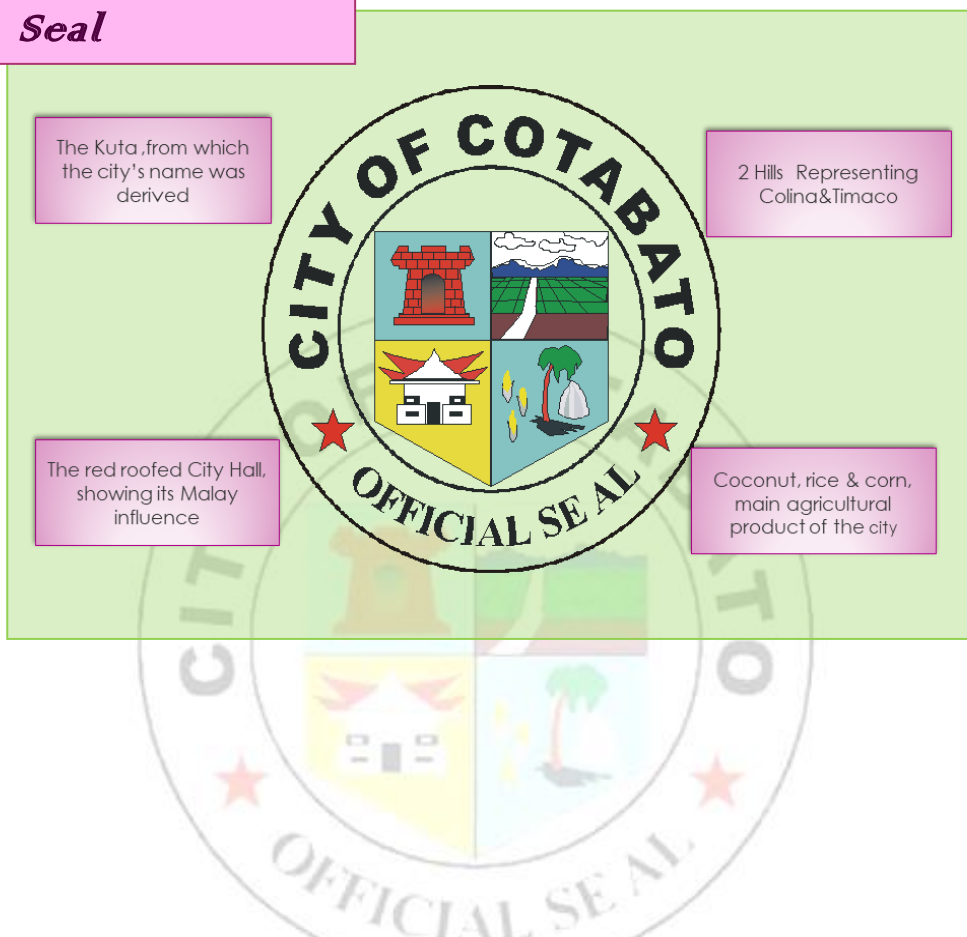


Seal



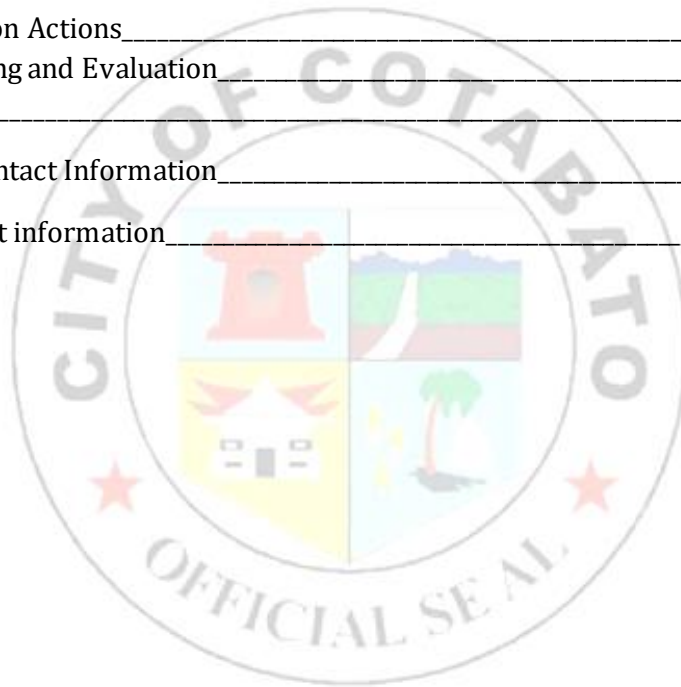
LOCAL CLIMATE CHANGE 6-YEAR ACTION PLAN

COTABATO CITY 2017-2022

"A peaceful, secure, and highly developed multi-cultural climate risk resilient city with thriving and productive ecosystems"

Table of Contents

Title Page	1
Table of Contents	2
Message from the Local Chief Executive	3
Acknowledgement	4
Resolutions for the Plan	5
Legal Mandate for the Plan	6
Cotabato City LCCAP (2017-2022)	7
I. Introduction	7
II. Vulnerability Assessment	34
III. Plan Objectives	61
IV. Adaptation Actions	62
V. Monitoring and Evaluation	122
VI. Annexes	175
LCCAP Core team Contact Information	192
Cotabato City Contact information	192



Message from the Local Chief Executive



The situation globally and nationally on global warming which resulted to extreme weather condition is a great challenge to all leaders in the world. I believed that although we can not stop it, but we can still do many things in mitigating and preparing for untoward situations that may rise up in the future. As we look back at the different experiences of our city on the impact of climate change, we are motivated to work hand in hand in ensuring lives are preserved and properties are protected. One way this can be done is through formulation and implementation of the local climate change action plans.

Our Local Climate Change Action Plan (LCCAP) was formulated to ensure and strengthen the adaptation and mitigation strategies aimed to address the challenges posed by climate change. This plan will serve as a roadmap that will guide us all in unified effort towards stronger, untied and committed community in promoting environmental protection and preservation. With deep appreciation and gratitude, I commend the enthusiasm and deep commitment of the members of the local government unit and core group in leading the formulation of this plan. Thank you and God bless us all.

HON. ATTY. FRANCES CYNTHIA GUIANI-SAYADI
City Mayor

Acknowledgements

With deep appreciation and gratitude, the sincere acknowledgement is extended to the people who had helped in the completion of this plan.

