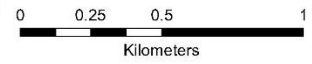
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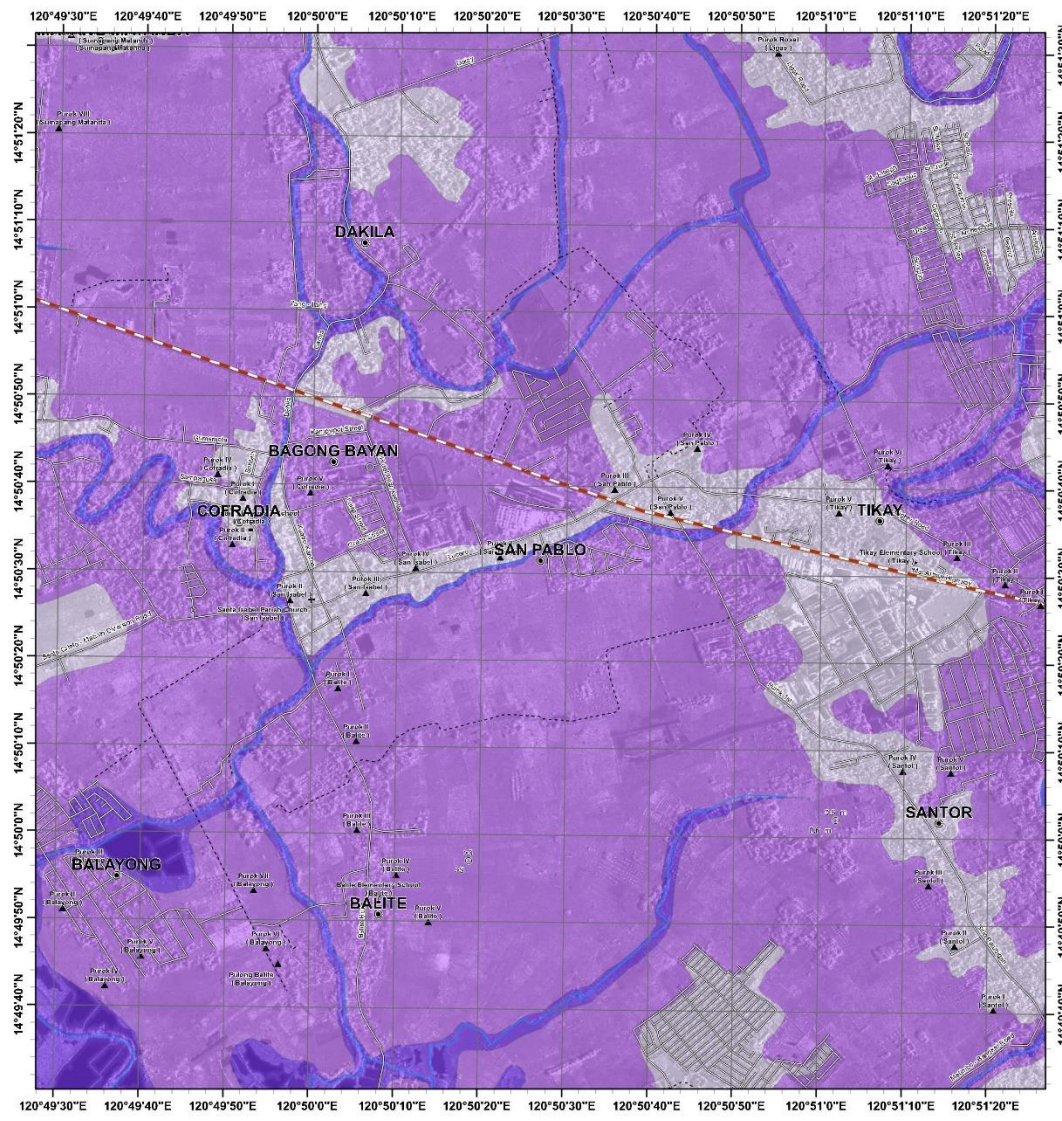
Brgy. San Pablo

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SAN PABLO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are invariably flooded during heavy rains of several hours. Include lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are invariably flooded during heavy rains of several hours. Include lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to occasional inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and inter-tribe valleys are areas moderately susceptible to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate cropland density.
- Direction of rising floodwater
- Direction of receding floodwater
- Flood depth (center)
- Flashflood cut point



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofers Bldg., General Miron Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

**Coordinate System :**  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911

**GIS Processing :**  
Geosciences Division MGB Regional Office III

Mapping scale 1:50,000

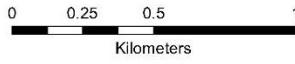
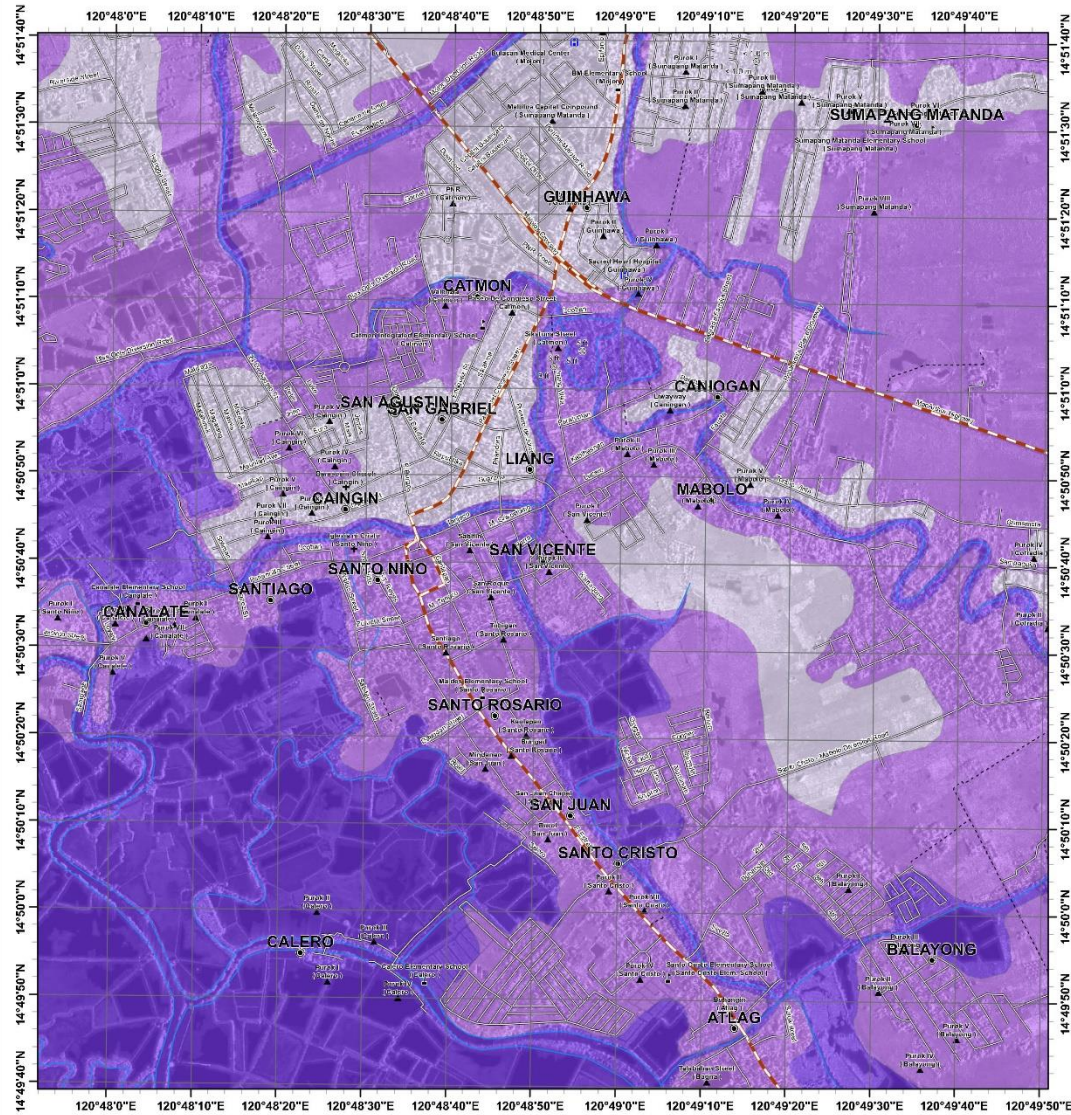
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Brgy. San Vicente

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SAN VICENTE, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather conditions. Fluvial terraces, alluvial fans, and inland valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate vegetation density.
- Direction of rising floodwater  
 Direction of receding floodwater  
 Flood depth (center)  
 Floodflow exit point

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Ciofeters Bldg., General Hilon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGE Geospatial Assessment Team  
National Mapping and Resources Information Authority

GIS Processing :  
Geosciences Division MGE Regional Office II

Coordinate System :  
Spheroid : Clark 1886  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:15,000

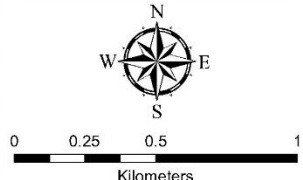
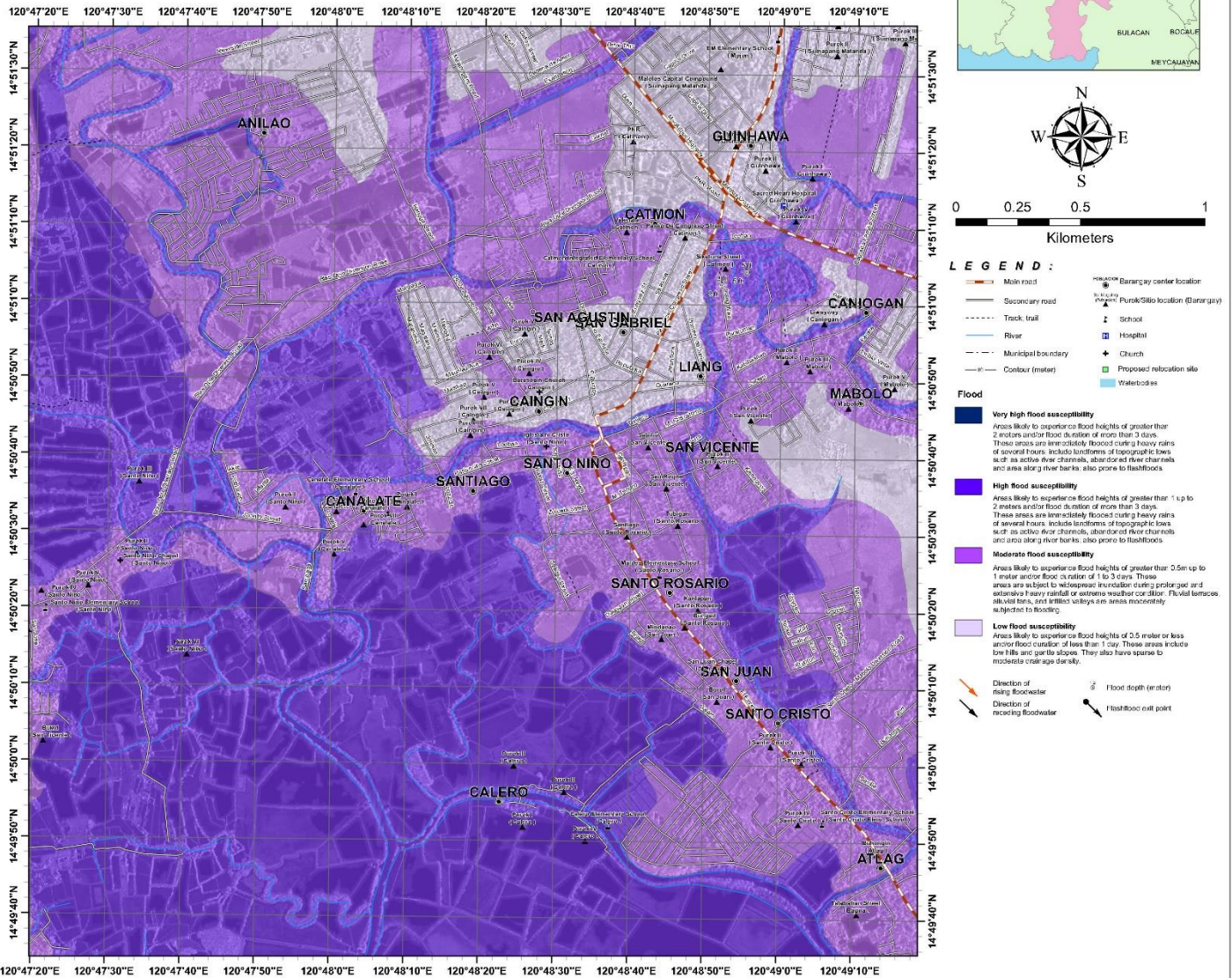
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Brgy. Santiago

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SANTIAGO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies
- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks. Also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and filled valleys are areas moderately subjected to flooding.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate tree canopy density.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate tree canopy density.
- Direction of rising floodwater  
Direction of receiving floodwater  
Flood depth (center)  
Flashflood exit point

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**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Claofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

**Data Sources :**  
MGB Geohazard Assessment Team  
Historical Mapping and Resource Information Authority

**Coordinate System :**  
Spheroid: Clark 1866  
Projection: Transverse Mercator  
Datum: Luzon 1911

**GIS Processing :**  
Geosciences Division MGB Regional Office III

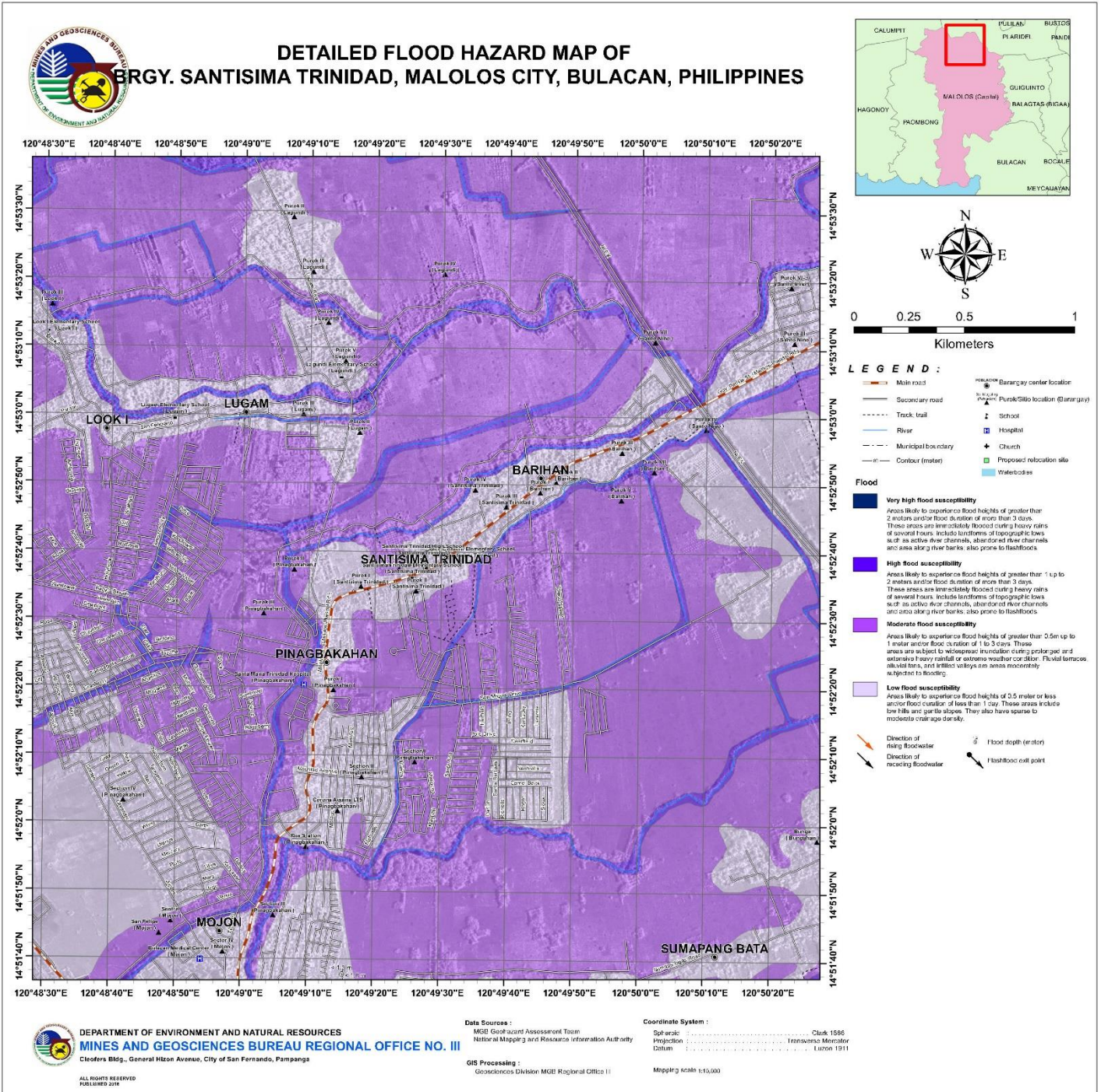
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Brgy. Santisima Trinidad





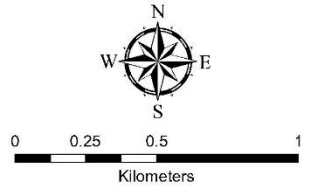




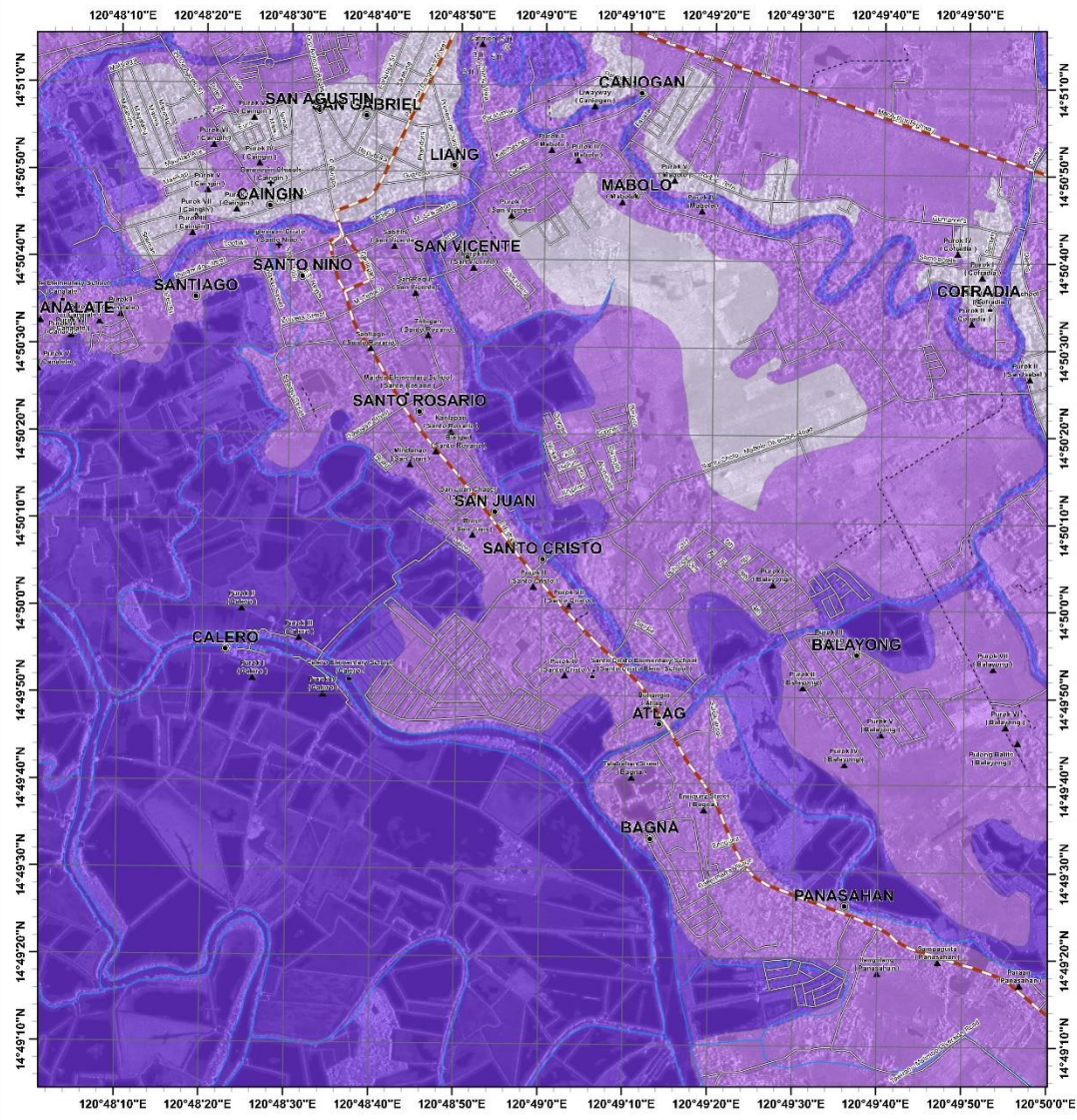


Brgy. Sto. Cristo

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SANTO CRISTO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Truck trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sibs location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies
- Flood**
- Very High flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and area along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and area along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and infilled valleys are areas occasionally subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate crane age density.
- Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (center)  
Flashflood exit point



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geospatial Assessment Team  
National Mapping and Research Information Authority

Coordinate System :  
Spheroid : Clark 1966  
Projection : Transverse Mercator  
Datum : Luzon 1911

GIS Processing :  
Geosciences Division MGB Regional Office II

Mapping scale : 1:50,000

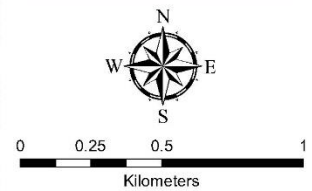
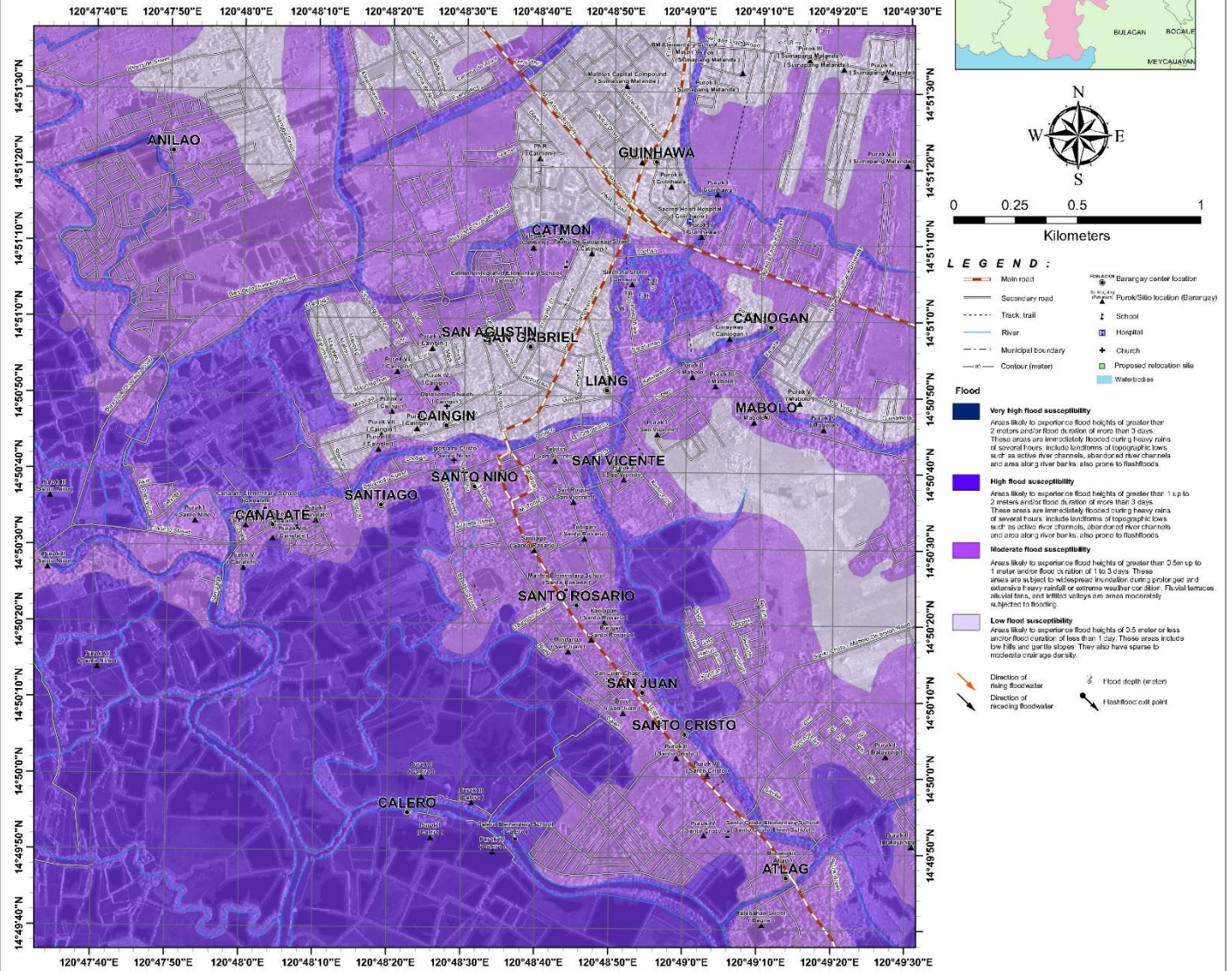
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Brgy. Sto. Niño