To Honorable Atty. Frances Cynthia Guiani-Sayadi, our very active and supportive city mayor, we are greatly indebted to your encouragement and active support for the development of this plan.

To the members of the core team for sharing your expertise, patience and commitment, for without your contribution this plan will not have materialized.

And most of all greatest honor is given to God the source of wisdom and inspiration.



Resolutions for the Plan

A. Executive Order (draft) for the Creation of the LCCAP (2017-22) Core Team

DRAFT

Republic of the Philippines
CITY GOVERNMENT OF COTABATO
OFFICE OF THE CITY MAYOR
Cotabato City

EXECUTIVE ORDER NO. _____ Series of 2016

AN ORDER CREATING THE CORE TEAM FOR THE FORMULATION OF THE LOCAL CLIMATE CHANGE ADAPTATION PLAN (LCCAP), DEFINING ITS FUNCTIONS AND PROVIDING FUNDS THERETO

WHEREAS, Sections 2a, 15, 31 of Republic Act 7160, Local Government Units (LGUs) are mandated to share with the National Government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction;

WHEREAS, Sections 29, 16 and 17 of the Republic Act 7160, every LGU is mandated to promote the general welfare of the inhabitants within their territorial jurisdiction;

WHEREAS, under Section 14 of Republic Act No. 9729 (Climate Change Act of 2009), as amended by Republic Act 10174, LGUs shall be the frontline agencies in the formulation, planning and implementation of Local Climate Change Action Plan (LCCAP) for their respective areas consistent with the provision of the Local Government Code, the National Framework Strategy in Climate Change (NFSCC) and the National Climate Change Action Plan (NCCAP) and ensure the integration of disaster risk reduction and climate change adaptation into local development plan and budgets as a strategy in sustainable development and poverty reduction;

WHEREAS, in the LCCAP formulation process, the Local Chief Executive shall organize the LCCAP Core Team;

WHEREFORE, based on the premises considered and by virtue of the power vested in me by the laws of the Republic of the Philippines, I, **ATTY. FRANCES CYNTHIA J. GUIANI-SAYADI, City Mayor of Cotabato City** do hereby order the creation of the LCCAP Core Team with the following provisions:

SECTION 1. COMPOSITION - The members of LCCAP Core Team shall be composed of the following:

Chairman	Engr. Adela A. Fiesta City Planning & Development Coordinator
Vice-chairman	Dir. Gulianodin D. Abdillah City Director, DILG
Members	Engr. Crisanto B. Saavedra Asst. City General Services Officer Engr. Oscar B. Rendon Actg. City Planning & Development Coordinator Fernando M. Estaniel Supervising Administrative Officer, CPDO Teresa V. Bataga Project Evaluation Officer III, CPDO Jenny J. Sinsuat Economist II, CPDO Engr. Franklin P. Poot Local Assessment Operations Officer III Dr. Edvir Jane S. Montañer Medical Officer IV, OHS

Members	Daniel C. Rayman Planning Officer IV, OSWDS Jocelyn D. Baldonado Social Welfare Officer IV, OSWDS Engr. Edna A. Delicano Planning Officer IV, OGS Roy Jesus B. Fiesta Planning Officer III, OVS Reynaldo A. Ridao Sr. Agriculturist, OCM-Agriculture Division Teresita G. Miranda City Budget Officer Engr. Julieta L. Zambrano Engr. II, CEO Engr. Sukaldito G. Palakasi Engr. IV, CEO Adela B. Sayre Community Affairs Officer IV, OCM-CACSD Belen S. Tanghal Community Affairs Officer II, OCM-CACSD Amirah L. Juanday Local Disaster Risk Reduction Management Officer II, CDRRMO Hamerodin K. Sapalon Treasurer, Barangay Poblacion 5 Jose T. Ellhay, Jr. Kagawad, Barangay Rosary Heights 8 Halifa C. Abdila Project Officer, MYROI Rosalita J. Peracullo President, Christian Muslim Association
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SECTION 2. FUNCTIONS AND RESPONSIBILITIES - The LCCAP Core Team shall:

- a. Lead, oversee and ensure that an LCCAP for Cotabato City will be formulated, approved and implemented;
- b. Regularly monitor, through its Monitoring & Evaluation Team (M&E) the implementation of identified programs, projects and activities (PPAs) contained in the LCCAP; and
- c. Update the LCCAP, whenever necessary.

SECTION 3. TRAININGS - Trainings incidental to the formulation of the LCCAP shall be funded under the USAID's Be Secure Project. Other allowable expenses not covered by the Be Sure Project shall be the counterpart of the LGU.

SECTION 4. EFFECTIVITY - This Executive Order shall take effect immediately upon signing.

Signed this _____, of _____, 2016

ATTY. FRANCES CYNTHIA J. GUIANI-SAYADI
City Mayor

Attested by:

ANICETO V. RASALAN
Executive Assistant V

B. Executive Order (draft) for the Creation of the LCCAP (2017-22) Monitoring and Evaluation (M&E) Team

DRAFT

Republic of the Philippines
CITY GOVERNMENT OF COTABATO
OFFICE OF THE CITY MAYOR
Cotabato City

EXECUTIVE ORDER NO. _____ Series of 2016

CREATION OF THE MONITORING AND EVALUATION (M&E) TEAM FOR THE COTABATO CITY LOCAL CLIMATE CHANGE ADAPTATION PLAN (LCCAP), DEFINING ITS FUNCTIONS AND RESPONSIBILITIES AND PROVIDING FUNDS THERETO

WHEREAS, in response to the urgency for action on climate change, the Philippines passed Republic Act No. 9729 also known as Climate Change Act of 2009 and amended by RA 10174;

WHEREAS, under the Act, the LGUs as frontline agencies in the formulation, planning and implementation of climate change action plan in their respective locality, shall formulate their Local Climate Change Adaptation Plan (LCCAP) consistent with the provisions of the Local Government Code (LGC) and the National Climate Change Action Plan (NCCAP);

WHEREAS, Executive Order No. _____ Series of 2016 created the Cotabato City LCCAP Core Team which will formulate specific programs, plans and activities (PPAs) for adaption and mitigation that will enhance the adaptive capacity and resilience of the community;

WHEREAS, there is a need to constitute the Monitoring and Evaluation (M&E) Team for the LCCAP that will assess the effectiveness of the PPAs as determined by the indicators set forth in the plan;

WHEREFORE, based in the premises considered and by virtue of the power vested in me under the laws of the Republic of the Philippines, I, **ATTY. FRANCES CYNTHIA J. GUIANI-SAYADI**, City Mayor of Cotabato City, do hereby order the creation of the LCCAP Monitoring & Evaluation Team (M&E) with the following provisions:

Section 1. Composition of the LCCAP M&E Team

The M&E Team shall be composed of the following offices and organizations:

Chairman – CENRO
Vice-Chairman – DILG

Members:

LGU Offices – City Disaster Risk Reduction and Management Office
City Engineering Office
Office on Health Services
Office on Social Welfare and Development Services
Office of the City Mayor – Agriculture Division
Office of the City Mayor – Community Affairs & Coop. Services
President, Liga ng mga Barangay
Local NGOs – MYROI
Christian Muslim Association (CMA)
Representative of:
Local PNP
Local BFP
Academe – Cotabato City State Polytechnic College
Bureau of Fisheries & Aquatic Resources

Secretariat: CENRO Staff

Section 2. Functions

The LCCAP M&E Team is tasked to deliver the following functions:

- Annual monitoring and evaluation of the implementations of PPAs contained in the LCCAP in order to assess progress in plan implementation and identify the main factors that support or hinder the attainment of desired goals; and
- Submit results of the M&E to the City Development Council (CDC) and other stakeholders to enable decision-makers in finding solutions to identified problems that cannot be resolved within the level of the M&E Team

Section 3. Monitoring & Evaluation Frequency

Monitoring of the implementation of the PPAs and evaluation of the results will be done annually by the LCCAP M&E Team. Evaluation will also be done every three (3) years during the implementation of the PPAs.

Section 4. Meetings

The LCCAP M&E Team shall hold a yearly monitoring and evaluation meeting, mid-program evaluation meeting on the third year of plan implementation and post-evaluation meeting at the end of plan implementation. These meetings will be conducted to: determine unexpected/unintended impacts, if there are any, identify needs and constraints (e.g. technical, human and financial resources) and to aid the LCCAP Core Team to make corrective actions and recommendations.

Section 5. Secretariat

Staff from the CENRO shall serve as the Secretariat of the LCCAP M&E Team.

Section 6. Budget

Budget for the activities under M&E shall be taken from the Maintenance and Other Operating Expenses (MOOE) of the CENRO.

Section 7. Effectivity

This Executive Order shall take effect upon its approval.

Done this _____ of _____, 2016 at Cotabato City, Philippines.

ATTY. FRANCES CYNTHIA J. GUIANI-SAYADI
City Mayor

Attested by:

ANICETO V. RASALAN
Executive Assistant V

Legal Mandate

As defined in the Climate Change Act of 2009 or RA 9729:

SECTION 14. Local Climate Change Action Plan.

The LGUs shall be the frontline agencies in the formulation, planning and implementation of climate change action plans in their respective areas, consistent with the provisions of the Local Government Code, the Framework, and the National Climate Change Action Plan.

Cotabato City LCCAP (2017-2022)

I. INTRODUCTION

A. Rationale

DEVELOPMENT OF THE PLAN

“Change is coming” as what the famous campaign slogan of then presidential candidate and now the present head of the Republic of the Philippines, President Rodrigo Roa Duterte goes. Yes, indeed Climate Change is inevitable.

The country has long been particularly vulnerable to extreme weather. But in the recent years the nation has suffered from even more violent storms like Typhoon Haiyan (better known in the Philippines as Typhoon Yolanda). On the average, about 20 tropical cyclones enter the Philippine waters each year, with eight or nine making landfalls. Over the past decade, these tropical storms have struck the nation more often and more severely. Scientists believe this is largely because of climate change.

Such signals of a changing climate are already evident in the City as our limited data DOST-PAGASA’s (2011) *Climate Change in the Philippines* (values for Maguindanao province) shows that the increasing trends in temperature, sea level rise and extreme climate event occurrences are consistent with the global trends. These are characterized by different types of natural calamities like drought and excessive rainfall or typhoons, more intense precipitation events due to increased southwest monsoon activities and severe storm occurrences have been taking place lately, causing flooding to low lying barangays of the city considering that we are a catch basin of the Mindanao River Basin (MRB). The resulting casualties and damage to property exacerbate the misery and predicament of an already over-burdened populace.

In response to the urgency for action on climate change, the national government passed Republic Act 9729, also known as the Climate Change Act of 2009, anchored on the constitutional provision which states that “it is the policy of the State to afford full protection and the advancement of the right of the people to a balanced and healthful ecology... to fulfill human needs while maintaining the quality of the natural environment for current and future generations.” RA 9729 provides, among others the following:

- Establishment of a Climate Change Commission (CCC), an independent and autonomous body that has the same status as that of a national government agency. The CCC is under the Office of the President and is the “sole policy-making body of the government which shall be tasked to coordinate, monitor and evaluate the programs and action plans of the government relating to climate change pursuant to the provisions of this Act.”
- The Commission shall be composed of the President of the Republic of the Philippines who shall serve as the Chairman, and three (3) Commissioners to be appointed by the President, one of whom shall serve as the Vice Chairperson of the Commission.
- The LGUs as frontline agencies in the formulation, planning and implementation of climate change action plans in their respective areas, shall formulate their Local Climate Change Action Plan, consistent with the provisions of the Local Government Code, the Framework, and the National Climate Change Action Plan.
- Inter-local government unit collaboration shall be maximized in the conduct of climate-related activities.

Pursuant to RA 9729, The Local Government of Cotabato has also issued the following executive orders to help address the climate change phenomena, to wit:

- EO No. 32, Series of 2011
 - Amending Executive Order No. 5, Series of 2010, Reorganizing and Renaming the Cotabato City Disaster Coordinating Council (CCDCC) to Cotabato City Disaster Risk Reduction and Management Council (CCDRMC); and
- EO 143, Series of 2015,
 - Creating the Technical Working Group (TWG) on Water and Climate Change Resiliency Programs for Cotabato City to Work With USAID-Be Secure Project.

This is not the first time that the USAID-Be Secure Project had extended technical support to the City. Just recently, Cotabato City is a recipient of the same entity with a technical assistance in the formulation of a Feasibility Study on the Establishment of a Septage Management System in partnership with other local institutions that caused for the approval of Ordinance No. 4406, "An Ordinance Establishing a Septage Management System in the City of Cotabato and Providing for its Management, Enforcement and Penalties thereof", dated September 13, 2016.