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SANTO NIÑO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND:**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies
- Flood**
- Very high flood susceptibility
  - High flood susceptibility
  - Moderate flood susceptibility
  - Low flood susceptibility
- Direction of rising floodwater  
Direction of receding floodwater  
Flood depth (meter)  
Flashflood exit point

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
Cleofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

GIS Processing :  
Geosciences Division MGB Regional Office III

Coordinate System :  
Spheroid : Clarke 1886  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping Scale 1:15,000

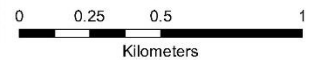
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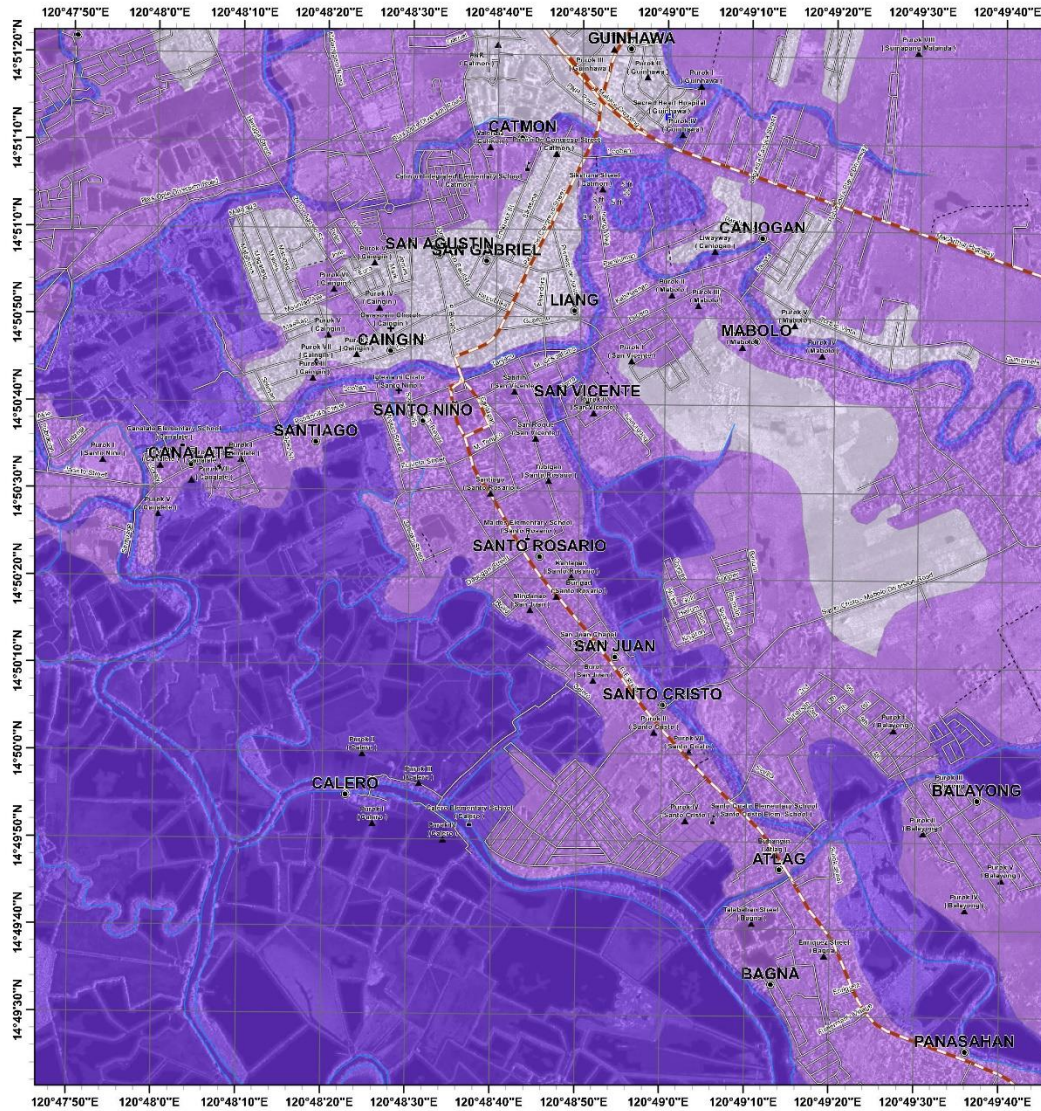


Brgy. Sto. Rosario

**DETAILED FLOOD HAZARD MAP OF  
BRGY. SANTO ROSARIO, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center location
  - Purok/Sibs location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies
- Flood**
- Very High flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and area along river banks; also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes landforms of topographic lows such as active river channels, abandoned river channels and area along river banks; also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather conditions. Fluvial terraces, alluvial fans, and infilled valleys are areas moderately subject to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate vegetation density.
- Direction of rising floodwater  
Direction of receiving floodwater  
Flood depth (meter)  
Flashflood cut point



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III  
Cloofers Bldg., General Hizon Avenue, City of San Fernando, Pampanga

Data Sources :  
MGB Geohazard Assessment Team  
National Mapping and Resource Information Authority

GIS Processing :  
Geosciences Division MGB Regional Office III

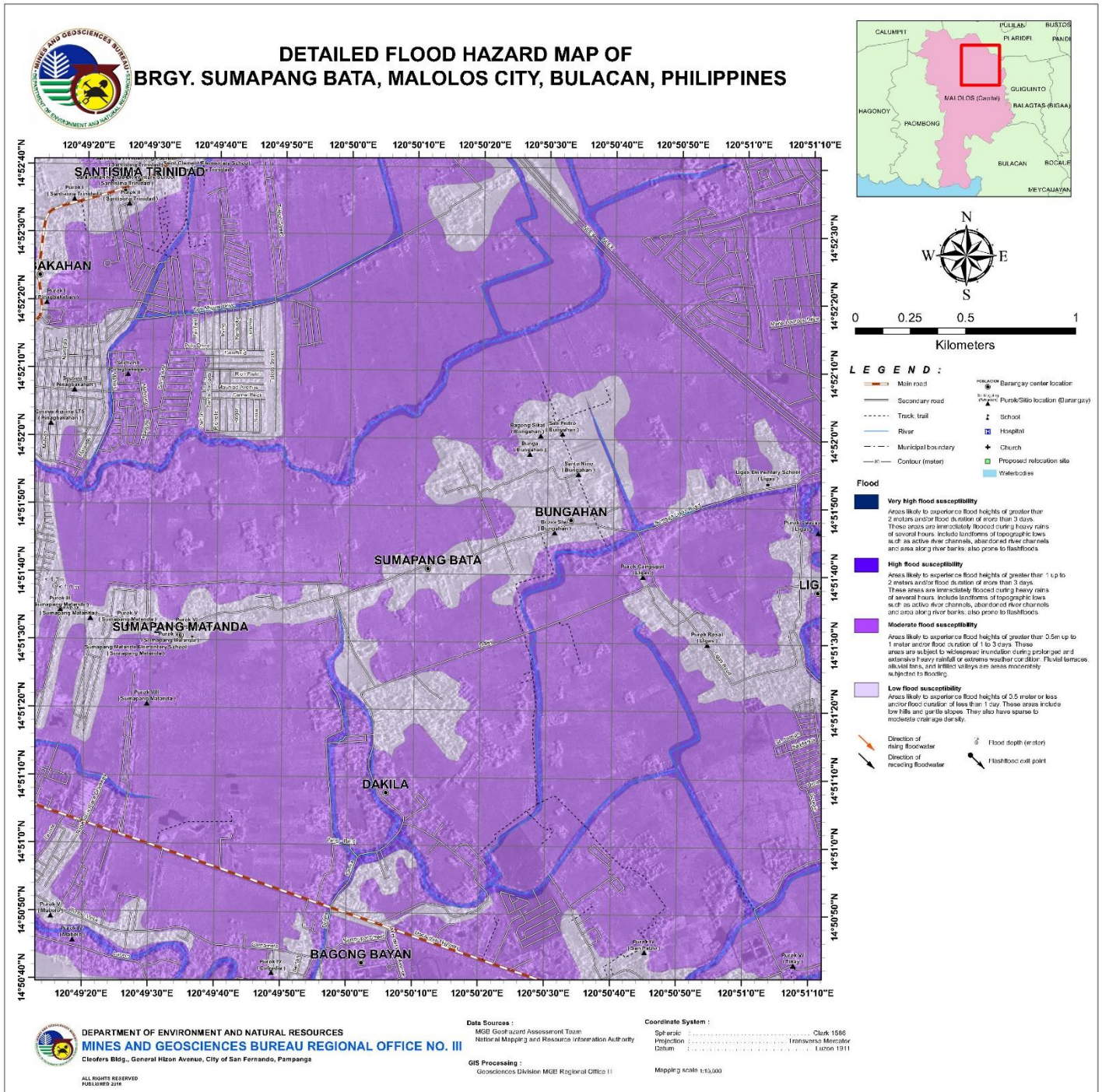
Coordinate System :  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911  
Mapping scale : 1:10,000

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Brgy. Sumapang Bata



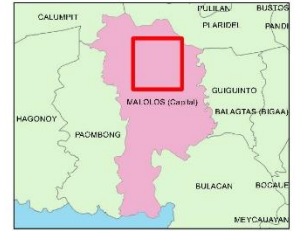
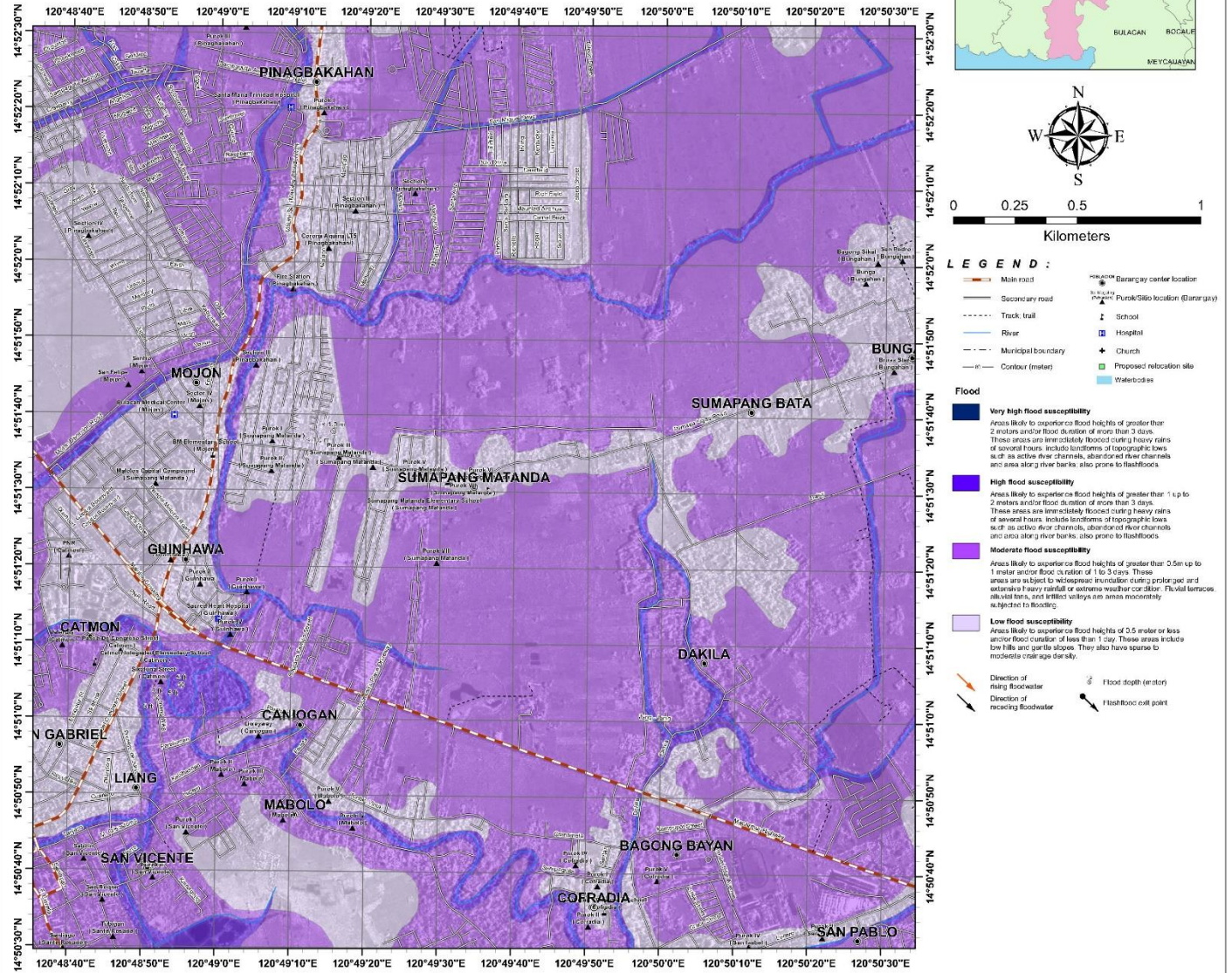




Brgy. Sumapang Matanda



DETAILED FLOOD HAZARD MAP OF  
BRGY. SUMAPANG MATANDA, MALOLOS CITY, BULACAN, PHILIPPINES



- LEGEND:**
- Main road
  - Secondary road
  - Track, trail
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center locator
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Watercourses

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Includes lowlands of topographic lows such as active river channels, abandoned river channels and areas along river banks, also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread inundation during prolonged and sustained heavy rainfall or extreme weather conditions. Fluvial terraces, alluvial fans, and limited valleys are areas moderately subjected to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate vegetation density.

- Direction of rising floodwater
- Direction of receding floodwater
- Flood depth (center)
- Floodflow exit point

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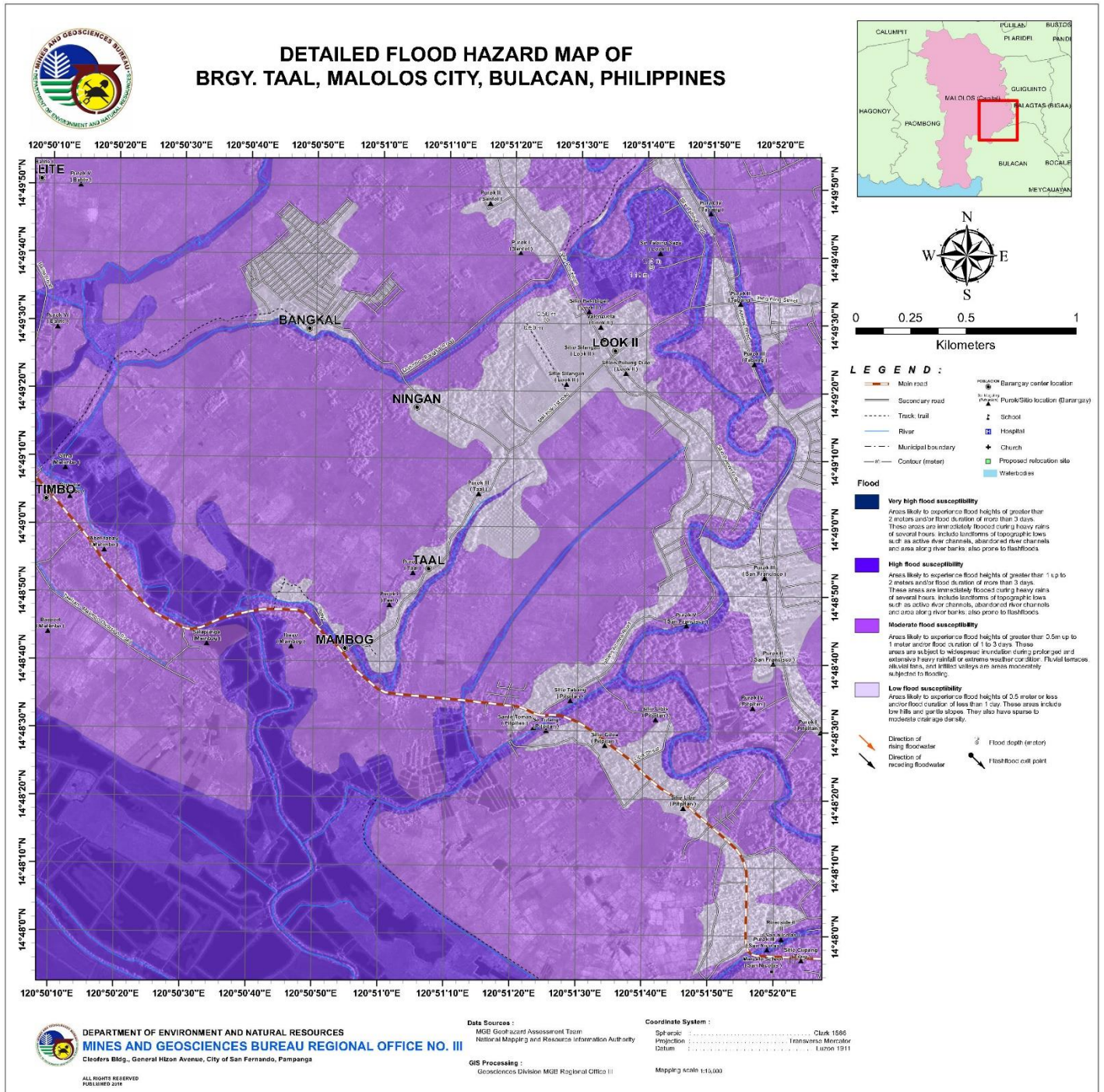
Data Sources :  
MGI Geospatial Assessment Team  
National Mapping and Resource Information Authority  
GIS Processing :  
Geosciences Division MGB Regional Office II

Coordinate System :  
Spheroid : Clark 1866  
Projection : Transverse Mercator  
Datum : Luzon 1911  
Mapping scale 1:15,000





Brgy. Taal

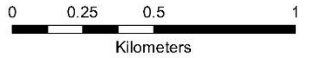






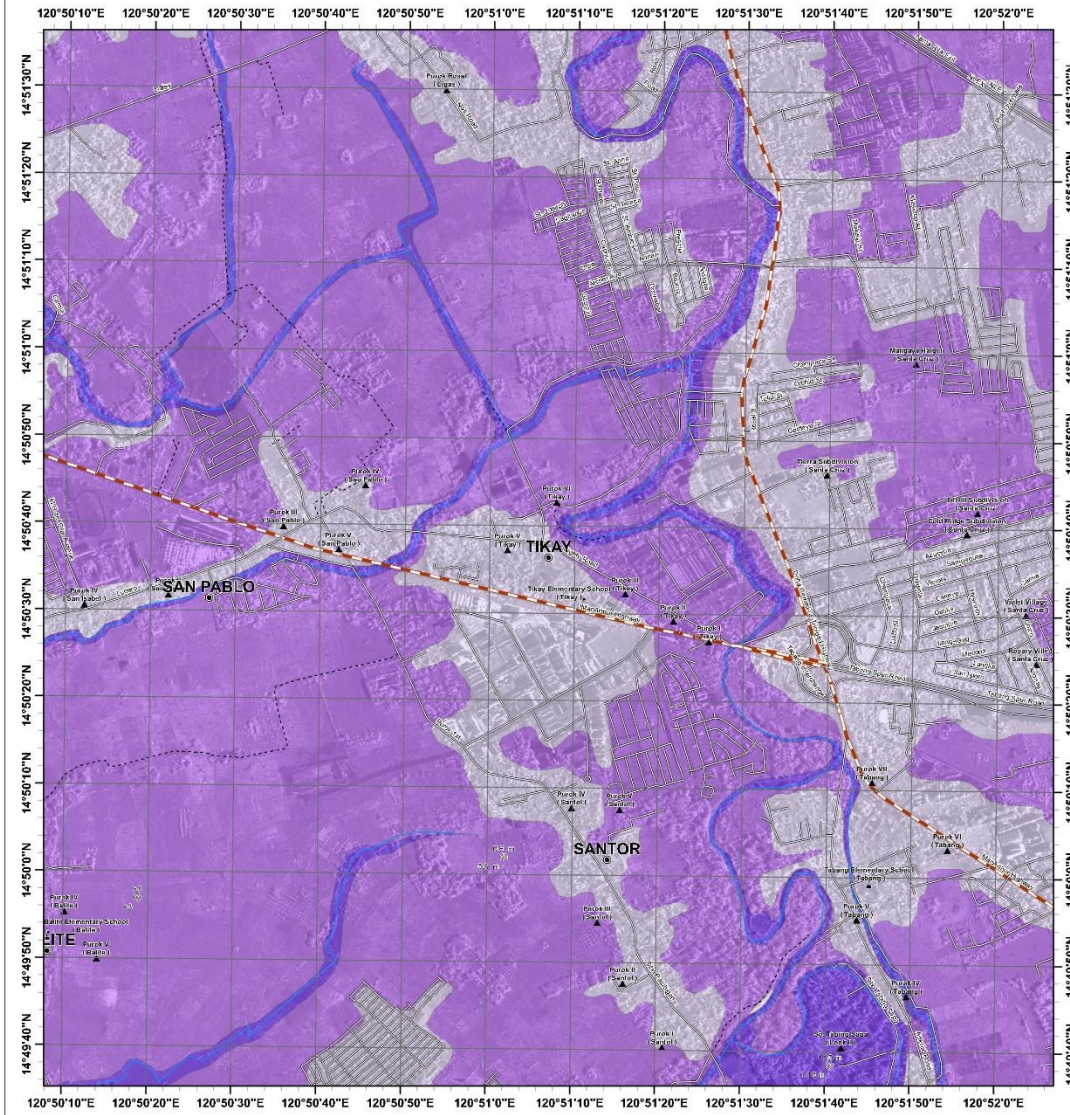
Brgy. Tikay

**DETAILED FLOOD HAZARD MAP OF  
BRGY. TIKAY, MALOLOS CITY, BULACAN, PHILIPPINES**



- LEGEND :**
- Main road
  - Secondary road
  - Track/fairway
  - River
  - Municipal boundary
  - Contour (meter)
  - Barangay center locator
  - Purok/Sitio location (Barangay)
  - School
  - Hospital
  - Church
  - Proposed relocation site
  - Waterbodies

- Flood**
- Very high flood susceptibility**  
Areas likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks also prone to flashfloods.
  - High flood susceptibility**  
Areas likely to experience flood heights of greater than 1 up to 2 meters and/or flood duration of more than 3 days. These areas are immediately flooded during heavy rains of several hours. Include landforms of topographic lows such as active river channels, abandoned river channels and areas along river banks also prone to flashfloods.
  - Moderate flood susceptibility**  
Areas likely to experience flood heights of greater than 0.5m up to 1 meter and/or flood duration of 1 to 3 days. These areas are subject to widespread flooding during prolonged and extensive heavy rainfall or extreme weather condition. Fluvial terraces, alluvial fans, and inland valleys are areas moderately subject to flooding.
  - Low flood susceptibility**  
Areas likely to experience flood heights of 0.5 meter or less and/or flood duration of less than 1 day. These areas include low hills and gentle slopes. They also have sparse to moderate cover and rocky.
- Direction of rising floodwater  
 Direction of receiving floodwater  
 Flood depth (color)  
 Flashflood exit point



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
**MINES AND GEOSCIENCES BUREAU REGIONAL OFFICE NO. III**  
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**Data Sources :**  
MGB Geospatial Assessment Team  
National Mapping and Resource Information Authority

**GIS Processing :**  
Geosciences Division MGB Regional Office III

**Coordinate System :**  
Spheroid : Clark 1886  
Projection : Transverse Mercator  
Datum : Luzon 1911

Mapping scale 1:50,000

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# CHAPTER VI

## SITUATIONAL ANALYSIS: IDENTIFYING SWOC FOR THE FOUR DRRM THEMATIC AREAS





## VI. SITUATIONAL ANALYSIS. Identifying SWOC for the Four Thematic Areas

The Technical Working Group of the CDRRMC undertook an analysis of the strengths, weaknesses, opportunities and challenges for DRRM in the City of Malolos.

### 6.1. STRENGTHS, WEAKNESSES, OPPORTUNITIES AND CHALLENGES

#### 6.1.1. Prevention and Mitigation

MITIGATION	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>• IEC campaign and seminar in compliance with 5% DRRM Fund utilization</li> </ul>	<ul style="list-style-type: none"> <li>• Trainings and seminar on 5% DRRMF utilization is regularly conducted to barangays</li> </ul>	<ul style="list-style-type: none"> <li>• Children's Emergency Relief and Protection Act PPAs were not included in AIP and annual budget</li> </ul>	<ul style="list-style-type: none"> <li>• Funding of continuous orientations, seminars, monitoring and evaluation using the LDRRM Fund</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusion of Children's Emergency Relief and Protection Act PPAs in local budget</li> </ul>
<ul style="list-style-type: none"> <li>• Plan formulation</li> </ul>	<ul style="list-style-type: none"> <li>• Presence of Contingency Plan for Flood, Earthquake, DRRM Plan, Local Shelter Plan, Disaster Operation Manual etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Updating of the DRRMP and CPs of the City;</li> <li>• Community awareness and knowledge in the plan implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Participation of the community in the provision of data needed for review and improvement of plans formulated;</li> <li>• Improvement of level of awareness and interest of the community to the threats and impacts of all hazards;</li> <li>• Technical assistance from provincial, regional and national agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of all plans disseminated and mainstreamed to barangays, NGOs, business establishments, schools and other sectors</li> </ul>
<ul style="list-style-type: none"> <li>• Conduct of seminars and trainings on the provisions of DRRM Act, CCA Act &amp; Children's Emergency Relief and Protection Act</li> </ul>	<ul style="list-style-type: none"> <li>• Available competent trainers from the City Government of Malolos</li> </ul>	<ul style="list-style-type: none"> <li>• Financial expenses to facilitate trainings and seminars</li> <li>• Community participation</li> </ul>	<ul style="list-style-type: none"> <li>• Utilization of LDRRMF</li> <li>• Improvement of level of awareness and interest of the community to DRRM-CCA activities</li> </ul>	<ul style="list-style-type: none"> <li>• Regular trainings and seminars were conducted to all barangays and other sectors</li> </ul>
<ul style="list-style-type: none"> <li>• Update and Enhance CLUP, CDP and Zoning Ordinance to include risk parameters</li> </ul>	<ul style="list-style-type: none"> <li>• Cooperation and dedication of Sangguniang Panlungsod members</li> </ul>	<ul style="list-style-type: none"> <li>• Completeness of data gathered and point person to initiate actions</li> </ul>	<ul style="list-style-type: none"> <li>• Mandate of laws</li> </ul>	<ul style="list-style-type: none"> <li>• Meet the target of completion as per order of the LCE</li> </ul>
<ul style="list-style-type: none"> <li>• Institutionalize DRRM offices with permanent plantilla positions for the DRRM</li> </ul>	<ul style="list-style-type: none"> <li>• DRRM Office was created on 2011 as Division under the Office of</li> </ul>	<ul style="list-style-type: none"> <li>• Rescuers/ responders was on a JO and Casual status</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of funds for creation of positions</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance the organizational structure of the CDRRMO</li> </ul>



MITIGATION	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
officers, personnel and budget	the CA			
<ul style="list-style-type: none"> <li>Select the appropriate CSO/s and other members represented in the local DRRMC using the selection criteria and accreditation by the National DRRMC</li> </ul>	<ul style="list-style-type: none"> <li>Executive Order 08-2020 re: Creation of CDRRMC with 6 members from CSOs</li> </ul>	<ul style="list-style-type: none"> <li>Conduct of regular meeting of the council</li> </ul>	<ul style="list-style-type: none"> <li>EO is open for amendments as to memberships and meeting schedule</li> </ul>	<ul style="list-style-type: none"> <li>Conduct of regular meetings (once a month)</li> </ul>
<ul style="list-style-type: none"> <li>EWS information sharing and communication systems between the city and the stakeholders, e.g. communities and private establishments</li> </ul>	<ul style="list-style-type: none"> <li>Disaster Operations Manual and brochure for Disaster Preparedness was formulated by the CDRRMC</li> </ul>	<ul style="list-style-type: none"> <li>Printing of sufficient copies to disseminate in all sectors;</li> <li>Orientations and IEC campaign implementation</li> </ul>	<ul style="list-style-type: none"> <li>LDRRM Fund to print sufficient copies of the manuals and brochures</li> </ul>	<ul style="list-style-type: none"> <li>Develop and institutionalize manuals with EWS guidelines and policies;</li> <li>Manual and brochure disseminated to barangays, NGOs, business establishments, schools and other sectors</li> </ul>
<ul style="list-style-type: none"> <li>Assessment of needed evacuation centers</li> </ul>	<ul style="list-style-type: none"> <li>Cooperation of lead agency and support agencies of evacuation sectors of CDRRMC</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate ECs to accommodate the number of evacuees and provide their immediate needs</li> </ul>	<ul style="list-style-type: none"> <li>Laws mandated the sectors and agencies to identify and provide ECs</li> </ul>	<ul style="list-style-type: none"> <li>Coordinations were conducted and sufficient ECs were identified</li> </ul>
<ul style="list-style-type: none"> <li>Close monitoring of approved building and other permits and inspection of on-going projects whether gov't or private buildings/structure to ensure compliance and enforcement</li> </ul>	<ul style="list-style-type: none"> <li>Presence of offices and employees to do the duties and functions</li> </ul>	<ul style="list-style-type: none"> <li>Strict compliance with the law;</li> <li>Graft and corruption/bribery</li> </ul>	<ul style="list-style-type: none"> <li>Presence of laws and ordinances</li> </ul>	<ul style="list-style-type: none"> <li>To apply sanction of "one strike policy" to those involved in graft and corrupt practice</li> </ul>
<ul style="list-style-type: none"> <li>Flood Control Programs</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of KKKK Program of the Provincial Government of Bulacan;</li> <li>Creation of Waterways and Irrigation Task Force</li> </ul>	<ul style="list-style-type: none"> <li>Support/participation of Barangay Officials;</li> <li>Funding of additional personnel for continuous and more effective implementation</li> </ul>	<ul style="list-style-type: none"> <li>On-going implementation of Manila Bay Clean-up and other activities mandated by the government</li> </ul>	<ul style="list-style-type: none"> <li>Unclogged waterways and irrigation in all rivers and creeks in the city;</li> <li>Active participation of barangay officials in clean and green program;</li> <li>Strict</li> </ul>





MITIGATION	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
	<ul style="list-style-type: none"> <li>• Continuous declogging and desilting</li> </ul>	<ul style="list-style-type: none"> <li>• of WITF;</li> <li>• Strict implementation of laws</li> </ul>		<ul style="list-style-type: none"> <li>• implementation of laws and ordinances</li> </ul>
<ul style="list-style-type: none"> <li>• Flood control structure</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of drainage canal;</li> <li>• Construction of Breakwater structures in coastal barangays</li> </ul>	<ul style="list-style-type: none"> <li>• Barangay dependency to city, provincial and national government</li> </ul>	<ul style="list-style-type: none"> <li>• On-going construction and declogging of drainage systems initiated by the national government</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of adequate flood control structures</li> </ul>
<ul style="list-style-type: none"> <li>• Risk assessments for critical facilities and infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Updated CLUP</li> <li>• Hazard assessment integrated in Comprehensive Land Use Plan;</li> <li>• Formulation of Local Shelter Plan/ Committee/Board</li> </ul>	<ul style="list-style-type: none"> <li>• CLUP still not updated;</li> <li>• On-going review of CLUP and Zoning Ordinance;</li> </ul>		<ul style="list-style-type: none"> <li>• Strict adherence to building codes to ensure the safety of both public and private structures;</li> <li>• Participation of all involve in the implementation of PPAs w/ regards to CLUP and Housing Programs of the city</li> </ul>
<ul style="list-style-type: none"> <li>• Hazard/Geo-hazard mapping and assessment at city to barangay levels and studies on disaster prevention intervention and climate change effects and capacity-building for using assessment tools</li> </ul>	<ul style="list-style-type: none"> <li>• Present of some hazard maps;</li> <li>• National Government agencies initiatives and NGOs contribution to hazard mapping</li> </ul>	<ul style="list-style-type: none"> <li>• Support and participation of local leaders;</li> <li>• Technical-know-how;</li> <li>• Conduct of regular trainings on hazard mapping</li> </ul>	<ul style="list-style-type: none"> <li>• On-going barangay hazard mapping;</li> </ul>	<ul style="list-style-type: none"> <li>• Nationwide identification &amp; assessment of hazards;</li> <li>• Completeness of hazard maps</li> </ul>
<ul style="list-style-type: none"> <li>• Flood forecasting &amp; monitoring</li> <li>- Repainting/ Installation of Flood Markers and Rain Gauges</li> <li>- Improvised alarm and warning signal to constituents (bells and sirens)</li> <li>• - Rain Gauges and Automatic Weather Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Access to internet;</li> <li>• Updated forecast and advise from National Agencies;</li> <li>• Inclusion of provision and installation of EWS and devices in the Annual Investment Plan of the City</li> </ul>	<ul style="list-style-type: none"> <li>• Support and participation of local leaders, volunteers and skilled observers;</li> <li>• Cooperation of Barangay Leaders;</li> <li>• Personnel w/ skills and technical-know-how in flood forecasting and monitoring in the community</li> </ul>	<ul style="list-style-type: none"> <li>• Accessible and user-friendly websites as a decision-making tool in terms of early warning and preparedness measures by the LGUs;</li> <li>• Upgrading and modernization of EWS for easy access and sharing</li> <li>• Utilization of DRRMF and external funding and program support</li> </ul>	<ul style="list-style-type: none"> <li>• Promote common understanding of forecasting terminologies &amp; systems;</li> <li>• Improve appreciation of risk factors at the community and local level and enhance cooperation of all sectors;</li> <li>• Installation/ establishment of alarm &amp; EWS/device in all</li> </ul>



MITIGATION	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
	Government		including training and seminars in flood forecasting and monitoring	hazard and vulnerable areas in the city
<ul style="list-style-type: none"> <li>Comprehensive Emergency Program for Children</li> </ul>	<ul style="list-style-type: none"> <li>Availability of data on children and other vulnerable groups</li> <li>Created Technical Working Group for CEPC</li> </ul>	<ul style="list-style-type: none"> <li>Insufficient workshop for CEPC formulation</li> </ul>	<ul style="list-style-type: none"> <li>Government's mandate to prioritize Children's Emergency Relief and Protection Act</li> <li>Technical support from the national/provincial government</li> </ul>	<ul style="list-style-type: none"> <li>Formulation of a user and child-friendly plans and programs for children</li> </ul>
<ul style="list-style-type: none"> <li>Advocacy and Information, Education and Communication Campaigns on SWM</li> </ul>	<ul style="list-style-type: none"> <li>Presence of policies in the collection of waste, brochures on SWM and 10 yrs. Solid Waste Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Uncooperative barangay officials in the strict implementation of pertinent laws on zero waste management</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of award and reward system</li> </ul>	<ul style="list-style-type: none"> <li>Strict implementation of laws and ordinances</li> </ul>
<ul style="list-style-type: none"> <li>Benefits of Observers/ Volunteers</li> </ul>	<ul style="list-style-type: none"> <li>Active participation of Volunteer groups, Private Organizations and CSOs</li> </ul>	<ul style="list-style-type: none"> <li>Provision of insurance coverage, equipments, supplies and materials</li> </ul>	<ul style="list-style-type: none"> <li>Utilization of DRRM Fund on providing benefits</li> </ul>	<ul style="list-style-type: none"> <li>Guidelines and policies were formulated and providing benefits to community observers and volunteers were implemented</li> </ul>
<ul style="list-style-type: none"> <li>Risk financing and insurance schemes for vulnerable groups and/or communities are made available and accessible</li> </ul>	<ul style="list-style-type: none"> <li>DRRMF can be utilized to risk financing and insurance</li> </ul>	<ul style="list-style-type: none"> <li>Lack of interest and knowledge in risk financing and insurance schemes</li> </ul>	<ul style="list-style-type: none"> <li>Provision of orientations and seminars on the use of DRRMF to access risk financing and insurance scheme</li> </ul>	<ul style="list-style-type: none"> <li>Volunteers, responders, infrastructures, facilities and livelihood were insured</li> </ul>



### 6.1.2. Disaster Preparedness

PREPAREDNESS	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>Review and update of plans</li> </ul>	<ul style="list-style-type: none"> <li>Presence of Contingency Plan for Flood, Earthquake, DRRM Plan, Local Shelter Plan, Disaster Operation Manual etc.</li> </ul>	<ul style="list-style-type: none"> <li>Updated data provided by stakeholders;</li> <li>Barangay initiative for community awareness and knowledge in the plan implementation</li> </ul>	<ul style="list-style-type: none"> <li>Interest of the community due to past experiences;</li> <li>Mandatory plan formulation provided in existing national laws</li> </ul>	<ul style="list-style-type: none"> <li>Plans reviewed and updated were implemented and disseminated</li> </ul>
<ul style="list-style-type: none"> <li>IEC through consultation and brochure on disaster preparedness and response</li> </ul>	<ul style="list-style-type: none"> <li>Adequate IEC materials and access to local radio network and TV broadcast</li> </ul>	<ul style="list-style-type: none"> <li>Community participation and interest</li> </ul>	<ul style="list-style-type: none"> <li>On-going IEC campaigns conducted in the community</li> </ul>	<ul style="list-style-type: none"> <li>Intensify information and education campaign;</li> <li>Formulation of user-friendly and interesting reading materials</li> </ul>
<ul style="list-style-type: none"> <li>Organizing, mobilizing, training &amp; equipping, capacity building activities for disaster risk managers, key decision makers, psychosocial care providers, DRRM sectors/ units, rescuers/responders, community volunteers and staff</li> </ul>	<ul style="list-style-type: none"> <li>Continuous Responders Trainings, participation to Regional/ Provincial WaSAR &amp; FA Competition;</li> <li>Continuous Training/ orientation on First Aid/BLS-CPR and WaSAR in Barangays, VOs, NGOs</li> </ul>	<ul style="list-style-type: none"> <li>Provision of full benefits to responders and community volunteers;</li> <li>Commitment of all sectors of society</li> </ul>	<ul style="list-style-type: none"> <li>LGUs prioritization in DRRM, CCA &amp; Children's Emergency Relief and Protection PPAs;</li> <li>Knowledgeable employees/trainers from LDRRMO and Malolos Rescue responders to facilitate trainings and capacity building activities</li> </ul>	<ul style="list-style-type: none"> <li>Guidelines for the provision of full benefits were formulated, benefits provided to responders, key players and volunteers in disaster management;</li> <li>Enhancement of responders capability and organization of CVs with sufficient knowledge and properly trained</li> </ul>
<ul style="list-style-type: none"> <li>Drills and simulation exercises on disaster preparedness and response to include children and vulnerable sectors</li> </ul>	<ul style="list-style-type: none"> <li>Continuous implementation of simulation exercises, drills and orientations on Earthquake/ Earthquake Drill/Fire Safety Orientation/Fire Drill to selected sectors</li> </ul>	<ul style="list-style-type: none"> <li>Participation and cooperation of all sectors including private entities and business sectors</li> </ul>	<ul style="list-style-type: none"> <li>Active participation and interest of Academe, Homeowners Association and Religious Groups in DRRM and CCA</li> </ul>	<ul style="list-style-type: none"> <li>Training &amp; equipage of all stakeholders and awareness of children and vulnerable sectors in DRR, CCA and Children's Emergency Relief and Protection</li> </ul>
<ul style="list-style-type: none"> <li>DRRM, CCA and child responsive education and trainings, discussions and seminars for</li> </ul>	<ul style="list-style-type: none"> <li>Availability of competent trainers/facilitators with plantilla position</li> </ul>	<ul style="list-style-type: none"> <li>Participation and cooperation of all sectors including private entities</li> </ul>	<ul style="list-style-type: none"> <li>Inclusion of activities in the AIP of the LDRRMO</li> </ul>	<ul style="list-style-type: none"> <li>Enhance the knowledge of the community and different sectors in DRRM, CCA and Children's</li> </ul>





PREPAREDNESS	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
private and public sectors and provide the children with adequate access to age-appropriate information on their roles and responsibilities		and business sectors		Emergency Relief and Protection
<ul style="list-style-type: none"> <li>Regular, special meetings and focus group discussions, seminars, workshop and table-top exercises for DRRM council/committee members</li> </ul>	<ul style="list-style-type: none"> <li>Council members were completely represented by different sectors</li> </ul>	<ul style="list-style-type: none"> <li>Time commitment of members and initiative of leaders</li> </ul>	<ul style="list-style-type: none"> <li>Activities are mandated to be complied as per RA 10121</li> </ul>	<ul style="list-style-type: none"> <li>Commitment and dedication of members of the council</li> </ul>
<ul style="list-style-type: none"> <li>Inventory of resources, stockpiling and prepositioning of resources (equipment and supplies)</li> </ul>	<ul style="list-style-type: none"> <li>Full support from LCE and members of CDRRMC on the utilization of DRRM Fund to purchase needed equipment and supplies for disaster preparedness;</li> <li>Support from National agencies</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge and understanding on the utilization of 5% DRRM Fund to purchase the needed supplies and equipment;</li> <li>MOA with different suppliers</li> </ul>	<ul style="list-style-type: none"> <li>Continuous information campaign on the utilization of fund and BDRRMC structure (RA 10121)</li> </ul>	<ul style="list-style-type: none"> <li>Completion of supplies and equipment down to barangay level in preparation to anticipated events</li> </ul>
<ul style="list-style-type: none"> <li>Enhancement of ICS coordination and communication systems, activation of Emergency Operation Center (EOC)</li> </ul>	<ul style="list-style-type: none"> <li>Presence of EOC and capable members of CDRRMC sectors/units;</li> <li>Strict compliance to the implementation of ICS</li> </ul>	<ul style="list-style-type: none"> <li>Coordination Centers and EOC at Barangay Level;</li> <li>Knowledge of communication operators at Barangay Level</li> </ul>	<ul style="list-style-type: none"> <li>Construction of City Hall w/c include EOC for CDRRMC and adequate LDRRM office serve as city DRRM coordination center</li> </ul>	<ul style="list-style-type: none"> <li>Enhance ICS with knowledgeable IC managing EOC responding to any type of emergencies effectively</li> </ul>
<ul style="list-style-type: none"> <li>Enhance systems of support and communication among key stake holders (i.e., SOPs for deployment and coordination with rapid assessment teams, SRR and evacuation)</li> </ul>	<ul style="list-style-type: none"> <li>Presence of Disaster Preparedness Manual of Operation and Communication Protocols</li> </ul>	<ul style="list-style-type: none"> <li>System not being put into practice (simulation exercises on the system)</li> </ul>	<ul style="list-style-type: none"> <li>Command and Control, ECs, ICS and EOC management trainings, orientations and SimEx were supported by the LCE</li> </ul>	<ul style="list-style-type: none"> <li>Develop protocols for reporting and improve common and integrated response assessment tools and mechanisms</li> </ul>
<ul style="list-style-type: none"> <li>System for the restoration and reconstruction of civil registry</li> </ul>	<ul style="list-style-type: none"> <li>Capable, knowledgeable, computer literate and competent</li> </ul>	<ul style="list-style-type: none"> <li>Working space and space for files of reconstructed</li> </ul>	<ul style="list-style-type: none"> <li>Construction of new city hall with sufficient space for offices and</li> </ul>	<ul style="list-style-type: none"> <li>Initiate new system of safekeeping of documents and records</li> </ul>



PREPAREDNESS	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
documents	employees	documents	archives	
<ul style="list-style-type: none"> <li>Establish shelters (ECs) for evacuees, prioritizing vulnerable and marginalized groups including orphaned, separated, and unaccompanied children, and pregnant and lactating mothers</li> </ul>	<ul style="list-style-type: none"> <li>Active participation of DepEd as lead agency to evacuation sector/unit</li> <li>Existing Regional Evacuation Center with proper facilities to cater the needs of every evacuee</li> </ul>	<ul style="list-style-type: none"> <li>Insufficient rooms to accommodate all those belong to vulnerable and marginalized groups including orphaned, separated, and unaccompanied children, and pregnant and lactating mothers</li> </ul>	<ul style="list-style-type: none"> <li>Existing transitional shelters can be improved and modified to the extent possible to comply with the standard through the support of LCE upon approval of DRRMF utilization</li> </ul>	<ul style="list-style-type: none"> <li>Provision of gender-specific emergency latrines, bathing cubicles, and hand washing facilities specifically designed for children, provide mother and child-friendly spaces where children can take part in child activities, provisions for maternal and newborn and infant care and rooms to protect, feed, provide personal care, and ensure the right to privacy</li> </ul>
<ul style="list-style-type: none"> <li>Identification and provision of suitable relocation sites for affected population and design/construction/reconstruction of disaster resilient housing units</li> </ul>	<ul style="list-style-type: none"> <li>Presence of approved Local Shelter Plan</li> </ul>	<ul style="list-style-type: none"> <li>Funding of land acquisition and construction of new houses</li> </ul>	<ul style="list-style-type: none"> <li>Support from national government agencies</li> </ul>	<ul style="list-style-type: none"> <li>Policy formulation for system of grant and award</li> </ul>