The formulation of the Cotabato City Local Climate Change Action Plan (LCCAP) 2017-2022 is anchored on the National Climate Change Action Plan (NCCAP) 2011-2028 which was adopted in April 2010 and which outlines the country's agenda for adaptation and mitigation. With this new intervention from the USAID Water Security for Resilient Economic Growth and Stability (Be Secure) Project, a U.S. lead Government agency that works hard to enable resilient democratic societies to realize their potentials, the Local Government of Cotabato is now towards a climate risk resilient city, entrusted in the hands of AECOM International Development (USAID Contractor), a USAID partner who commissioned the Center for Disaster Preparedness (CDP), a regional resource center based in the Philippines that endeavors to promote Community-Based Climate and Disaster Risk Reduction and Management (CBCDRM) to help in the LCCAP preparation.

In drafting the Cotabato City LCCAP, the Core Team had gone through the conduct of vulnerability and risk assessment involving cross-sectoral coordination and cooperation to have a clear understanding of the key concepts and context of climate change impact and disaster risk the city is facing. The process included risk analysis of the projected effects of climate change as well as of those currently observed utilizing the Participatory Vulnerability Assessment (PVA) tools. Along with the process is the roll-out activity to nine (9) identified barangays of the city applying the PVA tools. The output of which were used as inputs to the LCCAP, increasing appreciation among all stakeholders of the causes of exposure, vulnerability and capacity, both as a result of a participatory process and through sharing of results. The multi-sectoral processes conducted ensured that the concerns of various sectors were heard and considered.

The process of developing this LCCAP involves an interlocking process without losing focus on the bigger picture- to build a climate and disaster resilient communities / barangays in Cotabato City. Every stage is intricately related to the other as it gradually evolves into LCCAP.

1) Scoping (December 2015)

Gathering of baseline information and identifying entry points which will feed into Center for Disaster Preparedness, Foundation Inc. (CDP) implementation and coordination. This was initiated by USAID Be Secure and participated by CDRRM/CCA stakeholders.

2) Participatory Capacity and Vulnerability Assessment Workshop, Climate Change / adaptation and Mitigation Training and Planning (July 4-8, 2016)

The first 3 days was aimed at developing a core of trainers on community risk assessment and planning using the PCVA tools, results of which are vital input to the LCCAP and LDRRMP. The last 2 days was used to train another batch who will comprise the TWG on DRRM/CCA. The TWG are selected from LGU-Cotabato City and other stakeholders. These two (20 groups later composed the PVA team. Technical and financial assistance was extended by USAID Be Secure in partnership with CDP.

3) PVA coordination meeting (July 25, 2016)

This is in preparation for the roll out of PCVA in barangays of the city. Target barangays were identified and PVA groupings as well. Approach and strategies were prudently discussed to optimize result from a carefully chosen stakeholders.

4) Barangay Roll out (August 2-4, 2016)

Capacity and vulnerability assessment was cascaded at 9 barangays of the City. These barangays were carefully chosen to represent the different hazards of Cotabato with the intention of identifying related issues and disaster risk mitigation and CCA. Seven (7) participatory tools were used namely: Disaster Timeline, Hazard Mapping, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar ad Top 5. This was done in collaboration with those affected by the issue being studied, for purposes of education and taking action or effecting change.

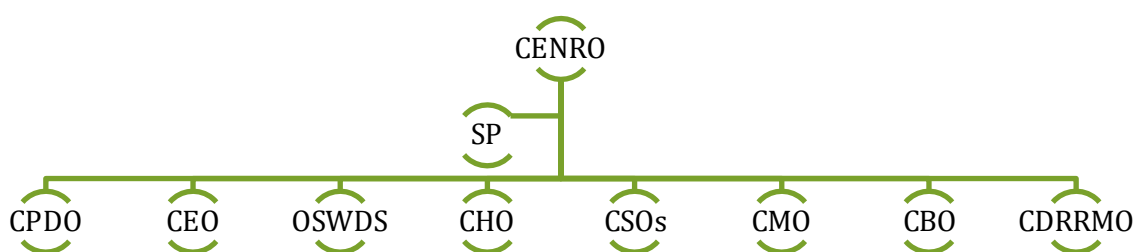
Prior to this, in March 2013 USAID Engage in partnership with Muslim Youth Religious Organization Inc. (MYROi) also conducted similar activity (Risk Assessment and Mapping) to 11 barangays of the city. The result of the assessment will also form part in the development of LCCAP.

5) Local Climate Change Adaptation Planning Workshop- Phase I (October 18-21, 2016)

A workshop activity to eventually determine program, projects and activities to combat and/or mitigate the effects of climate change. A prelude of activities such as Impact chain and exposure analysis, threat level and adaptive capacity analysis, formulation of LCCAP vision, goals and objectives.

6) Local Climate Change Adaptation Planning Workshop- Phase II (November 8-10, 2016)

A continuation of the LCCAP adaptation planning workshop held October 18-21, 2016. Activities include Monitoring and Evaluation lecture and tools for monitoring, review of the current LCCCAP component, a lecture on People's Survival Fund as another source of financing, and prioritization of PPAs.



PURPOSE AND LIMITATIONS OF THE PLAN

The plan outlines the specific programs and strategies for the city's adaptation and mitigation for 2017 to 2022 and provides key actions that enhances adaptive capacity and resilience of communities and natural ecosystems of climate change, adopts the total economic valuation of natural resources while ensuring biodiversity conservation.

This action plan aims to describe the climate change-related events the city often experienced and at risk of, which could form a part of a regional perspective on climate change. The Cotabato City LCCAP will serve as a tool to current and emerging situations concerning and limited to the context of climate change adaptation and mitigation.

Lastly, as local plans include objectively verifiable success indicators, its implementation must be monitored and evaluated so that necessary improvement, adjustment and revisions must be incorporated to ensure its relevance over time.

B. LGU profile

ECOLOGICAL PROFILE

Mandate:

Congressional Act
R.A. 2364
June 20, 1959

Sponsored by:

Congressman Salipada K. Pendatun

Anniversary Celebration:

June 20

First Class City:

BLGF Memo Circular
No. 97-2, April 30, 1997,
Effective July 1, 1996

Land Area

17, 599 Hectares or
176 square kilometers

Demography:

2015 Population Census

Total Population: 299,438
Population Density: 1701.35/sq.km.