### 6.1.3. Disaster Response

RESPONSE	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> <li>Issuance of public advisories and establish coordination systems for effective and efficient relief and response operations</li> </ul>	<ul style="list-style-type: none"> <li>Established protocols and coordination systems for effective and efficient relief and response operations were indicated in Disaster Operations Manual formulated by the CGM</li> </ul>	<ul style="list-style-type: none"> <li>Protocols and systems still in the developing process</li> </ul>	<ul style="list-style-type: none"> <li>Copy of Disaster Operations Manual was distributed to all barangays</li> </ul>	<ul style="list-style-type: none"> <li>Conduct of orientations and simulation exercises to develop the system and operations base on protocols indicated in the manual</li> </ul>
<ul style="list-style-type: none"> <li>Activation of the ICS and EOC at the city and barangay levels as</li> </ul>	<ul style="list-style-type: none"> <li>Organizational structures and protocols for ICS and EOC have</li> </ul>	<ul style="list-style-type: none"> <li>Lack of trainings of service providers</li> </ul>	<ul style="list-style-type: none"> <li>Support of LCE for continuing trainings and seminars to all</li> </ul>	<ul style="list-style-type: none"> <li>Institutionalization of ICS and EOC</li> </ul>



RESPONSE	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
appropriate	been formulated and established		service providers	
<ul style="list-style-type: none"> <li>• Implementation of plans and manuals</li> </ul>	<ul style="list-style-type: none"> <li>• Formulated plans and manuals approved and adopted by the Sangguniang Panlungsod for implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of orientations, briefings and information to all concerned</li> </ul>	<ul style="list-style-type: none"> <li>• Funding support for implementation upon approval of the plans</li> </ul>	<ul style="list-style-type: none"> <li>• Institutionalization of all plans and manuals</li> </ul>
<ul style="list-style-type: none"> <li>• Activation of relief distribution points/centers</li> </ul>	<ul style="list-style-type: none"> <li>• Established relief distribution points and centers</li> </ul>	<ul style="list-style-type: none"> <li>• Uncoordinated action of different sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Presence of personnel mandated to do the responsibilities and availability of relief goods</li> </ul>	<ul style="list-style-type: none"> <li>• Formulation of protocols to include responsibilities of barangay in the facilitation of relief distribution</li> </ul>
<ul style="list-style-type: none"> <li>• Activation of assessment teams at all levels to consolidate, analyze and disseminate data from the barangay and city DRRM Councils using the latest DANA assessment tool</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of personnel to train</li> </ul>	<ul style="list-style-type: none"> <li>• Unorganized and incapable Assessment Teams due to lack of trainings and seminars</li> </ul>	<ul style="list-style-type: none"> <li>• Support of LCE for the provision of trainings and seminars to Assessment Teams organized</li> </ul>	<ul style="list-style-type: none"> <li>• Capability and competency of assessment team organized</li> </ul>
<ul style="list-style-type: none"> <li>• Activation of identified standard-based relief shelters and sites to impose the following: <ul style="list-style-type: none"> <li>- Provision of tents and other temporary shelter facilities;</li> <li>- Implement a set of minimum standard for temporary shelters</li> <li>- Establishment of women child-friendly spaces/temporary learning area in the evacuation center for continuity of education</li> <li>- Provision of spaces for people's pets in the ECs</li> </ul> </li> <li>• - Conduct of livelihood-oriented activities for</li> </ul>	<ul style="list-style-type: none"> <li>• Support from DepEd for immediate activation of ECs and other CDRRMC Service unit/sector for provision of needs and services</li> <li>• Existing Regional Evacuation Center</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate Evacuation Centers (ECs);</li> <li>• Uncoordinated initiatives of barangay officials;</li> <li>• Communities refused to evacuate when warned</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusion of provision of ECs, temporary shelter and basic needs in Contingency Plans and RA 10121 mandates</li> </ul>	<ul style="list-style-type: none"> <li>• Forced Evacuation was implemented;</li> <li>• Adequate ECs with women child-friendly spaces/temporary learning area for continuity of education;</li> <li>• Minimize disruption to the way of life of affected communities</li> </ul>





RESPONSE	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
internally displaced persons				
<ul style="list-style-type: none"> <li>Implement regulations regarding evacuation, sanctions against those who refuses to obey the regulations (such as mandatory evacuations)</li> </ul>	<ul style="list-style-type: none"> <li>Approved Executive Order regarding mandatory evacuation;</li> <li>Formulated policy indicated in the brochure and manual for disaster preparedness, operation and evacuation process</li> </ul>	<ul style="list-style-type: none"> <li>Strict enforcement and implementation of the approved EO</li> </ul>	<ul style="list-style-type: none"> <li>Approved order and Resolutions for implementation of Mandatory/Forced Evacuation policies</li> </ul>	<ul style="list-style-type: none"> <li>Resiliency of the community in the implementation of mandatory evacuation</li> </ul>
<ul style="list-style-type: none"> <li>Delivery of basic necessities and services in ECs</li> </ul>	<ul style="list-style-type: none"> <li>Availability of resources needed in ECs</li> </ul>	<ul style="list-style-type: none"> <li>Undisciplined and demanding evacuees;</li> <li>Untrained Camp Managers</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of protocols as mandated by RA 10121 and prepared plans of the CDRRMC</li> </ul>	<ul style="list-style-type: none"> <li>Efficient management of ECs;</li> <li>Trained camp managers</li> </ul>
<ul style="list-style-type: none"> <li>Development and implementation of a system for SRR and management of the dead with concerned agencies</li> </ul>	<ul style="list-style-type: none"> <li>Committed Malolos Rescue, VGs, CSOs &amp; CDRRMC service units;</li> <li>Full support from Provincial, Regional Offices and National agencies</li> </ul>	<ul style="list-style-type: none"> <li>Lack of responders equipment;</li> <li>Maintaining staff levels during long responses;</li> <li>Designated EOCs and ICS of BDRRMCs</li> </ul>	<ul style="list-style-type: none"> <li>Continued support of LCE and active participation of VGs, CSOs and other service units</li> </ul>	<ul style="list-style-type: none"> <li>Immediate establishment of ICS and mobilization/</li> <li>deployment of trained &amp; equipped responders;</li> <li>Completeness of EOC equipment and supplies</li> </ul>
<ul style="list-style-type: none"> <li>Determine existing and available hospitals to address the casualties (if there is enough hospital services)</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient hospitals, medical teams and personnel</li> </ul>	<ul style="list-style-type: none"> <li>Insufficient personnel in response sector affected by disaster and calamity</li> </ul>	<ul style="list-style-type: none"> <li>Mandatory support from national agencies</li> </ul>	<ul style="list-style-type: none"> <li>Establish protocols on endorsement and agreements with private hospitals, clinics and laboratories;</li> <li>Additional trained response personnel</li> </ul>
<ul style="list-style-type: none"> <li>Development and conduct of psychosocial programs and referral systems</li> </ul>	<ul style="list-style-type: none"> <li>Personnel knowledgeable in psychosocial and referral system</li> </ul>	<ul style="list-style-type: none"> <li>Hiring of additional personnel and identification of knowledgeable volunteers</li> </ul>		<ul style="list-style-type: none"> <li>Inclusion of programs and systems in the AIP of responsible departments involved</li> </ul>
<ul style="list-style-type: none"> <li>Engineering interventions</li> </ul>	<ul style="list-style-type: none"> <li>Availability of personnel for engineering interventions</li> </ul>	<ul style="list-style-type: none"> <li>Lack of equipment</li> </ul>	<ul style="list-style-type: none"> <li>Utilization of DRRMF and support from Provincial, Regional, National DRRMCs</li> </ul>	<ul style="list-style-type: none"> <li>Purchase of equipment using the 70% DRRMF</li> </ul>
<ul style="list-style-type: none"> <li>Monitor and ensure the safety</li> </ul>	<ul style="list-style-type: none"> <li>Presence of personnel and</li> </ul>	<ul style="list-style-type: none"> <li>Lack of discipline of</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of existing laws on</li> </ul>	<ul style="list-style-type: none"> <li>Inclusion of the task in the</li> </ul>



<b>RESPONSE</b>	<b>STRENGTH</b>	<b>WEAKNESSES</b>	<b>OPPORTUNITIES</b>	<b>CHALLENGES</b>
and security of the affected children in the areas declared under a state of calamity and shall protect them against all forms of abuse and exploitation;	offices assigned in monitoring and security of affected populace/children	affected populace; <ul style="list-style-type: none"> <li>• Demanding and self-centered guardians of children in the affected areas</li> </ul>	protection for children	Comprehensive Emergency Program for Children
<ul style="list-style-type: none"> <li>• Development of partnership mechanisms with utility providers and key stakeholders and implement temporary livelihood and/or income generating activities (i.e., cash for food or work; micro and small enterprise recovery)</li> </ul>	<ul style="list-style-type: none"> <li>• Financial capability of LGUs</li> </ul>	<ul style="list-style-type: none"> <li>• Trained personnel in Rapid Damage Assessment Needs Analysis;</li> <li>• Support from National Government and other concerned agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Involvement of NGOs, POs, business establishments for provision of income generation activities</li> </ul>	<ul style="list-style-type: none"> <li>• Restore normalcy of life of calamity victims</li> </ul>
<ul style="list-style-type: none"> <li>• Humanitarian aid, relief and health services</li> </ul>	<ul style="list-style-type: none"> <li>• Existing MOA with supermarkets and suppliers for immediate relief assistance;</li> <li>• Support from Provincial, Regional Offices and National agencies and NGOs;</li> <li>• Presence of CHO medical teams (6 teams);</li> <li>• Experienced in flood rescue and relief good distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Participation and commitment of local leaders (barangay level);</li> <li>• Uncoordinated actions</li> </ul>	<ul style="list-style-type: none"> <li>• Prioritization of National Government, LGUs, NGOs, INGOs in disaster relief and services;</li> <li>• Availability of DRRM Funds</li> </ul>	<ul style="list-style-type: none"> <li>• Rationalization of humanitarian assistance;</li> <li>• Coordinated conduct of Rapid Needs Assessments among NGAs, LGUs &amp; Int'l Donor Agencies for provision of priority needs and services</li> </ul>
<ul style="list-style-type: none"> <li>• Conduct of RDANA and develop/implement a system for early recovery, to include specific activities addressing the needs identified</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of personnel to train in assessment and system</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of trainings and seminars of personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Support of LCE for trainings and seminars in post-RDANA</li> </ul>	<ul style="list-style-type: none"> <li>• Capability and competency of post-RDANA personnel</li> </ul>



### 6.1.4. Rehabilitation and Recovery

REHABILITATION	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
Post Disaster Needs Assessment (PDNA), formulation and coordination of Strategic Action Plan for implementation for disaster-affected areas	Availability of personnel to train and equip with knowledge in PDNA	Lack of trainings and seminars of personnel	Support of LCE for trainings and seminars in RDANA and SAP formulation	Capability and competency of post-RDANA personnel
Early recovery & rehabilitation	Community is supportive to help those affected by calamities	Budget constraint of LGUs if massive destruction occurs		Rationalization of access to Calamity Funds; Restore normalcy in affected areas
Temporary learning spaces or semi-permanent structures used as classrooms	Areas for learning used as classrooms were pre-identified and established	Permanent structures if the emergency situation prolonged	Utilization of DRRMF for the establishment and construction of permanent ECs with rooms used as learning areas for children	Implementation of construction and establishment of permanent ECs ASAP
Provide the children, pregnant and lactating mothers affected by disasters and other emergency situations with utmost support and assistance	City Government of Malolos offices and agencies were funded to implement such services and assistance		Provision of services as mandated by RA 10821 or Children's Emergency Relief and Protection Act	Immediate provision of needs necessary for immediate recovery and protection against all forms of violence, cruelty, discrimination, neglect, abuse, exploitation and other acts prejudicial to their interest, survival, development and well-being.
Prompt resumption of educational services for all children, including early childhood care and development for children aged below five	Availability of competent personnel and temporary space were pre-identified		Provision of services as mandated by RA 10821 or Children's Emergency Relief and Protection Act	Encourage participation of different sectors and volunteers to support and assist the program
Continuous monitoring and assessment of the condition of the displaced families after a disaster and ensure that they are in good physical	Basic needs and services can be continuously provided by the government	Abusive and discontented displaced families may raised	Provision of services as mandated by RA 10821 or Children's Emergency Relief and Protection Act	Encourage participation of different sectors and volunteers to support and assist the program





REHABILITATION	STRENGTH	WEAKNESSES	OPPORTUNITIES	CHALLENGES
condition and basic needs were sufficient to ensure the safety of the children and their environment				
Provision for livelihood	Livelihood Assistance Program are available thru CGM offices, National Agencies, NGOs	Community and livelihood beneficiaries were notice of being “palaasa sa pamahalaan”	Availability of fund for the program; Active association of different sectors to support their members	Self-reliant and resilience community
Database of existing livelihood programs/ activities	Existing data of livelihood programs and activities	External funding support	Presence of Malolos Training Center and active cooperative sector	Promotion and establishment of One Barangay, One Product scheme and Barangay Livelihood Centers
Identify/mobilize funding source	Existing data of national agencies, department, NGOs and competent personnel to solicit funding source	Availability of fund from source of fund	Utilization of DRRMF in negligible damages and services	
Undertake the necessary rehabilitation/ reconstruction/renovation of damage infrastructure based on the latest code and guidelines introducing and promoting green technology	Support from national agencies which provide housing materials for rebuilding; and Provision of resettlement/housing program	Graft and corrupt practices of some project providers	On-going program of national government on ISFs Prioritization and inclusion of housing programs and projects in LSP	Subsequent reconstruction of damaged settlements and/or resettlement if it is seen as a better option; No to graft and corruption
Restoration & improvement of destroyed facilities	Manpower and support from national agencies	Lack of insurance for facilities, infrastructures and settlements; Budget allocation for the project	DRRMF utilization and support from national agencies	Immediate restoration and improvement of damaged facilities; Insured government facilities and assets
Collection and reporting of data for the Disaster Risk Reduction and Management Information System at all levels, as provided for in Republic Act No. 10121	Availability of competent personnel, office and equipment for data collection and gathering	Personnel lack and insufficient knowledge in collecting and reporting of data to be inputted in DRRMIS	Mandate of the law as provided in RA 10121	Disaster Risk Reduction and Management Information System (DRRMIS) as part of the CDRRMO section with assigned plantilla position personnel

# CHAPTER VII

## THEMATIC AREA PLAN



## VII. THEMATIC AREA PLAN

### 7.1. Disaster Prevention and Mitigation

LONG TERM GOALS	OBJECTIVES
Avoid hazards and mitigate their potential impacts by reducing vulnerabilities and exposure and enhancing capacities of communities.	Reduce vulnerability and exposure of communities to all hazards
	Enhance capacities of communities to reduce their own risks and cope with the impacts of all hazards

Disaster Prevention and Mitigation provides key actions and activities around identifying and analyzing hazard, risk analyses, mainstreaming DRRM into development plans, and minimizing the impact of disasters in terms of casualties and damages. It underscores the need for sound scientific information and analysis of risks and hazards.

#### **OUTCOME 1: DRRM and CCA mainstreamed and integrated in local development policies, plans and budget**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	IEC campaign and seminar in compliance with 5% DRRM Fund utilization	All stakeholders	DRRM, CCA & Children's Emergency Relief and Protection mainstreamed & integrated in local development policies, plans and budget of Barangay and CGM	CDRRMC/O Accounting Office CBO	2022-2026	DRRMF
2	Plan formulation and review	Formulation of CP in all 51 barangays  All plans reviewed	City and Barangay Contingency Plan for Flood and Earthquake, DRRM Plan, brochures and manuals have been formulated and implemented	CDRRMC/O Office of the Mayor CPDO DILG TWG CSO/NGO	2022-2026 (yearly)	DRRMF



No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
3	Conduct of seminars and training on the provisions of DRRM Act, CCA Act & Children's Emergency Relief and Protection Act	All stakeholders	Seminars and trainings were conducted on DRRM, CCA and Children's Emergency Relief and Protection Act	CSWDO C/BDRRMC CDRRMO CPDO NGOs/CSOs	2022-2026	DRRMF
4	Updating and enhancement of CLUP, CDP and Zoning Ordinance to include risk parameters		DRRM, CCA & Children's Emergency Relief and Protection Act integrated in updated and enhanced CLUP, CDP and Zoning Ordinance	LCE Sangguniang Panlungsod CPDO CA's Office CEO DILG TWG	2022-2026	DRRMF
5	Formulate Comprehensive Emergency Program for Children (CEPC)	1 plan	Comprehensive Emergency Relief and Protection Program for Children formulated was developed and implemented	Sangguniang Panlungsod LCE C/BDRRMC/O CHRMO DBM CSC	2022-2026	General Fund

## OUTCOME 2: DRRM and CCA-sensitive environment management

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Advocacy and Information, Education and Communication Campaigns on ZWM	51 barangays	DRRM, CCA & Children's Emergency Relief and Protection mainstreamed & integrated in local development	CGSO VMO CGM Offices Business and Religious Sectors Academe Barangay	Continuing	MOOE

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
			policies, plans and budget of Barangay and CGM			

### OUTCOME 3: Increased disaster resilience of infrastructure systems

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Assessment of needed evacuation centers for children and families	Identified ECs with proper facility for children	Permanent ECs for children and families were pre-identified and established	DepEd CSWDO Barangay Officials CDRRMC/O	2022-2026	DRRMF
2	Close monitoring of approved building and other permits and inspection of on-going projects whether gov't or private buildings/structure to ensure compliance and enforcement		Increased disaster resilience of infrastructure systems  Enhanced disaster mitigation and preparedness strategies for infrastructure systems	BPLD CEO BFP CPDO CGSO PNP	2022-2026	MOOE of Offices
3	Flood control Programs	Flood-prone barangays	Minimized flood effect	CEO CGSO Brgy. Eco-Aids C/BMRF Community NGO/CSO	Continuing	MOOE
4	Silted drainage system, rivers and creeks	All waterways	Minimized flood effect	CEO CGSO Sangguniang Panlungsod LCE	Continuing	General Fund (20% Development Fund)

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
5	Close monitoring of approved building and other permits and inspection of on-going projects whether gov't or private buildings/structure to ensure compliance and enforcement of the above code		Disaster and climate change-resilient infrastructure constructed	CEO BFP CPDO BPLO LCE PNP	Continuing	MOOE

**OUTCOME 4: Community-Based and Scientific DRRM And CCA assessment, mapping, analysis and monitoring are conducted and/or improved**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Hazard/Geo-hazard mapping and assessment at city to barangay levels and studies on disaster prevention intervention and climate change effects and capacity-building for using assessment tools	51 barangays with own hazard maps	Community based and scientific DRRM and CCA assessment, mapping, analysis and monitoring are conducted and/or improved	CEO CPDO CGSO BFP CEEDO SP LCE	Continuing	MOOE

**OUTCOME 5: Communities have access to effective and applicable disaster risk financing and insurance**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Benefits of Observers/ Volunteers	All Responders and active volunteers	Insurance schemes among production sector, supply sector, local communities and responders were promoted	C/BDRRMC C/BDRRMO Volunteers CGM Barangay Gov't	Annually	DRRMF



No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
2	Promote insurance schemes among production sector, supply sector, local communities and responders, and develop an advocacy and risk communication plan to encourage communities to avail of risk financing options	All sectors affected	Interest of the community, sectors were promoted through consultations and formulated IEC materials and brochures on the effect of a disaster to infra, life and properties and importance of insurance availment	CDRRMC/O Insurance companies	2023-2026	

**OUTCOME 6: End-to-end monitoring system, forecasting and early warning are established and/or improved**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	EWS information sharing and communication systems between the City and the stakeholders, e.g. communities and private establishments		Enhanced monitoring, forecasting and hazard warning Institutionalized EWS guidelines and policies	CDRRMC/O CMO-CDRRMD CMO-CID CITD	2022-2024	DRRMF

## 7.2. Disaster Preparedness

LONG TERM GOALS	OBJECTIVES
Establish and strengthen capacities of communities to anticipate, cope and recover from the negative impacts of emergency occurrences and disasters.	Increase the level of awareness of the community to the threats and impacts of all hazards, risks and vulnerabilities
	Equip the community with the necessary skills to cope with the negative impacts of a disaster
	Increase the capacity of institutions
	Develop and implement comprehensive national and local disaster preparedness
	Strengthen partnership among all key players and stakeholders

Disaster preparedness provides for key strategic actions that give priority to community awareness and understanding, contingency planning, capacity building and skills development, conduct of local drills, and development of a local disaster plans and protocols. In preparing communities and governments for possible disasters, it is vital to understand needs based on hazard and risk analysis in order for preparedness activities to be appropriate, realistic and effective.

Preparedness activities are not linear, but are instead cyclical and ongoing with improvements over time. Behavioral change created by the preparedness aspect is eventually measured by how well people respond to and recover from disasters. The role of the CDRRMC in preparedness is to coordinate the activities of its members, the community, and others to ensure that Malolenyos are as prepared as possible for future emergencies.

### **OUTCOME 7: Increased level of awareness and enhanced capacity of the community to the threats and impacts of all hazards**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	IEC through consultation and brochure formulation on disaster preparedness and response		Adequate IEC materials were provided and	CDRRMC/O CMO-CID CMO-CITD	Continuing	LDRRMF

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
			access to local radio network and TV broadcast			
2	Distribution of IEC Materials (Listo Malolenyo handbook, leaflets, flyers and posters)	All stakeholders	Increased awareness and knowledge on DRRM-CCA	CDRRMO CIO	Continuing	LDRRMF
3	Health Promotion/ Campaign	All stakeholders	Improve the awareness on proper health and hygiene practices esp. during health crisis/disasters	CHO	Continuing	LDRRMF

**OUTCOME 8: Communities are equipped with necessary skills and capability to cope with impacts of disaster**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	Organizing, mobilizing, training & equipping, capacity building activities for disaster risk managers, key decision makers, psychosocial care providers, DRRM sectors/ units, rescuers/responders, community volunteers and staff	51 barangay SDRRMC Organized Response Teams VGs	Organized, capable and skilled organization of stakeholders in DRRM sector/unit with sufficient knowledge and properly trained responding to emergencies	CMO-CDRRMD CHO CSWDO PRC R/P/CDRRMC BFP	Continuing	LDRRMF
2	Conduct of drills and simulation exercises on disaster preparedness and response to include children and vulnerable sectors	Quarterly EQ Drill  Yearly school drill monitoring	Drills and simulation exercises were supported and participated by all sectors	CMO-CDRRMD BFP PRC R/P/CDRRMC NGO CSO	Continuing	LDRRMF



No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
3	Conduct of DRRM-CCA and child responsive education and trainings, discussions and seminars	All stakeholders	Community and barangay leaders, community members, school personnel, rescuers and children understand their roles and responsibilities on DRR and CCA	CDRRMC/O CMO-CID CMO-CITD	Continuing	LDRRMF
4	Inventory of resources, stockpiling and prepositioning of resources (equipment and supplies)		Needed equipment and supplies were immediately provided	LCE SP C/BDRRMC CBO CGSO CMO-CDRRMD Business Sector	Upon occurrence of a disaster	LDRRMF
5	Organize and ensure availability of HRH in ECs		Provide healthcare services disaster affected population	CHO	Upon occurrence of a disaster	LDRRMF

**OUTCOME 9: Increased DRRM and CCA capacity of Local DRRM Councils, and Offices at all levels**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	Regular, special meetings and focus group discussions, seminars, workshop and table-top exercises for DRRM council/ committee members	Quarterly LDRRMC meetings	Increased organizational capacity of City DRRM Office, DRRM Council and Barangay DRRMCs	CMO-CDRRMD BASP C/BDRRMC PRC	Continuing	LDRRMF

**OUTCOME 10: Developed and implemented comprehensive local preparedness and response policies, plans and system**

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	Review and update of plans formulated	All DRR-CCA related plans	Institutionalized Contingency Plan for Flood, Earthquake, DRRM Plan, Local Shelter Plan, Disaster Operation Manual and brochures, DRRMH	Office of the CMO-CDRRMD CHO C/BDRRMC SP LCE TWG	2022-2026	LDRRMF
2	Enhancement of ICS coordination and communication systems and activation of Emergency Operation Center (EOC)	CDRRMC	Enhanced ICS with knowledgeable IC managing a fully functioning EOC with knowledgeable staff responding to any type of emergencies	C/BDRRMC LCE BERT CMO-CDRRMD	Upon occurrence of a disaster	LDRRMF
3	System for the restoration and reconstruction of civil registry documents		System for the restoration and reconstruction of civil registry documents destroyed, declared lost or missing documents upon occurrence of a disaster have been formulated	CCR	2022-2026	MOOE

### 7.3. Disaster Response

LONG TERM GOALS	OBJECTIVES
Provide life preservation and meet the basic subsistence needs of affected population especially children, PWDs, elderly and other belong to vulnerable sector of society based on acceptable standards during or immediately after a disaster	To decrease the number of preventable deaths and injuries
	To provide basic subsistence needs of affected population
	To immediately restore basic social services

Disaster Response is the provision of emergency services and public assistance during or immediately after a disaster in order to save lives reduces negative health impacts ensure public safety and meet the basic subsistence needs of the people affected. It is predominantly focused on immediate and short-term needs and is sometimes called “disaster relief”.

Disaster Response includes key activities during the actual emergency operations such as needs assessment, search and rescue, relief operations, and early recovery activities. Generally, the success and realization of this theme relies heavily on timely, proper coordination and adequate resources.

#### OUTCOME 11: Well-established disaster response operations

No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	Issuance of public advisories in accordance with the established/ developed protocols and coordination systems for effective and efficient relief and response operations	All barangays	Well-established system of information gathering, reporting and dissemination and Disaster Response Operations	C/BDRRMC CMO-CDRRMD BASPD VGs VRG BERT	Upon occurrence of a disaster and emergencies	MOOE
2	Activation of relief distribution points and coordination centers	RDP in all affected barangays	Established system for coordination and relief operations	C/BDRRMC CSWDO CGSO	Upon occurrence of a disaster	LDRRMF



No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
				CEO Malolos Rescue CA-BASPD		
3	Activation of the ICS and EOC at the city and barangay levels as appropriate	CDRRMC BDRRMC	Activated and functional ICS and EOC on site with knowledgeable staff and IC	C/B/DRRMC Sectors/Units VGs CSOs	Upon occurrence of a disaster	LDRRMF

### OUTCOME 12: Adequate and prompt assessment of needs and damages at all levels

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Activation of assessment teams at all levels to consolidate, analyze and disseminate data from the barangay and city DRRM Councils using the latest RDANA assessment tool	All disasters	Capable and competent assessment team organized	C/BDRRMC Sectors/units CMO-CDRRERD RDANA Team	Upon occurrence of a disaster	LDRRMF
2	Engineering interventions	All damaged buildings/ infrastructure	Damaged infrastructures and facilities quickly repaired	CEO CGSO DPWH	Upon occurrence of a disaster	LDRRMF

### OUTCOME 13: Integrated and coordinated Search, Rescue and Retrieval (SRR) capacity

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Development and implementation of a system for SRR and management of the dead with concerned agencies	All disasters	Integrated and Coordinated Search, Rescue and Retrieval (SRR) Capacity	C/BDRRMC CDRRMO DILG DSWD Malolos Rescue PNP	Upon occurrence of a disaster	LDRRMF

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
			Victims found, retrieved & reconnected with their families	CHO BFP Volunteers		

**OUTCOME 14: Affected families were evacuated safely and in timely manner**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Implement regulations regarding evacuation, sanctions against those who refuse to obey the regulations (such as mandatory evacuations)		Resiliency of the community in the implementation of mandatory evacuation  Approved EO/Laws on forced evacuation was strictly implemented	C/BDRRMO CMO-CDRRMD Malolos Rescue PNP BFP CDRRMC Sectors/unit SP SB LCE	Upon occurrence of a disaster	DRRMF

**OUTCOME 15: Temporary shelter needs are adequately addressed**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Delivery of basic necessities and services in ECs specifically required by the affected children in different stages of development	1 CFS in every EC	All patients seen/treated and epidemics prevented; Water-borne diseases prevented; All basic needs have been provided	CHO Nutrition Office SIs CSWDO DSWD Volunteer Social Workers CEO CDRRMC Sectors/units	Upon activation of ECs	DRRMF
2	Activation of identified standard-	All identified EC	Adequate	DepEd	Upon	DRRMF

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
	<p>based relief shelters and sites to impose the following:</p> <ul style="list-style-type: none"> <li>- Provision of tents and other temporary shelter facilities;</li> <li>- Implement a set of minimum standards for temporary shelters</li> <li>- Establishment of women child-friendly spaces/temporary learning area in the evacuation center for continuity of education</li> <li>- Provision of spaces for people's pets in the ECs</li> <li>- Conduct of livelihood-oriented activities for internally displaced persons</li> </ul>		<p>Evacuation Centers (ECs) provided</p> <p>Coordinated initiatives of barangay officials</p> <p>Communities cooperation in the implementation of pre-emptive and forced evacuation</p> <p>Affected Communities Evacuated Safely and on Time</p>	<p>C/BDRRMC Sectors/Units CSWDO Personnel, LLN, LLP, BHW and other volunteer groups NGOs Malolos Rescue</p>	<p>occurrence of a disaster</p>	
3	<p>Monitor and ensure the safety and the security of the affected children in the areas declared under a state of calamity and shall protect them against all forms of abuse and exploitation;</p>	<p>Established CFS in every EC</p>	<p>Safety and security of the affected populace especially children were ensured</p> <p>Day to day activities were strictly monitored</p>	<p>POSD PNP CSWD Barangay Volunteers</p>	<p>Upon occurrence of a disaster</p>	<p>DRRMF</p>
4	<p>Identified animal evacuation center</p>	<p>Space for animals in every EC</p>	<p>Maintain source of livelihood</p>	<p>CDRRMC CVO</p>	<p>Upon occurrence of a disaster</p>	<p>DRRMF</p>

**OUTCOME 16: Basic health services provided to affected population (whether inside or outside evacuation area)**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	<p>Determine existing and available hospitals to address the casualties</p>		<p>All patients seen/ treated and</p>	<p>CDRRMC CMO-CDRRMD</p>	<p>Upon occurrence of a</p>	<p>DRRMF</p>



Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
	(if there is enough hospital services)		epidemics prevented, water-borne diseases prevented and lifelines restored	CHO Malolos Rescue PNP BFP	disaster	
2	Monitor RHU activities on medical consultations and nutritional assessment	All RHU of barangays affected	Improved health service delivery	CHO CSWDO	Upon occurrence of a disaster	LDRRMF GF
3	Distribution of chemicals for indoor and outdoor vector spraying at schools and communities	All affected barangays	Prevention of disease outbreak	CHO	2022-2026	
4	Mobilize own human resources for RHA/RESU/Nutrition/WASH and MHPSS team	All affected barangays	Provide timely and adequate healthcare services	CHO	Upon occurrence of a disaster	LDRRMF

### OUTCOME 17: Psychosocial well-being promoted and mental health problems and risk reduced

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Development/conduct of psychosocial programs and referral systems	All affected individuals	Disaster-affected population are in good mental and psychological state	CSWDO CHO	As the need arise	LDRRMF
2	Partnership with key stakeholders in providing Psychosocial First Aid and Stress debriefing	MOA	Signed agreement (MOA) MHPSS activities undertaken	CSWDO CHO	2022-2026	LDRRMF
3	Mobilize own human resources trained for Mental Health and Psychosocial Support Services	All affected individuals	Provide timely and adequate MHPSS	CSWDO CHO	As the need arise	LDRRMF

**OUTCOME 18: Coordinated, integrated systems for early recovery are implemented at the local levels**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Development of partnership mechanisms with utility providers and key stakeholders and implement temporary livelihood and/or income generating activities (i.e., cash for food or work; micro and small enterprise recovery)	All utility providers	Restore normalcy of life of calamity victims	NGOs CSWD N/R/C/B DRRMC Agriculture Office CTECO Business Sectors	Upon occurrence of a disaster	DRRMF
2	Humanitarian aid, relief and health services	All affected barangays	Rationalization of humanitarian assistance  Coordinated conduct of Rapid Needs Assessments among NGAs, LGUs & Int'l Donor Agencies for provision of priority needs and services	LCE SP CHO NGOs N/R/P/C/B DRRMCs Business Sector	Upon occurrence of a disaster	DRRMF

**7.4. Rehabilitation and Recovery**

LONG TERM GOALS	OBJECTIVES
Restore and improve facilities, livelihoods, education and living conditions and organizational capacities of affected communities, and reduced disaster risks in accordance with the 'building back better' principle.	To restore people's means of livelihood and continuity of economic activities and business
	To restore shelter and other buildings/installations
	To reconstruct infrastructure and other public utilities
	To assist in the physical and psychological rehabilitation of persons who suffered from the effects of disaster

The Disaster Rehabilitation and Recovery aspect covers concerns related to employment and livelihoods, infrastructure and lifeline facilities, and housing & resettlement. The principle of “building back better” requires improvement and increased disaster resilience during restoration and rehabilitation after disasters.

**OUTCOME 19: Damage, losses and needed assessed**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/ Office	Timeframe	Source of Funds
1	Conduct of Post Disaster Needs Assessment (PDNA) and formulation of Strategic Action Plan (SAP) and coordinate the SAP for implementation to disaster-affected areas	All affected barangays	Action plan formulated were implemented to disaster-affected communities	C/BDRRMC RDANA Team CSWDO CTECO NGOs CAgrO	Continuing within 1 yr. after occurrence of a disaster	DRRMF
2	Early recovery & rehabilitation	All affected barangays	Needed services and support were provided to restore normalcy of life in disaster-affected areas	N/R/C/B DRRMC NGOs All offices of the CGM	Continuing until normalcy restored	DRRMF NDRRMF Other Sources
3	Collection and reporting of data for the Disaster Risk Reduction and Management Information System at all levels, as provided for in Republic Act No. 10121		Ensure that four thematic areas of disaster including scenarios of the disaster/calamity occurrence were recorded to sustain actions taken and for future reference	CDRRMC CMO-CID, CITD CDRRMD CA’s Office OMSDD BASPD CPDO	Continuing until normalcy restored	DRRMF



**OUTCOME 20: Economic activities restored and, if possible, strengthened or expanded**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Provision of rehabilitation funds (micro-financing) for coops or MSEs affected by calamities who have no access to banking or financing institutions	Coops and MSEs affected by calamities	Economic activities restored, strengthen and expanded  Financial assistance granted/ provided	C/BDRRMC RDANA Team CSWDO CTECO NGOs CAgrO Business Sector	2022-2026 Continuing until normalcy restored	DRRMF Support from other agencies

**OUTCOME 21: DRRM-CCA elements incorporated in human settlements**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Identify and provide suitable relocation sites for affected population	Safe sites for relocation of families from high-risk areas	Disaster-resilient housing designed and constructed / reconstructed  Self-sufficient communities with access to basic social services	Local Housing Board LIAC Local Shelter Committee NHA HUDCC CEO SP LCE other agencies	2022-2026	DRRMF

**OUTCOME 22: Disaster and climate-resilient infrastructures**

Output No.	PPAs	Target including Gender Concern	Key Output	Responsible Person/Agency/Office	Timeframe	Source of Funds
1	Undertake the necessary rehabilitation/ reconstruction/renovation of damage infrastructure based on the latest code and guidelines	All damaged infrastructure	Infrastructural facilities reconstructed/ repaired/renovated/ rebuilt according to	CEO PEO DPWH Nat'l agencies, NGOs	Immediately after the occurrence of calamity	DRRMF  National agencies concerned

<b>Output No.</b>	<b>PPAs</b>	<b>Target including Gender Concern</b>	<b>Key Output</b>	<b>Responsible Person/Agency/ Office</b>	<b>Timeframe</b>	<b>Source of Funds</b>
	introducing and promoting green technology		the standard codes (building code and other referral codes such as structural, architectural, electrical and others including fire code, zoning and other ordinances)	INGOs CDRRMC Sector/Units concerned		

# CHAPTER VIII

## MONITORING AND EVALUATION





## CHAPTER VIII: MONITORING AND EVALUATION

Feedback mechanisms are important aspect of gauging performance targets and learning from actual experiences. Gathering, filing, accessing and analyzing information will enable the CDRRMC Member Agencies to to determine the progress of the implementation of the CDRRM Plan, and make timely decision to ensure that progress is maintained according to schedules and targets.

### 8.1. Disaster Prevention and Mitigation

EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTI ON METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURC ES NEEDED
1. DRRM and CCA mainstreamed and integrated in local development policies, plans and budget	Plan formulation and review  Planning seminar and workshop	5 plans  CP for flood and Earthquake are available at the city level	Data collection and availability of information  Availability of data at the barangay level	Plans formulated with supported city and barangay resolutions adopting the plans	6 plans including CEPC  Formulate CPs for 51 brgys	Sangguniang Panlungsod and Barangay Resolution  Executive Order  CDRRMC TWG Memo/Report s	Submission of plans Interview Research	Review once a year – LCE/SP/DILG R/PDRRMC	R/P/ CDRRMC/O Office of the CA DILG TWG CSO/NGO	Funds
2. DRRM and CCA-sensitive environment management	Advocacy and Information, Education and Communicatio n Campaigns on ZWM	Existing environmental policies and programs	Strict implementation of environmental policies	Policies and ordinances implemented  Clean and Green programs implemented	51 brgys	Sangguniang Panlungsod Ordinances  Executive Order  Reports	Submission of reports	LCE CA	CENRO CGSO VMO CGM Offices Business and Religious Sectors Academe Barangay	Funds Manpower Supplies
3. Increased disaster resilience of infrastructure systems	Revised/ improved structural design of school buildings, hospitals, evacuation center, and other critical		Strict implementation of inspection and issuance permits	Number of buildings, ECs, bridges, et.al. inspected  Copy of inspection reports and permits issued		National Building Code	Submission of reports and inventory	LCE CA	CEO BFP BPLD LCE PNP	Funds

EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTION METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURCES NEEDED
	infrastructure									
4. Community-Based and Scientific DRRM And CCA assessment, mapping, analysis and monitoring are conducted and/or improved	Updating and formulate LGU-generated hazard maps			Copy of hazard maps formulated and assessment reports prepared		CPDO NGAs (DOST, MGB, etc.)		LCE National Agencies concerned	CPDO CEO CDRRMO	Funds Manpower GIS Equipment
5. Communities have access to effective and applicable disaster risk financing and insurance	Promotion of risk financing schemes among production sector, supply communities and provision of insurance to responders	No. of facilities and infrastructures insured  No responders insured	Availability of funds	No. of facilities, infrastructures and responders/volunteers insured  Insurance policy	All public buildings, facilities, responders and volunteers are insured	RA 10121	Submission of report	LCE CGSO	C/BDRRMC Os Insurance companies CGM	Funds
6. End-to-end monitoring system, forecasting and early warning are established and/or improved	EWS information sharing and communication systems between the City and the stakeholders	No. of EWS system/CCTVs intalled in the city	Availability of funds  Technology gap	Copy of manuals with EWS guidelines and policies	Enhanced monitoring, forecasting and hazard warning even in the barangay level	Reports from LDRRMO and barangays	Submission of report	LCE R/PDRRMO DILG	CDRRMC/O CMO- CDRRMD BASPD CMO-CID CITD	Funds

## 8.2. Disaster Preparedness

EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTION METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURCES NEEDED
7. Increased level of awareness and enhanced capacity of the community to the threats and impacts of all hazards	IEC through consultation and brochure formulation on disaster preparedness and response	No. of IEC distributed	Insufficient supply of IEC materials  Communication barrier	No. of consultations conducted  No. of IEC materials/ brochures disseminated	Adequate IEC materials were provided and access to local radio network and TV broadcast	DRVA-CCA Report PHIVOLCS PAGASA Other NGA ATR	Submission of reports	LCE CA PDRRMC	CDRRMC/O CMO-CID CMO-CITD	Funds Supplies Manpower
8. Communities are equipped with necessary skills and capability to cope with impacts of disaster	Conduct of Capability Building Activities (Drills, SimEx, skills-based training)	No. of capacity building activities conducted	Fast turnover of employees  No security of tenure for CDRRMO employees	No. of conducted trainings, drills and SimEx  No. of groups and individuals trained	All CDRRMO personnel are trained and equipped	Post-activity Report  Inventory of Personnel Capability	Submission of reports	LCE CA PDRRMC	CDRRMO BDRRMCs OCD-R3	Funds Manpower
9. Increased DRRM and CCA capacity of Local DRRM Councils, and Offices at all levels	Strengthen organizational capacity of City DRRM Office, DRRM Council and Barangay DRRMCs	Organized and functional CDRRMC/O  Organized BDRRMCs	Prioritization of DRRM by current/incoming LCE	No. of capability/ competency activities of DRRMC members including sector/ unit conducted	All CDRRMC members  51 brgys  Creation of plantilla positions in CDRRMO	Executive Order  SP/Barangay Resolutions  After Trng Activity Report	Submission	LCE DRRMO DILG	CMO- CDRRMD C/BDRRMC PRC	Funds
10. Developed and implemented comprehensive local preparedness and	Review and update of plans, policies and systems	Review every year and updating of plans every 5 years or as the need arise	Commitment of LCE and CDRRMC members  Data collection	Copy of plans reviewed and updated	Regular review of plans and updating every 5 years for the city level and 3 years for	Submission of reports from BDRRMC	Submission	R/PDRRMC DILG LCE	CDRRMC TWG BDRRMC SP LCE	Funds Manpower



EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTION METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURCES NEEDED
response policies, plans and system					barangays level as per RA 10121					

### 8.3. Disaster Response and Early Recovery

EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTION METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURCES NEEDED
11. Well-established disaster response operations	Improved/ well-established Disaster Response Operations	Manual of Operation		Manual of Operation on Disaster Response	Provision of timely and efficient service to every affected populace	Journals/ SitRep	Submission	LCE	CDRRMC	Funds Manpower
12. Adequate and prompt assessment of needs and damages at all levels	Activation of assessment teams using the latest RDANA assessment tool	RDANA within 12 hrs of the disaster PDANA 5 days after the disaster	Dangerous/ unsafe location for the RDANA and PDANA team	EO on the creation of assessment teams  Reports from barangays as to the extent of damage	RDANA within 8 hrs and PDANA after 3 days	Reports from BDRRMCs	Submission or report	CDRRMC  Presence of disaster that warrants RDANA and PDANA activation	CDRRMC TWG	Funds Manpower
13. Integrated and coordinated Search, Rescue and Retrieval (SRR) capacity at all levels	Implementation of a system for SRR and management of the dead with concerned agencies	No. of trained personnel for SRR assigned in CDRRMO	Safety of responders  Unmanageable SRR Operations	Number of incidents/ SRR operations handled	All incidents are addressed and managed	Emergency calls/reports	Submission	Daily, As the Need Arise (ANA) Barangays LDRRMO	CDRRMO	Funds Manpower
14. Affected families were evacuated safely and	Provision and Implementation of Evacuation Camp Management	All affected communities/ barangays	Families/ communities resistant to evacuate	List of standard-based relief shelters and sites	All affected communities	EO on Forced/Pre-emptive evacuation  RA 10121		LCE R/PSWD DILG	CSWDO DepEd BDRRMCs CDRRMC Sectors/Unit	Manpower

EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTION METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURCES NEEDED
in timely manner						RA 10821				
15. Temporary shelter needs are adequately addressed	Provision and Implementation of Evacuation Camp Management	All affected communities/ barangays		Services provided inside and outside EC	All affected communities	RA 10121 RA 10821		LCE R/PSWD DILG	CSWDO DepEd BDRRMCs CDRRMC Sectors/Unit	Funds Manpower
16. Basic health services provided to affected population (whether inside or outside evacuation area)	Provide basic health services	All affected communities/ barangays	Provision of timely and appropriate health services to all affected individuals	Inventory of health facilities and services offered	All affected communities		Submission of report	Daily upon establishment of EC	CHO RHUs Hospitals	Funds Manpower
17. Psychosocial well-being promoted and mental health problems and risk reduced	Development/ conduct of psychosocial programs and referral systems	All affected individuals		No. of individuals conducted with psychosocial programs and referral system	All affected individuals are in good mental and psychological state			LCE CHO CSWDO	CSWDO CHO Counselling institutions Mental health Clinics	Funds Manpower
18. Coordinated, integrated systems for early recovery are implemented at the local levels	Establish partnership mechanism with key stakeholders and implement livelihood and/or income-generating activities	Sectors/ families affected by disaster/ calamity	Enable the affected population	No. of affected MSEs/ communities provided assistance	MSEs/ communities affected by calamity	Data/Report from CTECO, CMCDC	Submission of report	LCE	CDRRMC CTECO	Funds

## 8.4. Disaster Rehabilitation and Recovery

EXPECTED OUTPUTS/ RESULTS	PPA'S	BASELINE	ASSUMPTION RISK	OBJECTIVELY VERIFIABLE INDICATORS	TARGET	DATA RESOURCES	COLLECTION METHOD	FREQUENCY AND AUDIENCE OF THE REPORT	OPR/ COMMITTEE	RESOURCES NEEDED
19. Damage, losses and needed assessed	Strategic Action Plan (SAP) for PDANA	14 days post disaster damages, losses and needs assessment report prepared	Damages, losses and needs are not aptly addressed	Assessment report submitted by barangays affected	Action plan formulated were implemented to disaster-affected communities	Damages, Losses and Needs assessment of the barangays	Submission	As the Need Arise (ANA)	CDRRMC TWG	Funds Manpower
20. Economic activities restored and, if possible, strengthened or expanded	Provision of rehabilitation funds (micro-financing) for coops or MSEs affected by calamities who have no access to banking or financing institutions	Cooperatives/ MSEs affected	Access to banking and financing institutions to rebuild the livelihood project of affected MSEs that will enable their business to continue and recover quickly	Livelihood programs implemented  Number of beneficiaries provided by loan/ FA	Cooperatives/ MSEs affected by calamity	Data/ Reports from CDA, CMCDC	Submission of report	As the Need Arise (ANA)	CEEDO CTECO CSWDO NGOs CAgrO Business Sector	Funds
21. DRRM-CCA elements incorporated in human settlements	Identify and provide suitable relocation sites for affected population	All affected communities			Disaster-resilient housing designed and constructed / reconstructed  Self-sufficient communities with access to basic social services			LCE NHA HUDCC	Local Housing Board LIAC Local Shelter Committee CEO SP	Funds
22. Disaster and climate-resilient infrastructures	Reconstruction /renovation of damaged infrastructure  Promoting green technology	Damaged infrastructure			Infrastructural facilities reconstructed/ repaired/renovated/ rebuilt according to the standard codes			As the Need Arise (ANA), Immediately after the occurrence of calamity	CEO PEO DPWH Nat'l agencies, NGOs	Funds





# ANNEX A

## DRRM-CCA

### CAPACITY BUILDING



## ANNEX A: DRRM-CCA CAPACITY BUILDING

### DRRM-CCA RELATED TRAININGS CONDUCTED

To ensure continuous growth and development of the employees, CDRMO regularly send its team members to training. Through the years, the capacity-building workshops/ trainings made sure that network of DRRM personnel spoke a common language and worked together to achieve the common goal of disaster preparedness and quick response.