2010 Census on Population & Housing (CPH)

Total Population: 271,786
Population Density: 1,544.25/sq.km.
Population Growth Rate: 1.80%
(2007-2010)

Male/Female Pop distribution:

Male Pop.:
49.1%

Female Pop.:
50.9%

Voting age Pop: 57.8%

Dependency Ratio:

0-14 years old -
35.0%

65 years and above -
2.0%

Working Pop

(15-64 yrs old) -
63.0%

Household Pop:

City Government Officials

Elected Officials (2016-2019)

City Mayor	Hon. Atty. Frances Cynthia Guiani-Sayadi
City Vice Mayor	Hon. Graham Nazer G. Dumama
15 th Sangguniang Panlungsod Actg. Majority Floor Leader Asst. Maj. Floor Leader 1 st Asst. Maj. Floor Leader Minority Floor Leader Asst. Minority Floor Leader Members:	Hon. Eduardo C. Rabago Hon. Freddie A. Ridao Hon. Mohammad Ali D. Matabalao Hon. Sukarno G. Sema Hon. Japal G. Guiani, III Hon. Abdillah J. Lim Hon. Christina T. Chua Hon. Johari C. Abu Hon. Michael A. Datumanong Hon Hassan B. Biruar Hon. Anthony P. Ross Hon. Jeanne Anne M. Zoilo
ABC President	
Indigenous People's Rep	

City Administrator	Dr. Danda N. Juanday
Secretary to the City Mayor	Mr. Aniceto V. Rasalan
Secretary to the SP	Ms. Yeofemia G. Lizada
City Planning & Dev't. Coord.	Engr. Adela A. Fiesta, MPA
City Civil Registrar	Ms. Susan Guiani-Dumama
City General Services Officer	Mr. Pedro D. Tato, Jr.
City Accountant	Mr. Primitivo O. Glimada, Jr., CPA
City Treasurer	Mr. Ondi B. Mamalimping, Al Haj.
City Budget Officer	Ms. Teresita G. Miranda
City Assessor	Engr. Ulama S. Baraguir
City Engineer	Engr. Samuel G. Jorolan
Actg. City Health Officer	Zul Qarneyn M. Abas
City Social Welfare & Dev't. Officer	Ms. Cheribin Mena K. Viloria, RSW
City Veterinarian	Dr. Robert R. Malcontento
City Auditor/State Auditor IV	Ms. Johanna P. Sahisa
City Police Director	PS/Supt. Danny Reyes
Acting Fire City Marshall/BFP	Sinsp. Nestor D. Bade
Acting City Legal Officer	Atty. Rico S. Pelandoc
Actg. Market Administrator	Mr. Samaon S. Mundas
City Human Resource Mgt. Officer	Ms. Merylyn D. Tangonan
DILG City Director	Mr. Guianodin D. Abdilah

Highest Educational Attainment:

Elementary Level: 34.1%
Secondary Level: 28%
College Graduates: 10.7%
Academic Degree Holders:10.5%

Status Distribution

Single: 48.6%
Married 44.9%
Widow/widower/Others: 6.5%

Indicator	Sex	Rate
Simple Literacy Rate- 10 yrs & over (2010) Source: RSEP 2015, PSA	Both	94.0%
	Male	94.4%
	Female	93.7%
Functional Literacy 10-64 yrs old Source: StatWatch, NSCB Sept. 27, 2012	Both	93.9%
	Male	92.7%
	Female	95.0%

Cotabato City Projected Population:
2010-2016
At Growth Rate 1.8%

Year	Projected Population
2010 (PopCen)	271,786
2011	276,678
2012	281,658
2013	286,728
2014	291,889
2015	297,143
2016	302,491

NO. OF BANKING INSTITUTIONS

13 Private Commercial Banks
5 Government Banks
1 Islamic Bank
1 Rural Bank

Masla Pulangi or Rio Grande de Mindanao

Reputedly the longest river in the country, it is estimated to be 182 kilometers and 96 meters wide. It is not only of aesthetic value but also of economic importance. Water sport and boat racing are the popular attractions of the river, usually held to coincide with the feast of Hariraya Puasa, Hariraya Hadj, Maulidin Nabi, Araw ng Kutabato, Our Ladyof Peñafrancia Fiesta and Shariff Kabunsuan Festival.

Ave., Cotabato City

Hotels:

Hotel	Location	Contact No.
Grand Rio Hotel	Don Rufino Alonzo Ave., Pob. 6	421-8770
Estosan Graden Hotel	Gov. Gutierrez Ave., RH 7	421-677
Pacific Heights	TV Juliano Ave., RH 12	421-2249
CITI Plaza Hotel	Makakua St.	421-9148
Hotel Filipino	SK Pendatun Ave.	421-2307
El Manuel Hotel	Quezon Avenue	421-9883
Diamond Hotel	Jose S. Lim St.	
Al Nor Hotel	Sinuat Ave.	

Table 1:
Barangay Officials (2010-2016)

Barangay	Barangay Chairman CY 2010-2016	Land Area (has.)	POP 2010	Density 2010/ha s.	POP 2015	Density 2015/ha s.
Poblacion Mother	Hon. Nasser A. Usman	35.1798	18,857	536.02	20,734	589.37
Poblacion 1	Hon. Mohamad Ali B. Mangelen	68.6033	4,463	65.06	5,677	82.75
Poblacion 2	Hon. Johair S. Madag	17.6834	6,241	352.93	6,302	356.38
Poblacion 3	Hon. Juhair Akmad Toti	10.8956	2,807	257.63	2,985	273.96
Poblacion 4	Hon. Belly D. Deocampo, Sr.	15.3372	6,406	417.68	6,456	420.94
Poblacion 5	Hon. Norma V. Yap	28.3162	2,929	103.44	3,070	108.42
Poblacion 6	Hon. Romeo D. Lidasan	22.3810	5,096	227.69	5,151	230.15
Poblacion 7	Hon. Solaiman U. Adtong	26.9220	15,485	575.18	15,712	583.61
Poblacion 8	Hon. Baisla D. Sema 2	166.802 2	6,580	39.45	8,786	52.67
Poblacion 9	Hon. Nasrudin E. Mohammad	1594.46 60	5,893	3.70	5,998	3.76
Rosary Heights Mother	Hon. Janeth G. Dalagan	77.3254	13,031	168.52	13,943	180.31
Rosary Heights 1	Hon. Peter C. Morales	28.3376	4,708	166.14	3,931	138.72
Rosary Heights 2	Hon. Christopher Anthony G. Coraza	27.8227	4,742	170.44	5,006	179.93
Rosary Heights 3	Hon. Sukarno M. Utto	50.8814	9,123	179.30	10,786	211.98
Rosary Heights 4	Hon. Anthony M. Aba	32.2544	4,304	133.44	4,377	135.70
Rosary Heights 5	Hon. Amil P. Sula	59.9075	3,994	66.67	5,870	97.98
Rosary Heights 6	Hon. Ben O. Dilangalen	38.7250	5,107	131.88	6,846	176.79
Rosary Heights 7	Hon. Mohammad Abduljabbar A. Sema	81.1531	7,566	93.23	9,257	114.06
Rosary Heights 8	Hon. Anthony P. Ross	59.5464	6,523	109.54	8,524	143.15
Rosary Heights 9	Hon. Mending Abu	85.8606	6,008	69.97	7,802	90.87
Rosary Heights 10	Hon. Kombol G. Mamalangkay	104.975 8	13,025	127.08	15,732	149.86
Rosary Heights 11	Hon. Mustapha E. Ismael, Jr.	84.7213	6,027	71.14	7,864	92.82
Rosary Heights 12	Hon. Abdullah A. Sekak	16.5431 2	4,554	275.28	4,664	281.92

Rosary Heights 13	Hon. Al Haashir J. Ala	31.9718	4,500	140.75	4,947	154.73
Bagua Mother	Hon. Bai Ella L. Biruar	30.5929	18,050	590.01	18,137	592.84
Bagua 1	Hon. Zahrumin A. Midtimbang	185.5853	7,036	39.84	9,027	48.64
Bagua 2	Hon. Olaimbai S. Usman	176.5942	19,301	109.30	19,720	111.67
Bagua 3	Hon. Bimbo A. Diolanen	8.7251	6,802	779.59	6,847	784.74
Tamontaka Mother	Hon. Bai Kabai B. Canaya	315.0364	11,669	37.04	12,027	38.18
Tamontaka 1	Hon. Mokamad M. Pasawilan	280.9155	3,743	13.32	4,423	15.74
Tamontaka 2	Hon. Joven A. Pangilan	461.8770	4,034	8.73	4,184	9.06
Tamontaka 3	Hon. Thocks K. Salik	525.5043	2,679	5.10	2,730	5.20
Tamontaka 4	Hon. Datu Dumugkao M. Mangelen	1880.3482	2,446	1.30	3,741	1.99
Tamontaka 5	Hon. Datu Guinda A. Diocolano	5494.7813	2,414	.44	1,177	.21
Kalanganan Mother	Hon. Datu Akmad M. Ayunan	2206.6571	14,810	6.71	15,019	6.81
Kalanganan 1	Hon. Abdullah M. Darping	1158.5319	5,718	4.94	5,808	5.01
Kalanganan 2	Hon. Esmael A. Samad	2107.3979	5,115	2.43	5,999	2.85
Source:	DILG City Division	CLUP 1999-2008	NSO XII	CPDO		

Location

COTABATO CITY is situated in the northwest portion of Maguindanao. It lies 7°13'38" North Latitude and 124°14'32" East Longitude. It is approximately 689.9 nautical miles southeast of Manila and is more or less 220 kilometers away from Davao City. The city is bounded on the North by the municipality of Sultan Kudarat with Rio Grande de Mindanao as boundary; on the East by the municipality of Kabuntalan; on the South by the municipality of Dinaig, now Datu Odin Sinsuat (DOS), Maguindanao; and the Illana Bay on the West.

Topography

The city is situated in the lowest portion of Maguindanao province. The City of Cotabato with its 37 barangays spans an area with marked landscapes of flat, level to nearly level, very gently sloping to gently undulations to moderately sloping or rolling. It is basically a delta formed by two big rivers, the Tamontaka River and the Rio Grande de Mindanao. Basically 70% of its total land area is below sea level. There are only 2 existing elevated areas in the city, the PC Hill and the Timako Hill with an altitude of 90 and 150 feet, respectively.

Concentration of settlements and other urban uses are in the central portion while the southwestern and southeastern portions have mixed uses of agricultural land settlements. The city is criss-crossed by mending and braided creeks and rivers like the Matampay, Parang, Timako, Esteros and Miwaruy.

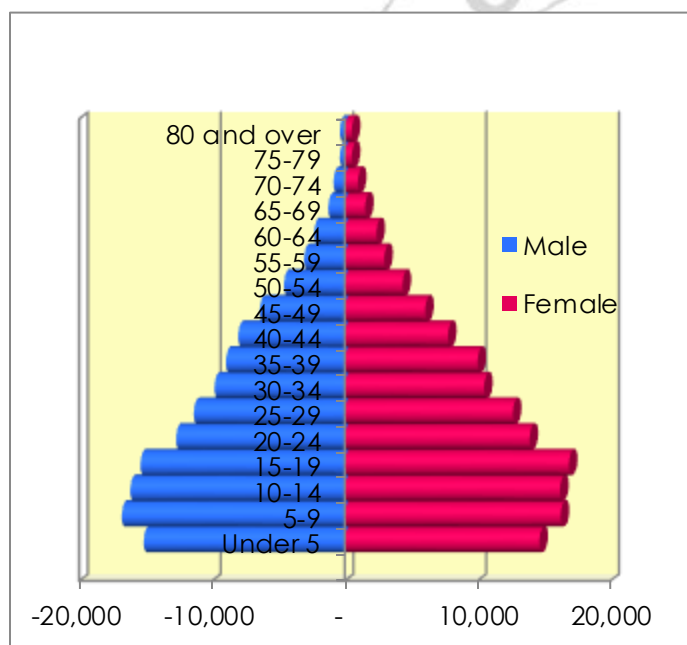
These water bodies serve as sources of agricultural, industrial and domestic water requirements of some rural barangays. These rivers also serve as the natural drainage flow of the city's wastes.