**Table No. 10: DRRM-CCA Trainings Attended**

<b>Title of Trainings</b>	<b>Date</b>
Training on Integrated Planning on Incident Command System	January 23-27, 2017
Contingency Planning Training of Facilitators	February 1-3, 2017
Collapsed Structure Search and Rescue Simulation Exercise	March 24, 2017
Water Search and Rescue (WaSAR)	July 5-7, 2017
ICS All Position Training	October 9-13, 2017
First Aid and Basic Life Support Training	December 9-10, 2017
All Hazard Incident Management Training	January 22-26, 2018
Trainers' Training	February 20-23, 2018
Motorcycle Rider Safety Course, First Aid and Basic Life Support Training, Water Search and Rescue (WaSAR)	March 2-4, 2018
Hazardous Material Training	March 13-14, 2018
DRRM Planning Seminar	April 18-20, 2018
Basic Aquatic Safety and Rescue Training (BASAR)	May 21-24, 2018
Training For Instructors	August 6-10, 2018
Standard First Aid and Cardiopulmonary Resuscitation (CPR)/AED Training	September 10-13, 2018
First Aid and Basic Life Support, WASAR Training	October 26-28, 2018
Training on Quality Assurance System: Review of Brgy. DRRM Plan	November 19-20, 2018
Disaster Risk Management and Institutional Strengthening Project	February 6-8, 2019
Disaster Response Trauma Training	February 26-28, 2019
Orientation on Comprehensive Emergency Program for Children	March 14, 2019
Orientation on LGU Resilience Readiness Monitoring (LRRM) Tool and Guided Data Capture	March 26-28, 2019



<b>Title of Trainings</b>	<b>Date</b>
Surface Water Search And Rescue Training	July 16-19, 2019
CSSR & Basic Rope Rescue	July 22-26, 2019
Workshop on the Preparation of Strategic Capacity Building Plans	July 29-31, 2019
Training on Enhanced LCCAP	Sept 25-27, 2019
BDRRM Training for Trainers	October 14-18, 2019
Basic Incident Command System	November 12-14, 2019
Safety & Evacuation Training	November 16, 2019
CDRA (Training of Trainers)	February 19-21, 2020
Training on Climate Disaster Risk Assessment for LGU's (Luzon Cluster)	February 23-26, 2020
Resource Optimization and Mobilization for LGU's CCA and DRR initiatives	February 26-29, 2020
Webinar Operationalizing PDITR Strategy in the Workplace	September 1, 2020
Infection Prevention and Control for COVID-19	September 30, 2020
Virtual Learning Session on Contingency Planning	October 23, 2020
Basic DRRM Training for P/C/MDRRMO Councils & BDRRM Committees	November 26, 2020
Standard First Aid and Cardiopulmonary Resuscitation (CPR)/AED Training	December 1-3, 9-11, 2020
Social & Behavior Change Communication in Public Health Emergencies	January 13-14, 2021
Standard First Aid and Basic Life Support Training	February 22-25, 2021
Introductory Course DRRM	February 23, 2021
Fire Safety & IPC on COVID-19 Orientation	March 25, 2021
Local Climate Change Expenditure Tagging	May 4, 2021
DRRM 101: Virtual Orientation on Philippine DRRM System	May 31, 2021
Orientation On Formulation Of Public Service Continuity Plan (PSCP)	May 31, 2021
Public Service Continuity Plan	June 1-3, 2021
Disaster for Preparedness in the Workplace	June 8, 2021
Technical Working Group Orientation on Comprehensive Emergency Program for Children	June 15, 2021
Division Quality Assurance of DRRM	July 19 & 21, 2021
Basic Incident Command System Training	July 26-31, August 23-28, 2021





Title of Trainings	Date
Rapid Earthquake Damage Assessment System (REDAS) Training	August 3-6, 16-18 & 20, 24-27, 2021
Community-Based Disaster Risk Reduction and Management Training Course	October 12-15, 2021
Workshop Preparation of Devolution Transition Plan	Oct 28-29, 2021
Trainer's Training on Community-Based Disaster Risk Reduction and Management (CBDRRM) Planning	November 3-5, 2021

### Basic and Advanced DRRM Training

Name	Hydromet	HAZMAT (Orientation)	CBDRRM	REDAS	RDANA	CSSR
Cesar B. Caluag, Jr.	✓			✓	✓	
Kathrina Pia Pedro	✓		✓	✓		
Louie Albert Dela Cruz		✓	✓			✓
Glenda J. Garcia			✓			
Bernar Ian Marata		✓				
Napoleon Bautista		✓				✓
Henry John Pascual		✓				✓
Niño Vicente Zacarias		✓				✓

### Incident Command system Training (Ladderized)

Name	Basic ICS	All Position Title	Integrated Planning	AHIMT	TFI
Cesar B. Caluag, Jr.	✓				
Kathrina Pia Pedro	✓	✓	✓	✓	
Louie Albert Dela Cruz	✓				
Michelle H. Pata	✓				
Maria Fe Lourdes Grace M. Sy	✓				

### Trainings Provided to NGOs, Barangay, Schools, Private Establishment and Communities

Through the years, Malolos CDRRMO was able to develop knowledge and skills necessary to empower communities. The Malolos City DRRM Council, because of its continued partnership



with LGUs, NGOs, Barangay, Schools, Private Establishment and Communities, provide trainings in CBDRRM, BLS/CPR, MCI Management, & Ambulance Operation Training, Basic Search and Rescue Course and soon Trainings on ICS as well. Below are trainings provided by CDRRMO to its partners.

**Table No. 11: DRRM-CCA Trainings Conducted**

<b>Title of Training</b>	<b>Date</b>	<b>Agency/ City/Municipality</b>
Division-wide First Aid and Basic Life Support Training	February 13-17, 20-24, 27-28, 2017	Selected Elementary School (Public)
Fire-Earthquake Drill	March 3, 2017	Robinsons Place Malolos
Division-wide First Aid and Basic Life Support Training	March 3, 6-10, 13-16, 2017	Selected Elementary & High School (Public)
First Aid and Basic Life Support Training	March 24, 2017	CMIS-Sto. Rosario SDO Staff, Tahanang Mapagpala
Barangay Emergency Response Training (BERT)	April - May 2017	51 Barangays
First Aid and Basic Life Support Training	May 25, 2017	PNP Malolos
Earthquake Drill	June 10, 2017	St. Francis Cooperative, Mojon Malolos
Fire And Earthquake Drill	July 31, August 1, 2017	St. Isodore De Seville Integrated School, Holy Spirit Academy of Malolos
First Aid and Basic Life Support Training	September 29, 2017	Grand Royale Subdivision
Disaster Preparedness Orientation	March 10, 2018	Rufina Home Owners' Association
First Aid and Basic Life Support Training	March 24, 2018	Victory Church
School Drill Monitoring	July 3-5, 2018	Bungahan ES, CMIS–Bungahan, Ligas ES, Balite ES, Sta. Isabel ES, Cofradia ES, HSAM, IMC, HIS, Sunbeam, LKBP, Food for Hungry Minds
NDRM Fire & Earthquake Drill	July 6, 2018	Lloyd Laboratory Inc.
Refresher Program: First Aid and Basic Life Support Training	July 7-10 & 12-14, 2018	DEPED Malolos, NGO's
School Drill Monitoring	July 10-13, 2018	San Pablo ES, Santor ES, Tikay ES, Dakila ES, CMIS-Catmon, MSM, San Pablo Educational Center, Bright Sparks, BES, Intelligence LC, LCUP, Praise Kiddie Northville
Refresher Program: First Aid and Basic Life Support Training	July 16-18, 2018	Selected Barangays
School Drill Monitoring	July 18-19, 24-25 & 31 - August 3, 2018	Longos ES, Caingin ES, San Agustin ES, ICSM, Darwin, Stma. Trinidad ES, Stma. Trinidad HS, Barihan ES, Look 1st ES, Lugam



<b>Title of Training</b>	<b>Date</b>	<b>Agency/ City/Municipality</b>
		ES, Pinagbakahan ES, Stella Orientis, Jesus Christ Ministerial School, CMIS- Sto. Rosario, San Juan ES, Calero ES, Sto. Cristo ES, Malolos Christian School, Malolos Adventist School, Easy Step Learning School, The Clarion School
Emergency First Aid Training	September 1, 2018	LCUP
School Drill Monitoring	September 21 & 28, 2018	St. Clement Academy, CEU
School Drill Monitoring	October 11-12 & 18-19, 2018	Jesus the King of Glory Faith, St. Joseph Parochial School, Holy Rosary Learning Center, Stella Maris Academy, ICSB, ICSM Metropolis, LAMS (Elem. /JHS / SHS), Mary the Queen School of Malolos
First Aid and Basic Life Support Training	October 23-26, 2018	DEPED DRR Focal Person
School Drill Monitoring	November 13-14, 16, 19-21, 2021	Gartens Learning Center, Gentle Academy of Malolos, Malolos Heights-UMC, Ma. Therese Montessori, Darwin International School, St. Ezekiel, Holy Rosary Learning Center, St. Amatiel, AMA Computer College, ABE, STI College, Divine Polytechnic, Holy Trinity Academy
Community First Aid Training	December 6-7, 2018	Bulacan State University
Review of BDRRM Plans	January 31, 2019	51 Barangays
Emergency First Aid Training	February 19, 2019	Paradise Resort & Hotel Resto
First Aid and Basic Life Support Training	March 7-8, 2019	Cosmetic Asia Tikay Malolos Bulacan
Fire and Earthquake Drill	March 8 & 15, 2019	CMIS-Atlag, Sacred Heart Hospital
Community First Aid Training	March 29-30, 2019	Brgy. Sumapang Matanda
Emergency First Aid Training	April 12, 2019	Bulacan Industrial (Tikay-Sucere)
First Aid and Basic Life Support Training	April 23-26 & 29-30, May 2-3, 7-10, 14-17, 21-24, 28-31 2019	DepED
Disaster Preparedness Orientation	July 25 & 31, 2019	Santor ES, Sumapang Bata ES
Earthquake Drill Monitoring	February 19-21, 24 & 26-28, 2020	Easy Step Learning School, Malolos Adventist School, Stella Orientis, St. Joseph Parochial School, MERR-C Society Academy, Jesus the King Faith School, Mary the Queen, Clarion School, Holy Infant School, Holy





<b>Title of Training</b>	<b>Date</b>	<b>Agency/ City/Municipality</b>
		Rosary School, Malolos Christian School, ABE Computer College, Bulacan Ecumenical School
Earthquake Drill Monitoring	March 2-6 & 9, 2020	Ma. Therese Montessori, Stella Mariz Academy, Isidore De Seville, South Ville Academy, Montessori School of Malolos, ICSM - Metropolis, Food for Hungry Minds, Gartens Learning Center, St. Amatiel Learning School, Malolos Ecumenical School, Darwin International School
Assistance & Teaching Demonstration On Bandaging Techique	July 2, 2021	Tikay Elem. School (DepED Malolos DRRM Coordinator Dist.3)
Teching Assistance & Demonstration on CPR	July 14, 2021	Heritge Homes Malolos (DepED Malolos DRR Coordinator Dist.3)
Barangay Emergency Response Training	July-September 2021	All barangays



# ANNEX B

NATIONAL AND INTERNATIONAL  
DRRM-CCA POLICIES/  
GUIDELINES/ RESOLUTION



## ANNEX B: NATIONAL AND INTERNATIONAL DRRM-CCA POLICIES/ GUIDELINES/ RESOLUTIONS

### a. Sendai Framework

When the NDRRMP was formulated in 2011, the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters was still the global blueprint for disaster risk reduction. When the HFA concluded in 2015, it was replaced by the **Sendai Framework for Disaster Risk Reduction (SFDRR) 2015–2030**. The Philippines affirmed its commitment to reduce the loss of lives and assets due to disasters by adopting the SFDRR. The SFDRR aims to protect lives, health, livelihoods, ecosystems, cultural heritage, and critical infrastructure from natural and human-induced hazards over the next 15 years. SFDRR seeks to bring about “the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.” Central to SFDRR is to “prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.”

There are notable differences between the SFDRR and HFA, some of which are outlined below:

- The SFDRR highlighted evolving risk patterns while HFA emphasized static risk. This is a strong indication of changes caused by climate change. As a result, the Updated NDRRMP adjusts its actions under the thematic areas on prevention and mitigation, preparedness and response to take a more proactive consideration of the evolving risks and highlight more anticipatory actions;
  - Under HFA, vulnerabilities were seen as automatically associated with marginalized groups such as women, older persons, and children and youth. Through the years, it was revealed that this is not the case and that vulnerabilities are functions of systemic arrangements. With this, the SFDRR addressed the concern by enhancing actions around risk governance to reduce people’s vulnerabilities brought about by institutional arrangements; and,
  - The HFA was able to achieve its main objective of increasing awareness on risks and risk-centered approaches. On the other hand, the SFDRR is moving towards a more action-oriented application of risk-centered approaches, including in sectors like health (again related to the evolving risk patterns brought about by climate change)
- The SFDRR is focused on four (4) priority areas for action, namely: 1) understanding disaster risk; (2) strengthening disaster risk governance to manage disaster risk; (3) investing in disaster risk reduction for resilience; and (4) enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction. Further, the SFDRR has seven (7) global targets which include: (a)





Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015; (b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015; (c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030; (d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030; (e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020; (f) Substantially enhance international cooperation among developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030; and (g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

(Source: NDRRMP 2020-2030; United Nations. 2015. *Sendai Framework for Disaster Risk Reduction 2015-2030*. Geneva.)

## b. Paris Agreement

The Paris Agreement, which builds upon the Kyoto Protocol and Copenhagen Accord, brings all nations to partake in the efforts to combat climate change and to help each other out in adapting to its effects. It was agreed upon in 2015 but was put in force in 2016. The Philippines ratified the Paris Agreement through a joint resolution in Congress. In particular, the agreement aims to strengthen the global response to the threat of climate change in the context of sustainable development and effort to eradicate poverty by:

- Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels;
- Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;
- Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development<sup>9</sup>; and,
- Resilience and risk management to avert loss and damage and to address other loss and damage concerns

All countries that committed to the Paris Agreement have nationally determined contributions (NDCs), which require them to report regularly on their emissions and on their implementation efforts. The Philippine Government submitted its intended NDC in 2015. Specifically, the country's reduction target of greenhouse gas (GHG) emissions was conditionally set at about 70% by 2030 relative to its Business-As-Usual (BAU) scenario of 2000-2030. Reduction of GHG emissions may come from energy, transport, waste, forestry, and industry sectors, which should be pursued without sacrificing the economic



resilience and development of the Philippines. The contribution on mitigation is dependent on the extent of financial resources, technology development and transfer, and capacity development available to the country. Further, adaptation is also included in the Philippines' INDC. The country commits to ensure that CCA and DRR are mainstreamed and integrated in its plans and programs at all levels.

*(Source: NDRRMP 2020-2030; [https://www.ctcn.org/sites/www.ctcn.org/files/UNFCCC\\_docs/philippines\\_-\\_final\\_indc\\_submission\\_4.pdf](https://www.ctcn.org/sites/www.ctcn.org/files/UNFCCC_docs/philippines_-_final_indc_submission_4.pdf))*

### **c. Ambisyon Natin 2040**

Ambisyon Natin 2040 outlines the long-term vision and aspirations of the Filipino people for themselves and for the country. The crafting of the vision started in 2015 involving different stakeholders from the public and private sectors through focus group discussion and conduct of national survey. Ambisyon 2040 is seen as an anchor for development planning that will steer the path Filipinos towards a stable and comfortable life. Ambisyon Natin 2040 envisions that all Filipinos experience a strongly rooted, comfortable, and secure life (Matatag, Maginhawa at Panatag na Buhay) by 2040. With this vision, Filipinos are hoped to demonstrate close family ties and strong sense of community; Filipinos are free from poverty and hunger; Filipinos live long and enjoy a comfortable life; and Filipinos are protected by a clean and fair government.

Both the public and private sectors are deemed to have an important role to play in achieving the goals of Ambisyon Natin 2040. However, the government has the primary responsibility in enabling every Filipino to realize the vision of development. The kind of development that Ambisyon Natin 2040 desires for all Filipinos covers all aspects and these include economic, human and physical, institutional, and socio-cultural.

*(Source: NDRRMP 2020-2030)*

### **d. Philippine Climate Change Act of 2009 (RA 9729)**

It is the policy of the State to afford full protection and the advancement of the right of the people to a healthful ecology in accord with the rhythm and harmony of nature. In this light, the State has adopted the Philippine Agenda 21 framework which espouses sustainable development, to fulfill human needs while maintaining the quality of the natural environment for current and future generations.

Towards this end, the State adopts the principle of protecting the climate system for the benefit of humankind, on the basis of climate justice or common but differentiated responsibilities and the Precautionary Principle to guide decision-making in climate risk management. As a party to the United Nations Framework Convention on Climate Change, the State adopts the ultimate objective of the Convention which is the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system which should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. As a party to the Hyogo Framework for Action, the State likewise



adopts the strategic goals in order to build national and local resilience to climate change-related disasters.

Recognizing the vulnerability of the Philippine archipelago and its local communities, particularly the poor, women, and children, to potential dangerous consequences of climate change such as rising seas, changing landscapes, increasing frequency and/or severity of droughts, fires, floods and storms, climate-related illnesses and diseases, damage to ecosystems, biodiversity loss that affect the country's environment, culture, and economy, the State shall cooperate with the global community in the resolution of climate change issues, including disaster risk reduction. It shall be the policy of the State to enjoin the participation of national and local governments, businesses, nongovernment organizations, local communities and the public to prevent and reduce the adverse impacts of climate change and, at the same time, maximize the benefits of climate change. It shall also be the policy of the State to incorporate a gender-sensitive, pro-children and pro-poor perspective in all climate change and renewable energy efforts, plans and programs. In view thereof, the State shall strengthen, integrate, consolidate and institutionalize government initiatives to achieve coordination in the implementation of plans and programs to address climate change in the context of sustainable development.

Further recognizing that climate change and disaster risk reduction are closely interrelated and effective disaster risk reduction will enhance climate change adaptive capacity, the State shall integrate disaster risk reduction into climate change programs and initiatives.

Cognizant of the need to ensure that national and sub-national government policies, plans, programs and projects are founded upon sound environmental considerations and the principle of sustainable development, it is hereby declared the policy of the State to systematically integrate the concept of climate change in various phases of policy formulation, development plans, poverty reduction strategies and other development tools and techniques by all agencies and instrumentalities of the government.

*(Source: <https://www.officialgazette.gov.ph/2009/10/23/republic-act-no-9729/>)*

**e. Presidential Decree 1566 “Strengthening the Philippine Disaster Control Capability and Establishing a Community Disaster Preparedness Program Nationwide”**

It is the policy of the State that:

- a. Self-reliance shall be developed by promoting and encouraging the spirit of self-help and mutual assistance among the local officials and their constituents;
- b. Each political and administrative subdivision of the country shall utilize all available resources in the area before asking for assistance from neighboring entities or higher authority;
- c. The primary responsibility rests on the government agencies in the affected areas in coordination with the people themselves;





- d. It shall be the responsibility of all government departments, bureaus, agencies and instrumentalities to have documented plans of their emergency functions and activities;
- e. Planning and operation shall also be done on the barangay level in an inter-agency, multi-sectoral basis to optimize the utilization of resources;
- f. On the absence of a duly constituted regional government, national government offices at the regional level shall be led and operationally controlled by the Regional Commissioner or by the official so designated by the President;
- g. Responsibility for leadership rests on the Provincial Governor, City Mayors, and Municipal Mayors, (and Barangay Chairman), each according to his area of responsibility;
- h. When an emergency affects an area covering several towns and cities, the city mayors and their personnel and facilities shall be placed under the operational control of the Provincial Governor for the duration of the emergency;
- i. The national government exists to support the local government. In time of emergencies and according to their level of assignment, all national government offices in the field shall support the operations of the local government; and
- j. To ensure that operational activities become automatic and second nature to all concerned, exercises and periodic drills shall be conducted at all levels, principally at the Barangays.

(Source: <https://www.officialgazette.gov.ph/1978/06/11/presidential-decree-no-1566-s-1978/>)

**f. Republic Act 10121 “Philippine Disaster Risk Reduction and Management Act of 2010”**

The Act shifted the policy environment and the way the country deals with disasters from mere response to preparedness. RA 10121 provides a comprehensive, all-hazard, multi-sectoral, inter-agency, and community-based approach to disaster risk management through the formulation of the National Disaster Risk Management Framework.

A National Disaster Risk Management Plan (NDRMP) is being formulated, developed, and implemented as the master plan that will provide the strategies, organization, tasks of concerned agencies and local government units, and other guidelines in dealing with disasters or emergencies. Through this plan, a coherent, integrated, efficient, and responsive disaster risk management at all levels will hopefully be achieved.

The law also promotes the development of capacities in disaster management at the individual, organizational, and institutional levels. A very important feature of this law is its call for the mainstreaming of disaster risk reduction in physical and land-use planning, budget, infrastructure, education, health, environment, housing, and other sectors.

RA 10121 also recognizes local risk patterns and trends and decentralization of resources and responsibilities and thus encourages the participation of NGOs, private sectors, community-based organizations, and community members in disaster management. It inhibits the full participation of the Local Government Units (LGUs) and communities in



governance. The approach tends to be 'response-oriented' or 'reactive.' This is evidenced by the widespread emphasis on post-disaster relief and short-term preparedness, such as forecasting and evacuation, rather than on mitigation and post-disaster support for economic recovery.

Moreover, the Act mandates the establishment of a Disaster Risk Reduction and Management Office (DRRMO) in every province, city and municipality, and a Barangay Disaster Risk Reduction and Management Committee (BDRRMC) in every barangay.

The Strategic National Action Plan on Disaster Risk Reduction for 2009-2019 aims to enhance the capacities of Local Disaster Risk Reduction and Management Councils.

Finally, RA10121 provides for the calamity fund to be used in support of disaster risk reduction or mitigation, prevention, and preparedness activities for the potential occurrence of disasters and not just for response, relief, and rehabilitation efforts.

*(Source: <https://climate-laws.org/geographies/philippines/laws/philippine-disaster-reduction-and-management-act-ra-10121>)*

**g. National Disaster Risk Reduction and Management Council, Department of Budget and Management and Department of Interior and Local Government – Joint Memorandum Circular No. 2013-1**

The recently approved National Disaster Risk Reduction and Management Plan (NDRRMP) 2011-2028 shall become the basis in the preparation of Local Disaster Risk Reduction and Management Plans (LDRRMP) to be validated and accustomed to the local needs for prevention and mitigation, preparedness, response, rehabilitation and recovery.

Section 2 (e) of RA 10121 provides that it is the policy of the State to develop, promote, and implement a comprehensive NDRRMP that aims to strengthen the capacity of the national government and the LGUs, together with partner stakeholders, to build the disaster resilience of communities, and to institutionalize arrangements and measures for reducing disaster risks, including projected climate risks and enhancing disaster preparedness and response capabilities at all levels.

The LDRRMP shall be the basis in the allocation of LDRRMF. The LGUs have to “formulate and implement a comprehensive and integrated LDRRMP on accordance with the national, regional and provincial framework, and policies on disaster risk reduction in close coordination with the local development councils” (Section 12 (6) of RA 10121). It should encompass the four (4) thematic areas of disaster risk reduction and management such as disaster prevention and mitigation, disaster preparedness, disaster response, and disaster rehabilitation and recovery.