Soil

Broadly, there are three (3) soil types present in the area. The most dominant soil type found in Cotabato which make up 80% of the total land area or 14,079 hectares is the Faraon clay type. These are moderately good lands suitable for limited cultivation and less appropriate for urban development due to soil characteristics. Urban development would require very careful, and complex soil utilization practices. This type is found in the innermost portion of the area, the Tamontaka clay type found in the areas along Rio Grande de Mindanao on the north and south directions total to 2,640 hectares or 15% of the city's total land area. This type of soil has high fertility level, good lands which can be cultivated and suited for urban development but requires carefully, planned erosion control measures. The third type of soil embracing an area of 880 hectares or barely 5% of the city's total land area is where settlements and other urban uses are highly concentrated. These are very good lands which can be cultivated safely and require very simple soil management practices and with high density for urban development.

DEMOGRAPHIC TRENDS

Figure 1: Age Distrubtion (2016)



Food Threshold

Table 2: Food Threshold Records (2012)

SOCIAL INDICATORS	Base Year		
	2003	2006	2012
Annual Per Capita Food Threshold			
<ul style="list-style-type: none"> All Areas Urban Rural 	P 7,807.00	P 9,702.00	P 14,424.00
Subsistence Incidence of Families	14.0%	14.6%	7.6%

Table 3: Poverty Threshold

INDICATOR	Base Year / Year accessed			
	2003	2006	2009	2012
Cotabato City	Jan. 4, 2008	Jul. 30, 2008 / July 30, 2010	Sept. 27, 2012	As of 2012
Annual Per Capita Poverty Threshold				
(All Areas, Urban, Rural)	13,805.00	17,335.00	16,520.00	20,568.00
Poverty Incidence of Families				
(All Areas, Urban, Rural)	41.2	38.0	23.7	34.5
Source:	StatWatch, NSCB / NSCB Web site			

COMMERCE AND TRADE

Table 4: MAJOR INDUSTRY GROUP (as of Aug. 27, 2010)

GROUP	2007	2008	2009	2010
COOPERATIVE	6	6	3	5
MANUFACTURING/(Home base) FOOD PROCESSING	47	50	34	23
WHOLESALE & RETAIL TRADE:				
+ Gen. Merchant	336	304	251	286
+ Hardware	34	24	15	24
+ Grocery	29	21	14	19
+ Drygoods/textile/rtw	20	40	33	32
+ Ret. Of essential & non-essential communication	185	145	112	137

Source: City Licensing Office

Table 5: FINANCING/INSURANCE/REAL ESTATE:
(as of Aug. 27, 2010)

Type	2007	2008	2009	2010
Banking	16	15	9	15
Pawnshop	100	111	76	101
Insurance	14	14	9	8
Real estate lessor	168	182	128	175

Source: City Licensing Office, Aug. 2010

AGRICULTURE

AGRICULTURAL PRODUCTS PRODUCED

Crop:

Rice	Vegetables
Corn	Commercial Crops
Fruits	Coconut

Livestock:

Chicken (Native, layer & Broiler)
Duck

Hog
Goat

Marine:

Bangus
Prawn
Crab
Mudfish, pupuyo, tilapia, hito, etc.

Area Planted with Coconut by Barangay

Poblacion 8	55 has.
Poblacion 9	30 has.
Tamontaka 1	33.75 has.
Tamontaka 2	59.73 has.
Tamontaka 3	96.70 has.
Tamontaka 4	25.45 has.
Tamontaka 5	154.2179 has.

Malls

South Seas Mall	-	Don Rufino St.
Mall of Alnor	-	Sinsuat Avenue
Citi Mall	-	Gov. Gutierrez Ave.

Commercial Establishments

Lima Hypermart	-	RH 10
Citi Hardware	-	Quezon Avenue
Centro	-	Quezon Avenue
Pure Gold	-	Quezon Avenue
Fiesta Square	-	Malagapas, RH 10
Mega Market	-	Pob. Mother

Catering Services in the City

Catering Services	-	Gutierrez St.
Our Catering Services	-	Gutierrez St.
Sardonyx Plaza	-	Gov. Gutierrez Ave.

Table 6 : Schools

SCHOOLS	Public	Private
Elementary	28	34

Source: RSEP 2015, PSA

SHELTER AND RESETTLEMENT

Dwelling Units by Type of Building

Total Housing Units	-	50,645
Single House	-	45,983
Duplex	-	2,096
Multi-Unit Residential	-	2,171
Commercial/Industrial/ Agricultural	-	233
Institutional Living Quarters	-	68
Other Housing Unit	-	75
Not Reported	-	19

Source: RSEP 2015, PSA

Dwelling Units and number of household in each housing unit

One Household	-	28,687
Two Households	-	907
Three Households	-	139
Four Households	-	43
Five Households	-	9
Six Households	-	9
Average Number of Households	-	1.05

Source: NSO, POP and Housing Census 2000

Dwelling Units by Construction Materials of the roof and outer walls

Total Housing Units	-	44,411
Concrete/Brick/Stone	-	7,812
Wood	-	21,733
Half Concrete/Brick/Stone & Half Wood	-	9,404
Galvanized Iron/Aluminum	-	378
Bamboo/Sawali/Cogon/Nipa	-	4,177
Asbestos	-	9
Glass	-	12
Makeshift/Salvaged/ Improvised Mats	-	65
Others/Not Reported	-	821
No walls	-	0

Source: NSO, POP and Housing Census 2007

Households and Tenure Status of the Lot

Owned/being amortized	-	29,155
Rented	-	8,389
Rent-free w/ consent of owner	-	9,344
Rent-free w/o consent of owner	-	2,990
Not Reported	-	1,617
Not applicable	-	3,676

Source: RSEP 2015, PSA

Dwelling Units and number of occupants in each housing unit

One occupant	-	521
Two Occupants	-	2,110
Three Occupants	-	4,166
Four Occupants	-	5,338
Five Occupants	-	5,001
Six Occupants	-	4,427
Seven Occupants	-	3,087
Eight Occupants	-	2,437
Nine Occupants	-	885
Ten Occupants of More	-	1,822
Ave. No. of Occupants	-	5.42