*(Source: [https://ndrrmc.gov.ph/attachments/article/1320/JMC\\_No\\_20131\\_re\\_Allocation\\_and\\_Utilization\\_of\\_LDRRMF.pdf](https://ndrrmc.gov.ph/attachments/article/1320/JMC_No_20131_re_Allocation_and_Utilization_of_LDRRMF.pdf))*



#### **h. Republic Act 10821 “Children’s Emergency Relief and Protection Act”**

Enacted in 2016, the Children’s Emergency Relief and Protection Act, otherwise known as RA 10821, mandates the protection of the fundamental rights of children before, during, and after disasters and other emergency situations. The law obligates the national and local government to implement and maintain a comprehensive emergency program to prioritize the survival and protection of children, pregnant, and lactating mothers during disasters and emergencies. Through the leadership of the DSWD, the Comprehensive Emergency Program for Children (CEPC) was crafted and has eight (8) components which include the following: (1) establishment of evacuation centers; (2) establishment of child and women-friendly transitional shelters; (3) immediate delivery of basic necessities and services; (4) stronger measures to ensure safety and security of affected children; (5) delivery of health, medical and nutritional services; (6) plan of action for prompt resumption of educational services for children; (7) establishment of child-friendly spaces in evacuation centers and transitional sites; and (8) promotion of children’s rights during disaster and emergency situations.

*(Source: NDRRMP 2020-2030; Government of the Philippines. 2018. National Security Strategy: Security and Development for Transformational Change and Well-Being of the Filipino People. Manila.)*

#### **i. National Action Plan Against COVID-19**

The National Action Plan against COVID-19 (NAP-COVID19) outlines the national strategy and broad guidelines to contain and prevent the spread and eliminate the threat of COVID-19. The first phase of the NAP which was implemented from March to June 2020 was primarily focused on the prevention, containment, and elimination of COVID-19 while mitigating the social, economic, and security impacts of the pandemic. Meanwhile the second phase of the NAP which ran from July to September 2020 brought further refinements to the strategy by adopting measures to keep the COVID-19 fatalities low while also enacting measures to foster the economic recovery of the country.

As the NAP-COVID19 enters the third phase, the focus shifts from risks aversion to risk management as it sustains the gains from the previous phases while providing and equilibrium both on health safety and economic recovery.

*(Source: <https://ndrrmc.gov.ph/attachments/article/4148/National-Action-Plan-against-COVID19-Phase-III.pdf>)*

#### **j. Republic Act 7277 of the Magna Carta for Disabled Persons**

The grant of the rights and privileges for disabled persons shall be guided by the following principles:

(a) Disabled persons are part of Philippine society, thus the State shall give full support to the improvement of the total well-being of disabled persons and their integration into the mainstream of society. Toward this end, the State shall adopt policies ensuring the rehabilitation, self-development and self-reliance of disabled persons. It shall develop their skills and potentials to enable them to compete favorably for available opportunities.



(b) Disabled persons have the same rights as other people to take their proper place in society. They should be able to live freely and as independently as possible. This must be the concern of everyone — the family, community and all government and nongovernment organizations. Disabled persons' rights must never be perceived as welfare services by the Government.

(c) The rehabilitation of the disabled persons shall be the concern of the Government in order to foster their capacity to attain a more meaningful, productive and satisfying life. To reach out to a greater number of disabled persons, the rehabilitation services and benefits shall be expanded beyond the traditional urban-based centers to community based programs that will ensure full participation of different sectors as supported by national and local government agencies.

(d) The State also recognizes the role of the private sector in promoting the welfare of disabled persons and shall encourage partnership in programs that address their needs and concerns.

(e) To facilitate integration of disabled persons into the mainstream of society, the State shall advocate for and encourage respect for disabled persons. The State shall exert all efforts to remove all social, cultural, economic, environmental and attitudinal barriers that are prejudicial to disabled persons.

(Source: <http://hrlibrary.umn.edu/research/Philippines/RA%207277%20%20Magna%20Carta%20of%20Disabled%20Persons.pdf>)

**k. Republic Act 10754 “An Act Expanding the Benefits and Privileges of Persons with Disabilities (PWDs)”**

It is the declared policy of the State to give full support to the improvement of well-being and integration into mainstream society of persons with disability. It is the objective of Republic Act No. 10754 to provide persons with disability the opportunity to participate fully into the mainstream of society by granting them at least twenty (20%) discount and exemption from the value added tax on the sale of certain goods and services identified under Republic Act No. 9442 for the exclusive use, enjoyment or avilment of persons with disability.

(Source: <https://www.ncda.gov.ph/disability-laws/implementing-rules-and-regulations-irr/irr-of-ra-10754-an-act-expanding-the-benefits-and-privileges-of-persons-with-disability-pwd/>)

**l. Batas Pambansa (BP) 344 “An Act to Enhance the Mobility of Disabled Persons”**

In order to promote the realization of the rights of disabled persons to participate fully in the social life and the development of the societies in which they live and the enjoyment of the opportunities available to other citizens, no license or permit for the construction, repair or renovation of public and private buildings for public use. Educational institutions, airports, sports and recreation centers and complexes, shopping centers or establishments, public parking places, work-places, public utilities, shall be granted or issued unless the owner or operator thereof shall install and incorporate in such building, establishment, institution or public utility, such architectural facilities or structural features as shall





reasonably enhance the mobility of disabled persons such as sidewalks, ramps, railings and the like. If feasible, all such existing buildings, institutions, establishments, or public utilities to be constructed or established for which licenses or permits had already been issued may comply with the requirements of this law: Provided, further, that in case of government buildings, street and highways, the Ministry of Public Works and Highways shall see to it that the same shall be provided with architectural facilities or structural features for disabled persons. In the case of the parking place of any of the above institutions, buildings, or establishment, or public utilities, the owner or operator shall reserve sufficient and suitable space for the use of disabled persons.

In case of public conveyance, devices such as the prominent display of posters or stickers shall be used to generate public awareness of the rights of the disabled and foster understanding of their special needs. Special bus stops shall be designed for disabled persons. Discriminating against disabled persons in the carriage or transportation of passengers is hereby declared unlawful.

(Source: <https://www.ncda.gov.ph/disability-laws/batas-pambansa/batas-pambansa-blg-344/>)

**m. Republic Act 10070 “Establishing Institutional Mechanism to ensure the implementation of programs and services for persons with disabilities in every province, city and municipality – Persons with Disability Affairs (PDAO)”**

It is declared policy of RA No. 7277 that persons with disabilities are part of the Philippine society, and thus the State shall give full support to the improvement of their total well – being and their integration into the mainstream of society. They have the same rights as other people to take their proper place in society. The main objectives of RA 10070 is to ensure that policies, programs and services for persons with disabilities are implemented at local level for them to fully participate in building an inclusive society for all.

(Source: <https://www.ncda.gov.ph/disability-laws/implementing-rules-and-regulations-irr/irr-of-republic-act-no-10070/>)

**n. Republic Act 7876 “An Act Establishing a Senior Citizens Center in all cities and municipalities of the Philippines, and appropriating funds therefor”**

It is the declared policy of the State to provide adequate social services and an improved quality of life for all. For this purpose, the State shall adopt an integrated and comprehensive approach towards health development giving priority to elderly among others.

(Source: [https://doh.gov.ph/sites/default/files/policies\\_and\\_laws/Ra07876.pdf](https://doh.gov.ph/sites/default/files/policies_and_laws/Ra07876.pdf))

# ANNEX C

## PROGRAMS, PROJECTS AND ACTIVITIES





## ANNEX C: PROGRAMS, PROJECTS AND ACTIVITIES

The 2022-2026 DRRM Plan replaces the existing Disaster Management Plan of the City to meet the requirements of RA 10121 and update city policies and thrusts in dealing with disasters. The new master plan also covers four (4) thematic areas--**Disaster Prevention and Mitigation, Preparedness, Response and Rehabilitation and Recovery.**

- This year, the City Government of Malolos is starting the project Modernization of Monitoring System and also as part of Community Based Monitoring, Mitigation and Management Program (CBMMMP). The integration of high technology equipment and instruments for an efficient and real time monitoring of weather and Situations conditions and water levels in waterways provide timely and accurate information needed for immediate decisions and actions, thus preventing further damage to lives and property. The modernization involves the installation of CCTVs, the viewing system at the CDRRMC OpCen (City of Malolos Operation Center), besides the installation of Rain Gauge in identified sites.
- CDRRMC's strengthening of Public Private Partnerships (PPEs) towards disaster preparedness programs. The following clearly illustrate how CDRRMC has built the confidence of the constituents to work hand-in-hand with BDRRMC.
- The CDRRMC continuously professionalizes the Malolos Rescue through training and capability building activities. These include -Incident Command System (ICS), Swift Water, Collapsed Structure Search and Rescue Training, and Water Safety and Rescue, Ambulance Management, Mass Casualty Incident Management Training, and many others. Training is conducted in partnership with national, local, NGOs and private institutions.
- Through the years, the City Government of Malolos, through the help of partner agencies, develop knowledge and skills necessary to empower communities. Because of its continued partnership with LGUs, NGOs, Barangays, Schools, Private Establishment and Communities provide trainings in BLS / CPR, WASAR, MCI Management, & Ambulance Operation Training, Basic Search and Rescue Course, CSSR, Hazmat Awareness Training and soon Trainings on ICS as well. Below are trainings provided by Bulacan Rescue to its partners:
  - Provision of trainings and equipment to the 51 Barangays in the City and thru the project Malolos Rescuelympics, Malolos Fire Olympics and Barangay Emergency Response Training, the CDRRMO was able to distribute equipments to a number of NGOs, schools, and other institutions.
  - Strong connection with Volunteers/NGO partners like the KABALIKAT-CIVICOM, CMMARON, BANTAY BAYAN, BANTAY DAGAT, PRC, BERT, School and Collages DRRMOs, and partners has paved the way towards promoting people's welfare and security. Also included as partners of Malolos CDRRMO are Save the Children and NGOs which are both concern with developing a DRRM Plan which is child friendly and Persons with Special Needs inclusive through Community Based DRRM Planning.



- Implementation of ICS in the province is strengthened by an Executive Order issued by the Mayor encouraging all Barangays to strictly implement the principles of ICS in any emergency.
- CDRRMC spearheaded the distribution of Listo Malolenyo: Gabay sa Paghahanda at Pagtugon sa Sakuna, Emergency Hotline Posters, Disaster Risk Reduction and Management Plans and Localized IEC leaflets to the different sectors of the community.



PROGRAM / PROJECT ACTIVITY DESCRIPTION	EXPECTED OUTPUTS	TARGE T	Target Budget Per Year				
			2022	2023	2024	2025	2026
Disaster Risk Reduction, Emergency and Climate Change Adaptation Program	Disaster Risk Reduction, Emergency and Climate Change Adaptation Services	January - December					
<b>1. PREPAREDNESS</b>							
<b>A. Capability Building Trainings/Seminars, Information, Education and Communication Campaign for CDRRMC personnel and different sectors (barangay, schools, VOs, NGOs, Rescue and Response Teams organized and other partners)</b>							
Conduct of Medical Services Orientation/Training/Trainors Training (First Aid-BLS, ACLS, Ambulance Management, Mental Health and Psychosocial Support, Emerging Diseases Response, Infection, Prevention and Control, etc.) <b>(LDRRM FUND)</b>	Increase in the number of established and capacitated response teams on different emergency and rescue skills	January - December	700,000.00	770,000.00	847,000.00	889,350.00	933,817.50
Conduct of Search and Rescue Trainings (Water/Basic Aquatic Search and Rescue, Surface Water Rescue, Collapsed Structure Search and Rescue, Fire Suppression and Hazardous Materials Management, etc.) <b>(LDRRM FUND)</b>	Increase in the number of established and capacitated response teams on different emergency and rescue skills	January - December	250,000.00	275,000.00	302,500.00	317,625.00	333,506.25

PROGRAM / PROJECT ACTIVITY DESCRIPTION	EXPECTED OUTPUTS	TARGE T	Target Budget Per Year				
			2022	2023	2024	2025	2026
Conduct of Trainings/Orientations on Evacuation Camp Management and Quarantine Facility Management <b>(LDRRM FUND)</b>	Established and functional Camp Management System	January - December	150,000.00	165,000.00	181,500.00	190,575.00	200,103.75
Conduct/Attend Trainings/Orientations on Incident Management System Course <b>(LDRRM FUND)</b>	Established and functional Management Incident Team	January - December	250,000.00	275,000.00	302,500.00	317,625.00	333,506.25
Conduct /Attend Trainings/Writeshops for the Preparation/Review/Amendment and Finalization of Contingency Plan, DRRM Plan, LCCAP and other plans <b>(LDRRM FUND)</b>	Enhanced/Updated DRRMP, LCCAP and All hazard Contingency Plan	January - December	150,000.00	250,000.00	275,000.00	288,750.00	303,187.50
Attend and conduct various DRRM and CCA orientations/trainings and summits (CBDRRM, PDNA, RDANA, Management of the Dead and Missing, Operation Center Management, etc.) <b>(LDRRM FUND)</b>	Increase in the number of trained/capacitated stakeholders in DRRM-CCA	January - December	150,000.00	165,000.00	181,500.00	190,575.00	200,103.75
Supervise/Conduct Orientation/ Lecture/ Drill/ Simulation Exercise on Earthquake/ Fire/ Typhoon/ Dam Break and other hazards <b>(LDRRM FUND)</b>	Increased awareness and ability of the community in responding to emergencies	January - December	50,000.00	150,000.00	165,000.00	173,250.00	181,912.50
<b>B. Facilitate activities in observance of Fire Prevention Month (LDRRM FUND)</b>	Increased awareness, improved fire fighting skills, minimal occurrence/incident of fire and fire-related disasters	February - March	250,000.00	600,000.00	660,000.00	693,000.00	727,650.00

PROGRAM / PROJECT ACTIVITY DESCRIPTION	EXPECTED OUTPUTS	TARGE T	Target Budget Per Year				
			2022	2023	2024	2025	2026
<b>C. Facilitate activities in the observance of Disaster Resilience Month (LDRRM FUND)</b>							
Conduct of DRR-CCA activities (Rescuelympics, DRRM Contests, Kick-off parade, DRRM-CCA Orientations/Summits, etc.) (LDRRM FUND)	Increased awareness in Disaster Risk Reduction and Climate Change Adaptation	May - August	800,000.00	1,000,000.00	1,100,000.00	1,155,000.00	1,212,750.00
Attend to National/Regional/ Provincial Rescue competitions and other competitions (LDRRM FUND)	Improved skills, enhanced camaraderie and strengthened communication amongst agencies and rescue groups	January - December	50,000.00	200,000.00	220,000.00	231,000.00	242,550.00
<b>D. Information, Education and Communication Campaign on DRRM-CCA (LDRRM FUND)</b>		January - December					
Purchase /Printing and Distribution of information materials (manual/book/foster), safety signages, warning signs, etc. (LDRRM FUND)	Increase in the number of disseminated IEC materials for heightened public awareness & sensibility towards DRRM	January - December	550,000.00	605,000.00	665,500.00	698,775.00	733,713.75
<b>E. Procurement of rescue tools, equipment and vehicles for CDRRMC, barangay, school, NGOs, VGs and other partners (LDRRM FUND)</b>	Capacitated community and response groups that provides immediate and appropriate response to victims of emergencies	January - December					
Purchased of life saving equipment, supplies and medicines for emergency response operations and disaster risk management programs (LDRRM FUND)		January - December	1,000,000.00	3,000,000.00	3,300,000.00	3,465,000.00	3,638,250.00

PROGRAM / PROJECT ACTIVITY DESCRIPTION	EXPECTED OUTPUTS	TARGE T	Target Budget Per Year				
			2022	2023	2024	2025	2026
Procurement of various rescue equipment, vehicles and supplies for emergency/disaster response (WASAR, Fire Suppression, CVERT, CSSR, heavy equipment, communication system, etc.) (LDRRM FUND)		January - December	6,000,000.00	6,600,000.00	7,260,000.00	7,623,000.00	8,004,150.00
<b>F. Construction/ Establishment/ Equipping of CDRRMC Operation Center and Regional Evacuation Center</b>	Established & capacitated Operation and Evacuation Center that provides efficient, timely and appropriate service to all constituents	January - December					
Construction/Upgrading of Operation/Command Center (Annex) (LDRRM FUND)		January - December	10,000,000.00	5,000,000.00	5,000,000.00	5,250,000.00	5,512,500.00
Equipping of Operation /Command Center (LDRRM FUND)		January - December	1,717,092.48	3,000,000.00	3,300,000.00	3,465,000.00	3,638,250.00
Equipping of Operation /Command Center (GENERAL FUND)		January - December	3,000,000.00	3,300,000.00	3,630,000.00	3,811,500.00	4,002,075.00
Equipping of Regional Evacuation Center (LDRRM FUND)		January - December	750,000.00	825,000.00	907,500.00	952,875.00	1,000,518.75
Equipping of Regional Evacuation Center (GENERAL FUND)		January - December	1,700,000.00	1,870,000.00	2,057,000.00	2,159,850.00	2,267,842.50
Insurance Expenses (Regional Evacuation Center and Operation/Command Center) (LDRRM FUND)		January - December	1,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00



PROGRAM / PROJECT ACTIVITY DESCRIPTION	EXPECTED OUTPUTS	TARGE T	Target Budget Per Year				
			2022	2023	2024	2025	2026
<b>G. Maintenance and Other Operating Expenses (GENERAL FUND)</b>	Quality service was continuously provided to all constituents	January - December	2,100,000.00	2,310,000.00	2,541,000.00	2,668,050.00	2,801,452.50
<b>2. PREVENTION AND MITIGATION</b>							
<i>Structural</i>							
Installation/Upgrade/Maintenance of Early Warning System/Devices (rain gauges, automated weather station, staff gauges, flood markers, etc.) <b>(LDRRM FUND)</b>	Communities are continuously informed with timely and meaningful warning information	January - December	1,050,000.00	2,000,000.00	2,200,000.00	2,310,000.00	2,425,500.00
Develop disaster-related infrastructure projects/programs <b>(GENERAL FUND)</b>	Effects of hazards present (like flooding) are decreased/mitigated	January - December	1,000,000.00	1,100,000.00	1,210,000.00	1,270,500.00	1,334,025.00
<i>Non Structural</i>							
Conduct/Attend Risk Assessment, Vulnerability Analysis, Comprehensive Hazard Mapping and other DRRM-CCA Planning related training <b>(LDRRM FUND)</b>	Increase in the number of trained/capacitated stakeholders in DRRM-CCA	January - December	100,000.00	110,000.00	121,000.00	127,050.00	133,402.50
<b>3. RESPONSE</b>							
A. Equipping of personnel and response teams for disaster/emergency operations <b>(LDRRM FUND)</b>	Capacitated community and response groups that provides immediate and appropriate response to victims of emergencies	January - December	904,000.00	1,500,000.00	1,650,000.00	1,732,500.00	1,819,125.00
B. First Aider and Emergency response in observance of special events (City civic/historical/religious gatherings, SUMVAC, Oplan	Safe, secured and orderly conduct and observance of events	January - December	200,000.00	214,000.00	235,400.00	247,170.00	259,528.50

PROGRAM / PROJECT ACTIVITY DESCRIPTION	EXPECTED OUTPUTS	TARGE T	Target Budget Per Year				
			2022	2023	2024	2025	2026
Kaluluwa, Oplan Iwas Paputok, etc.) (LDRRM FUND)							
C. QUICK RESPONSE FUND (LDRRM FUND)		January - December	23,387,611.06	25,024,743.83	25,500,000.00	24,720,000.00	23,880,000.00
<b>4. REHABILITATION AND RECOVERY</b>							
A. Overall guidance on the rapid time element in providing humanitarian activities and recovering from disaster (LDRRM FUND)	Assistance given to victims of calamities/ emergencies	January - December	2,000,000.00	2,140,000.00	2,354,000.00	2,471,700.00	2,595,285.00
B. Disaster Recovery Program (LDRRM FUND)	Mitigated impact/effects of climate change and hazard-related incidents	January - December	1,500,000.00	1,605,000.00	1,765,500.00	1,853,775.00	1,946,463.75
<b>5. COVID-19 PROGRAMS, PROJECTS AND ACTIVITIES</b>							
Covid-19 Related Programs, Projects and Activities (LDRRM FUND)			13,000,000.00	8,000,000.00	5,000,000.00	3,000,000.00	2,000,000.00
Covid-19 Vaccination Program (LDRRM FUND)			12,000,000.00	12,000,000.00	10,000,000.00	8,000,000.00	5,000,000.00





# ANNEX D

## CDRRMC MEMBERS AND FUNCTIONS





## ANNEX D: CDRRMC MEMBERS AND FUNCTIONS

### Members of the City Disaster Risk Reduction and Management Council

Name	Designation	Action Officer	Functions
<b>Department of Education</b>			
<b>Dr. Norma P. Esteban, CESO V</b>	Schools Division Supervisor		<ul style="list-style-type: none"> <li>• Act as resource and recommending body in support of the functions of the CDRRMC</li> <li>• Organizes School Disaster Risk Reduction and Management Groups (SDRRMG) and engages boy scouts, girl scouts, and CMT students in the activities of said disaster control groups</li> <li>• Assist in public education, campaigns, and advocacies through the integration of DRR-CCA topics in the school curricula</li> <li>• Gather reports from school affected by calamities, verifies such reports, and submits the same to the PDRRMC</li> <li>• Disseminates weather information to the general public, through the school population and reiterates compliance to prevailing guidelines on suspension of classes during inclement weather</li> <li>• Makes available schools in disaster-affected areas as evacuation centers where and when necessary</li> <li>• Facilitates access of school to instructional materials on DRR-CCA through proper coordination with the other member agencies</li> </ul>
<b>City Engineer's Office</b>			
<b>Engr. Ricasol P. Millan</b>	City Engineer		<ul style="list-style-type: none"> <li>• Organizes reaction teams in the office</li> <li>• Assists in providing transportation facilities for relief supplies, personnel, and disaster victims</li> <li>• Provides heavy equipment for rescue and recovery operations</li> <li>• Regular assessment of city public buildings, roads, and bridges</li> <li>• Assessment and restoration of damaged public works, offices, and other buildings</li> </ul>
<b>Mayor's Office</b>			
<b>Mayor Engr. Gilbert T. Gatchalian</b>	City Mayor CDRRMC Chairperson		<ul style="list-style-type: none"> <li>• Exercise general supervision and control over all programs, projects, services, and activities of the provincial government;</li> <li>• Enforce all laws and ordinances relative to the governance of the province and the exercise of the appropriate corporate powers, implement all approved policies, programs, projects, services and activities of the city;</li> <li>• Initiate and maximize the generation of resources and revenues, and apply the same to the implementation of development plans, program objectives and priorities, particularly those resources and revenues programmed for agro-industrial development and country-wide growth and progress;</li> <li>• Ensure the delivery of basic services and the provision of adequate facilities.</li> </ul>



Name	Designation	Action Officer	Functions
<b>City Environmental and Natural Resources</b>			
	Division Head (Member)		<ul style="list-style-type: none"> <li>• Formulate measures for the consideration of the Sanggunian and provide technical assistance and support to the Governor in carrying out measures to ensure the delivery of basic services and provision of adequate facilities relative to environment and natural resources services as provided for under Section 17 of the 1991 Local Government Code;</li> <li>• Develop plans and strategies on environment and natural resources programs and projects and implement the same upon approval thereof by the LCE;</li> <li>• Be in the frontline of the delivery of services concerning the environment and natural resources, particularly in the renewal and rehabilitation of the environment during and in the aftermath of man-made and natural calamities and disasters;</li> <li>• Recommend to the Sanggunian and advise the LCE on all matters relative to the protection, conservation, maximum utilization, application of appropriate technology and other matters related to the environment and natural resources; and</li> <li>• Exercise such other powers and perform such other duties and functions as maybe prescribed by law or ordinance.</li> </ul>
<b>City Health Office</b>			
<b>Dr. Victor Antonino R. Batanes</b>	City Health Officer  Vice Chairman on Response		<ul style="list-style-type: none"> <li>• Organizes the health sector for more responsive and integrated health response to disasters and emergencies</li> <li>• Assists the barangays during emergencies through direct assistance or technical expertise on sanitation, public health concerns and other health hazards</li> <li>• Undertakes necessary measures to prevent the occurrence of communicable diseases and epidemics</li> <li>• Develops policies and protocols on the health response to disaster and skills training</li> <li>• Issues warning and advisories to the public on epidemics and other health hazards</li> <li>• Maintains data on health status including vulnerable populations to facilitate assessment of health needs and furnish these data to the CDRRMC</li> <li>• Organizes assessment teams and medical response teams to assist the LGU and barangays during emergencies</li> <li>• Provide health services during emergencies as necessary</li> <li>• Ensure and monitor continuous micro-nutrient supplementation and vaccination among high-risk population</li> <li>• Publishes general information in handling/transferring of corpses and sanitary requirements</li> </ul>
<b>City Administrator's Office</b>			
	City Administrator  Vice Chairman on		<ul style="list-style-type: none"> <li>• Ensures effective and efficient implementation of city government's governance and development policies, programs, and projects</li> <li>• Develops, installs and sustains a system-wide internal and external mechanisms for effective decision making and implementation processes</li> </ul>



Name	Designation	Action Officer	Functions
	Preparedness, Prevention and Mitigation		<ul style="list-style-type: none"> <li>• Develops, installs and sustains a system-wide efficient and effective performance-driven organization, development policies, programs, projects, relief and assistance provision during and in the aftermath of man-made and natural disaster and calamities</li> <li>• Develops, installs and implements a system of monitoring and evaluating the quality and performance of all city government offices for judging system-level efficiency and effectiveness</li> <li>• Develops, installs and causes the implementation of a system's audit and control</li> <li>• Develops, manages and supervises special executive concerns including special programs and projects</li> <li>• Develops, updates and issues city government's manuals of operations and procedures</li> <li>• Exercises inter-office coordination, facilitation and assistance</li> <li>• Develops and implements a comprehensive provincial program for disaster preparedness</li> <li>• Conducts or causes the conduct of citizen's disaster preparedness training</li> <li>• Coordinates and links with the government agencies and non- government organizations on all matters pertaining to making the province attain an environment conducive to investments and business</li> </ul>
<b>City Accounting Office</b>			
	Department Head (Member)		<p><b>Internal Audit Division</b></p> <ul style="list-style-type: none"> <li>• Develops, installs, implement and maintains an efficient and effective system of accounting audit.</li> <li>• Develop an efficient and effective control system on financial statement and report and physical audit of requirement, supplies materials and infrastructure project.</li> <li>• Develops system of insuring completeness, correctives and accuracy of voucher payrolls inspections report and all related matters.</li> <li>• Conduct periodic and evaluation</li> </ul> <p><b>Bookkeeping Division</b></p> <ul style="list-style-type: none"> <li>• Develops, installs, implements and maintains an efficient and effective system of accounting and internal audit.</li> <li>• Certifies availability of budgetary allotment to which expenditures and obligation may be charged.</li> <li>• Make available to the officials' information on the financial condition and operation.</li> </ul>
<b>City Agriculture Office</b>			
<b>Dr. Romeo S. Bartolo</b>	City Agriculturist (Member)		<ul style="list-style-type: none"> <li>• Prepares plans and programs for the disaster risk reduction and response for the agriculture and fisheries sector;</li> <li>• Conducts damage assessment and submits reports during times of disaster and similar events;</li> <li>• Prepares rehabilitation plans after disaster and similar events;</li> </ul>



Name	Designation	Action Officer	Functions
			<ul style="list-style-type: none"> <li>• Coordinates/Works with the CDRRMC for the management of pests and diseases outbreaks in crops and aquaculture/fisheries;</li> <li>• Renders technical assistance in the preparation of disaster risk reduction and management plans, efforts and intervention for the field of agriculture and fisheries</li> </ul>
<b>City General Service Office</b>			
<b>Engr. Reynaldo S. Garcia</b>	Department Head (Member)		<ul style="list-style-type: none"> <li>• Develops and maintains an effective and efficient management system for all physical resources, facilities, properties, and supplies of the City Government;</li> <li>• Develops, installs and maintains efficient, effective, and transparent mechanisms for physical resources (including supplies and other government properties), acquisition, utilization and mobilization, maintenance, upkeep preservation and protection, and disposal</li> <li>• Develops and maintains an effective and efficient records management</li> </ul>
<b>City Treasurer’s Office</b>			
<b>Mr. Anthony A. Mendoza</b>	City Treasurer (Member)		<p><b>Administrative Division</b></p> <ol style="list-style-type: none"> <li>1. Provide support service in the areas of:                             <ul style="list-style-type: none"> <li>○ Personnel Management</li> <li>○ Supply and Property Management</li> <li>○ Office Budget</li> <li>○ Correspondence and Records Management</li> </ul> </li> <li>2. Assist in the formulation of office policies and performance standards</li> <li>3. Coordinate the operations of the different divisions in relation to administration and operations of the Office</li> <li>4. Consolidate, review, analyze administrative reports</li> <li>5. Perform such other duties that may be assigned from time to time in the interest of the service</li> </ol> <p><b>Cash Receipts and Disbursement Division</b></p> <ol style="list-style-type: none"> <li>1. Receive payments of taxes, fees and charges and other receipts accruing to the city;</li> <li>2. Deposit intact daily collections to depository banks,</li> <li>3. Act as custodian and depository of cash/ checks for bidder's bonds, bail bonds, performance bonds, remittances and/or deposits made by accountable officers;</li> <li>4. Prepare monthly report of accountability;</li> <li>5. Perform cashiering functions of the office;</li> <li>6. Handle trust collections and remittances;</li> <li>7. Monitor and evaluates income and expenditures trend of the city;</li> <li>8. Perform such other duties that may be assigned from time to time in the interest of the service.</li> </ol> <p><b>Revenue Operations Division (ROD)</b></p> <ol style="list-style-type: none"> <li>1. In charge of the collection of provincial taxes, fees and charges levied imposed under the City of Malolos Revenue Code;</li> <li>2. Maintain and update the Tax Information System of the City Government;</li> <li>3. Inspect private, commercial and industrial establishment within the jurisdiction of the city in</li> </ol>





Name	Designation	Action Officer	Functions
			relation with the implementation of the City Tax Ordinances enacted by the Sangguniang Panlungsod; 4. Apply remedial measures to collect delinquent city taxes, fees, and charges as provided under the City Tax Ordinances; 5. Maintain and update the tax records system of the city; 6. Supervise city treasury offices for proper implementation of law, rules and regulation on local government finance and administrative issuances of the Department of Finance; 7. Conduct periodic examination of books of accounts of City Treasury Offices; 8. Conduct revenue audit; 9. Monitor evaluates periodic collection and disbursement trends of the government units; 10. Verify COA audit findings on City Treasury Offices and enforce implementation of recommendations; and 11. Perform such other duties that may be assigned from time to time in the interest of the service.
<b>City Budget Office/ Local Finance Cluster</b>			
<b>Ms. Leilani O. Maclang</b>	City Budget Officer (Member)		<ul style="list-style-type: none"> <li>• Assist the LCE in the preparation, review, and utilization of CDRRMC Fund to be integrated to the Annual Budget consistent with the policies and guidelines under Republic Act No. 10121 dated 27 July 2009 and NDRRMC, DBM, and DILG Joint Memorandum Circular No. 2013-1 dated 25 March 2013</li> <li>• Releases funds intended for disaster prevention and mitigation activities to lessen adverse impacts of hazards</li> <li>• Releases funds for Quick Response Activities during or after a disaster for immediate relief and assistance to the victims</li> </ul>
<b>City Veterinary Office</b>			
<b>Dr. Jorge V. Crisostomo</b>	City Veterinarian (Member)		<ul style="list-style-type: none"> <li>• Coordinate with CDRRMC thru Crisis Management Team for the management of disease outbreaks</li> <li>• Provides technical animal health management and logistics support for the prevention and control of animal disease</li> <li>• Damage assessment of farm facilities/animals</li> <li>• Rehabilitation plan during/ after damage/outbreak</li> <li>• Formulate plans/programs for the prevention of animal diseases of economic and public health importance</li> </ul>
<b>Liga ng mga Barangay</b>			
<b>Hon. Dionisio C. Mendoza</b>	ABC President (Member)		<ul style="list-style-type: none"> <li>• Give priority to programs designed for the total development of the barangays and in consonance with the policies, programs, and projects of the City Government of Malolos/ CDRRMC</li> <li>• To inform public with different activities and events that may benefit the welfare of every community in the barangay especially in times of calamities, etc.</li> <li>• To personally perceive the fundamental needs of every subsequently, escalates the issues to concern government agencies as necessary. Moreover, initiate considerable scheme towards resolution of concerns</li> <li>• To increase awareness, access, and participation of the community towards shared goal</li> </ul>



Name	Designation	Action Officer	Functions
<b>Department of Interior and Local Government</b>			
	Local Government Operations Officer (Member)		<ul style="list-style-type: none"> <li>• Ensure that every barangay has an organized BDRRMC</li> <li>• Strengthen/ensure the functionality of the BDRRMC</li> <li>• Provision of the Early Warning thru text and other medium (Disaster Protocol)</li> <li>• Provision of Technical Assistance in crafting the BDRRM Plan in partnership with OCD and CDRRMC</li> <li>• Coordinate with the Chairperson of the CDRRMC and heads of the PNP, BFP for a timely and coordinated response to emergency situations</li> <li>• Activates the BDRRMC</li> <li>• Submit real time report in coordination with the DRRMC</li> <li>• Activates the Local Price Monitoring Teams in coordination with DTI to ensure stable prices of basic commodities</li> <li>• Submit post disaster reports in coordination with DRRMC</li> <li>• Monitors the utilization of 5% DRRM Fund and submit reports to the higher level</li> </ul>
<b>City Information Office</b>			
<b>Mr. Regemrei Bernardo</b>	Division Head (Member)		<ul style="list-style-type: none"> <li>• As member of the command staff in the Incident Command System, CIO provides support to the CDRRMO's activities                         <ul style="list-style-type: none"> <li>▪ Fire/Earthquake Drill</li> <li>▪ Disaster Consciousness Month</li> <li>▪ Planning/Workshop/ Meetings, etc.</li> <li>▪ During a major emergency or disaster in Incident Command Post</li> <li>▪ Audio/Video documentation</li> <li>▪ News Coverage</li> </ul> </li> <li>• Assists CDRRMO in creating public awareness and education campaign in Disaster Risk Reduction and Management via multiple channels (radio, television, text messages, website, print, etc.)                         <ul style="list-style-type: none"> <li>▪ Provides technical assistance in the production of IEC materials like tarpaulin, fliers, and brochures</li> <li>▪ Prepares press release/ written statement/media kit/media advisory/ organizes press conference/interviews when necessary and must be approved by the Chief Executive</li> <li>▪ Ensures that all sources of information being received are authenticated and verified for accuracy and approved by concerned officials</li> <li>▪ Assists national and local media during coverage</li> </ul> </li> <li>• Disseminates essential emergency information about public health and safety, disaster assistance, and credible facts or public warnings including the appropriate protective actions to be taken</li> <li>• Establishes and prepares Standard Operation Guidelines of the flow of information during emergencies or disaster for the coordination, supervision, and monitoring of disaster response, recovery, and rehabilitation</li> <li>• Maintains and keep databank regarding current inventories of public information, resources, and media contact list</li> </ul>



Name	Designation	Action Officer	Functions
<b>City Social Welfare And Development Office</b>			
<b>Ms. Lolita S.P. Santos, RSW</b>	Department Head  Vice-Chairperson for Disaster Response		<ul style="list-style-type: none"> <li>• Prepares an update of the Relief and Rehabilitation Master Plan in coordination with other partners NGAs</li> <li>• Provide supports to LGUs adversely affected by disasters for relief and rehabilitation</li> <li>• Provides technical guidance in the conduct of post-disaster evaluation to identify strengths and gaps in disaster management</li> <li>• Undertakes linkage and coordination with multi-donors for disaster management programs</li> </ul>
<b>City Planning And Development Office</b>			
<b>Engr. Eugene P. Cruz, EnP</b>	Department Head  Vice-Chairperson for Rehabilitation and Recovery		<ul style="list-style-type: none"> <li>• Ensures that disaster concerns are integrated both in the national and local development plans</li> <li>• Provides inputs in the development of national, regional, and inter-regional rehabilitation and reconstruction plans within the context of development planning</li> <li>• Develops damage assessment schemes for partner-agencies surveying post-disaster damages</li> <li>• Determines and analyzes the effect of disasters and calamities in the socio-economic plans and programs of the province</li> <li>• Assists in mobilizing resources through technical assistance in the formulation of projects for OD funding or programming</li> <li>• Monitors through the CDMC the situation and progress of activities in disaster-affected and disaster-prone areas and implements appropriate policy programs interventions</li> </ul>
<b>Bureau of Fire Protection</b>			
	City Fire Marshall (Member)		<ul style="list-style-type: none"> <li>• Responsible for the prevention and suppression of all destructive fires on buildings, houses and other structures, forest, land transportation vehicles and equipment, ships or vessels docked at piers or wharves or anchored in major seaports, petroleum industry installations, plane crashes and other similar incidents, as well as the enforcement of the Fire Code and other related laws.</li> </ul>
<b>Philippine National Police</b>			
	Chief of Police (Member)		<ul style="list-style-type: none"> <li>• The principal policy-making and coordinating body, shall conduct disaster risk reduction and management activities through a three-stage approach, namely, Pro-active Assessment Stage, Disaster Incident Management and Support to Recovery and Rehabilitation efforts.</li> <li>• Provide safety to such persons by active patrolling during disasters</li> <li>• The police will ensure that the fire and ambulance services can do their job. They will cordon off the disaster area, direct traffic and sometimes set up a safety zone around the disaster area. If victims are difficult to identify, the police will deploy the disaster identification team, consisting of experts convened on</li> </ul>



Name	Designation	Action Officer	Functions
			<p>an ad hoc basis. This team of specialists perform their work in consultation with one another.</p> <ul style="list-style-type: none"> <li>• Augments in propagating information and warning of threatening disaster.</li> </ul>
<b>Save the Children</b>			
	Project Coordinator		Save the Children works hard to help children gain access to quality education and health services, support them in times of great need, and protect them from harm.



# ANNEX E

## OPERATION CENTER PROTOCOL





## **ANNEX E**

### **OPERATION CENTER PROTOCOL**

*Kindly refer to the City of Malolos Operation Center Protocol.*

# ANNEX F

## STANDARD MANUAL OF OPERATIONS





## **ANNEX F**

### **STANDARD MANUAL OF OPERATIONS**

*Kindly refer to the City of Malolos Manual of Operations.*



# ANNEX G

## CONTINGENCY PLANS





## **ANNEX G**

### **CONTINGENCY PLANS**

*Kindly refer to the City of Malolos Disaster Risk Reduction and Management Office's approved Contingency Plan for Flooding (Hydrometeorological Hazard) and Earthquake.*



# ANNEX H

## DRRM-H PLAN



## **ANNEX H**

### **DRRM IN HEALTH (DRRM-H) PLAN**

*Kindly refer to the City of Malolos DRRM-H Plan.*



# DIRECTORY





## EMERGENCY HOTLINE

Malolos Emergency Hotline COVID Hotline CDRRMO	(044) 760-5160; 0928-226-9801; 0977-640-5828 0931-0035764; 0927-786-2296 (044) 931-8888 loc. 2106
City Mayor's Office	(044) 931-8888 loc. 2201 / 2202 0928-226-9755 0965-768-9338
City Health Office	(044) 931-8888 loc. 2207
City Social Welfare and Development Office	(044) 931-8888 loc. 2104
City Engineering Office	(044) 931-8888 loc. 2301
City Agriculture Office	(044) 931-8888 loc. 2308
City Veterinary Office	(044) 931-8888 loc. 2309
Malolos Police Station	(044) 796-2483 0933-610-4327
Malolos City Fire Station	(044) 791-6129 0995-186-0370
Meralco	632-8416 / 632-8318 (044) 795-1445 0925-771-6211
Prime Water	0906-893-5141 0919-074-2083
Malolos Water District	(044) 791-3562
PLDT	028-16211
Department of Education	(044) 812-2006 (044) 812-2007
Bulacan Medical Center <i>Emergency Room</i> <i>Triage Area</i>	(044) 791-0630 0932-971-1336
Bulacan Infection Control Center	812-6750 0933-350-7791
Bulacan Rescue	(044) 791-0566 0905-333-3319 0918-331-8318 0942-367-1455



## BDRRMC CONTACTS

No.	BARANGAY	BARANGAY CHAIRMAN	CONTACT NUMBER
1	Anilao	Ricardo S. Lorenzo	0965-922-8298
2	Atlag	Danilo A. Clavio	794-3245/0995-590-8674
3	Babatnin	Rustico P. Buluran	760-6597/0932-409-9841
4	Bagna	Inocencio DC. Villena, Jr.	896-2812/797-1059/ 0933-055-8910
5	Bagong Bayan	Feliz Ulric D. Caluag	662-1958/0906-508-5640
6	Balayong	Emmanuel C. Lazaro	0923-446-4526
7	Balite	Lolita R. Gatchalian	816-6092/0932-976-0722
8	Bangkal	Marvin S. Casim	0923-743-1775
9	Barihan	Christopher S. Bernardo	0905-641-1258
10	Bulihan	Crisanto DC. De Jesus	893-9529/0923-089-8251
11	Bungahan	Dionisio C. Mendoza	796-2503/09175080471
12	Caingin	Tomas D. Reyes	791-6513/0917-526-0487
13	Calero	Josefino M. Santiago	0908-310-6153
14	Caliligawan	Eduardo C. Cabigao	0965-475-6581
15	Canalate	Vicente G. Cruz, Jr.	796-4105/0905-220-4315
16	Caniogan	Pricilla S. Mateo	662-2437/0919-005-4790
17	Catmon	Ferdie A. Dimagiba	790-1386/0943-133-6220
18	Cofradia	Rodrigo L. Centeno	662-0278/0917-897-5105
19	Dakila	Librado C. De Robles	794-4569/0923-516-4990
20	Guinhawa	Eduardo T. Valenzuela	903-5628/0917-734-8115/ 0935-833-6969
21	Liang	Leoncia Z. De Belen	794-3589/0955-287-5065
22	Ligas	Anastacia E. Camacho	794-3966/0905-833-2177
23	Longos	Roberto L. Ganelo	760-6192/0943-133-7478
24	Look 1 <sup>st</sup>	Romeo M. Santiago	662-2464/0965-063-9925
25	Look 2 <sup>nd</sup>	Francisco I. Dela Cruz	0967-598-7424
26	Lugam	Virgilio B. San Pedro	796-7990/0917-825-1272
27	Mabolo	Melencio F. Tamayo	760-4456/0923-817-6728
28	Mambog	Bernardo P. Santiago, Jr.	0922-835-4769
29	Masile	Arnel T. Cabantog	0926-260-9452/0932-286-2040
30	Matimbo	Ruben R. Baltazar	796-1853/0955-287-8065
31	Mojon	Michael Adriano	816-7602/0926-485-8202
32	Namayan	Lawrence C. Pinto	0917-913-7010
33	Niugan	Virgilio B. Pingol	0956-784-7050
34	Pamarawan	Cesar S. Bartolome	0923-595-4908
35	Panasahan	Celerino F. Aniag	0923-473-9365/0905-339-4523
36	Pinagbakahan	Lorenzo F. Verzosa	790-6090/0932-217-9054
37	San Agustin	Domingo P. Castro, Sr.	0933-298-6907



<b>38</b>	San Gabriel	Antonio A. Mallari, Jr.	662-0936/796-1588/ 0922-278-7085
<b>39</b>	San Juan	Alfred T. Roque	662-4406/0966-688-7011
<b>40</b>	San Pablo	Ronaldo DC. Santos	769-7558/0932-890-1142
<b>41</b>	Santiago	Leonardo P. Ramos, Jr.	0955-372-0534
<b>42</b>	Stma. Trinidad	Rommel DC. Alenia	305-1715/0905-500-1065
<b>43</b>	Sto. Cristo	Denver T. Del Rosario	0965-896-0910
<b>44</b>	Sto. Niño	Miguel Alberto T. Bautista	0917-581-0555
<b>45</b>	Santor	Nelson M. Hernandez	760-3321/0933-645-1100/ 0955-318-661
<b>46</b>	Sto. Rosario	Carlito R. Cruz, Sr.	791-0235/0942-416-0478
<b>47</b>	San Vicente	Florante P. Bautista	0939-281-5569
<b>48</b>	Sumapang Bata	Prisco M. Hernandez	0965-475-6715
<b>49</b>	Sumapang Matanda	Fortunato C. Ramos	791-3136/0925-625-5152
<b>50</b>	Taal	Renato S. Abalos	0933-497-7619
<b>51</b>	Tikay	Celso M. Hernandez	662-4436/0977-776-8411





## REFERENCES

- DA. (2018). *Department of Agriculture*. Retrieved from <http://www.da.gov.ph/media-resources/publications/>
- DBM, N. D. (n.d.). Allocation and Utilization of the Local Disaster Risk Reduction and Management Fund (LDRRMF). Department of Budget Management, Department of Interior and Local Government, National Disaster Risk Reduction Management Office.
- DILG. (n.d.). *Department of Interior and Local Government*. Retrieved from <http://www.dilg.gov.ph/>
- ECOLOGICAL PROFILE (2019). *City Government of Malolos – City Planning and Development Office* (2019)
- MGB. (2010). *Geology of the Philippines*. Quezon City: Mines and Geosciences Bureau.
- NDRRMC. (2014). National Disaster Preparedness Plan 2015 – 2018. National Disaster Risk Reduction Management Council.
- NDRRMC. (2014). NDRRMC Memo No. 17 s 2014. *Institutionalization of the Pre-Disaster Risk Assessment*.
- NDRRMC. (n.d.). Checklist of Actions and Milestones for Earthquake Preparedness. National Disaster Risk Reduction Management Council.
- NDRRMC. (n.d.). National Disaster Response Plan for Hydro-Meteorological Hazards. National Disaster Risk Reduction Management Office.
- NDRRMC, N. (2016). NDRRMC-NSC JMC No.1 s 2016. *Guidelines on the Formulation of Contingency Plans for Natural and Human-Induced Hazards and Adoption of the Contingency Planning Guidebook*. National Disaster Risk Reduction Management Council, National Security Council.
- OCD. (2016). National Disaster Risk Reduction Operations Center (NDRRMOC) Standard Operating Procedures and Guidelines. NDRRMC.
- PAG-ASA. (n.d.). *Department of Science and Technology-Philippine Atmospheric, Geophysical, Astronomical Services Administration*. Retrieved from <http://bagong.pagasa.dost.gov.ph/>
- PHIVOLCS. (2018, October 3). *Philippine Institute of Volcanology and Seismology*. Retrieved from <https://www.phivolcs.dost.gov.ph/index.php/gisweb-hazard-maps>
- RA 10121. (2009, July 27). *Philippine Disaster Risk Reduction and Management Act of 2010*. Manila: Fourteenth Congress.
- RA 9729. (2009, July 27). *Climate Change Act of 2009*. Manila: Fourteenth Congress.
- Save the Children Philippines*. (2018, October). Retrieved from <https://www.savethechildren.org.ph/>