Source: NSO, POP and Housing Census 2007

RESIDENTIAL SUBDIVISIONS

SUBDIVISION	CLASSIFICATION	BARANGAY	Area (Has.)	No. of Lots/Units
Datu Abdul Usman Subd.	Economic Hsg.	Bagua 2	3.00	80
Tanghal Countryhomes	Socialized Hsg.	Bagua 2	4.00	253
San Pablo Village	Socialized Hsg.	RH 11	8.60	600
San Antonio Village	Socialized Hsg.	RH 11	2.16	70
Happy Homes	Open Market Hsg.	RH 10	0.67	52
Happy Homes Socialized Component	Socialized Hsg.	RH 11	0.13	10
Purveyors Homeowners Assn.	Socialized Hsg.	RH 11	4.72	153
NDFCA (Peñafracia Village)	Socialized Hsg.	RH 11	8.60	500
Pinnen Sero Subd.	Socialized Hsg.	RH 6	4.90	300
Kutangbato Subd.	Socialized Hsg.	RH 7	3.20	155
Notre Dame Village	Civic Org. Hsg. Project	RH 8	6.00	100
BLISS Housing Project	Socialized Hsg.	RH 8	4.00	50
Zenaida Subdivision	Economic Hsg.	RH 8	3.00	60
Land Acquired Under CMP	Socialized Hsg.	w/in Cot. City	15.04	1,504
Land Acquired under Social Credit	Socialized Hsg.	w/in Cot. City	18.16	1,816

Source: CPDO/HLURB/NHA

PUBLIC ORDER AND SAFETY

Table 7: CRIME INCIDENTS

INDICATORS	No./Rate			
	2010	2011	2012	2013
Crime Incidence	290	191	252	1,057
Crime Clearance Efficiency Rate			51.99	7.84
Crime Solved	258	113	200	96
Crime Solution Efficiency Rate	48.50	32.01	49.75	5.34

Source: RSEP 2015, PSA

Table 8: INVENTORY OF FIRE HYDRANTS/RESERVOIR

LOCATION	Street
Notre Dame Village	Fr. Buldoc St.
In front Quintin Diaz Residence	Guadalupe St.,ND Village
LR Sebastian Elem. Sch.	LR Sebastian
In front of Slaughter House	TV Juliano Ave.
In front of Bishops Palace/NDEA	Sinsuat Avenue
Corner Sinsuat Ave. & Sousa St.	Sinsuat Avenue
In front of Peñas Bldg.	Sinsuat Ave.
In front of ND Boys Department	Sinsuat Ave.
In front of Central Central Bank	Quezon Avenue
Near Bajunaid Bldg.	Jose Lim Sr. St.
Corner Bonifacio & Jose Lim Sr. St.	Bonifacio St.
Old Market	Bonifacio Street
Corner Bonifacio St. & SK Pendatun	SK Pendatun
Puericulture & Maternity Hospital	Don Rufino St.
In front of Natascha Bus Terminal	Jose Lim Sr. Street
Beside City Health Office	SK Pendatun Ave.
Beside Cotabato Fish Trading	Corner Japal Guiani Sr. St.
Beside Cora Bisnon Residence	ND Ave.
De Mazenod & ADM Bldg.	De Mazenod St.
Corner Quezon Ave & Datu Siang	Quezon Ave.
Besides Land Bank Bldg.	Don Rufino Alonzo Street

Source: Bureau of Fire Protection

Table 9: Ratio of Policemen and Firemen to Population

Year	Population	Policemen	Ratio	Firemen	Ratio
2010	278,335	265	1:1,050	53	1:5,252
2011	278,472	266	1:1,047	51	1:5,460
2012	285,944	269	1:1,063	43	1:6,650
2013	293,616	262	1:1,121	46	1:6,383
2014	301,493	410	1:735	41	1:7,353

Source: RSEP 2015, PSA

FIRE INCIDENTS

Year	Indicator	
	Fire Incidence (in no. of fires)	Fire Damages to Property (in Peso)
2010	14	1,408,000.00
2011	7	945,000.00
2012	18	3,272,500.00
2013	24	4,815,400.00
2014	19	2,419,700.00

Source: RSEP 2015, PSA

NUMBER AND NATURE OF FIRE INCIDENCE

CY 2005-2007

NATURE	2007	2008	2009	2010	2011
Structural Fire	8	12	3	23	4
Vehicular Fire	0	0	0	1	0
Grass/Forest	0	0	1	1	0
Total	8	12	4	25	4

BFP Updated Report, As of March 2011

FIRE STATION AND NUMBER OF PERSONNEL

FIRE STATION/SUB-STATION & LOCATION	NO. OF PERSONNEL
Cotabato City Central Fire/Stan. Rajah Tabunaway Blvd.	44
Lugay-lugay F/Stan/Lugay-lugay	5
Mother Barangay Rosary Heights	5

BFP Updated Report, As of March 2011

INVENTORY OF EQUIPMENTS/FACILITIES

FACILITIES	No.	CONDITION
Firetruck Supertanker	01	Serviceable
Firetruck # 06	01	Serviceable
Firetruck # 07	01	Serviceable
Firetruck Ladder	01	Unserviceable
Firetruck Jumper	01	Serviceable
Rescue Ambulance	01	Serviceable
Firetruck Nissan	01	Serviceable
Fire Coat	08	Serviceable
Trouser	02	Serviceable
Extension Ladder	04	Serviceable
Fire Boots	08	Serviceable
Fire Hose 1 ½	14	Serviceable
Fire Hose 2 ½	07	Serviceable
Fire Nozzle 1 ½	05	Serviceable

HEALTH PROFILE

Table 10: List of Hospitals (2016)

HOSPITALS						
TYPE OF HOSPITAL	NAME OF HOSPITAL	ADDRESS	BED CAPACITY	CHIEF OF HOSPITAL	CLASSIFICATION	CATEGORY
Government	Cotabato Regional & Medical Center	Rosary Heights 10	300	Dr. Helen P. Yambao	General	Tertiary
Private	Cotabato Medical Specialist Hospital	Quezon Avenue	40	Dr. Gerardo L. Agustin	General	Tertiary
Private	Notre Dame Hospital & School of Midwifery	Rosary Heights 9	200	Dr. Lydia D. Mercado (OIC)	General	Tertiary
Private	Puericulture Center Maternity & Children Hospital	Don Rufino Alonzo St.	30	Dr. Lydia D. Mercado	General	Primary

Table 11: MORTALITY AND CHILD BIRTH STATISTICS

INDICATOR	2015		2014		2013		2012	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Mortality (All Ages) Rate per 100,000 population	861	245	881	263	784	248	828	275
Maternal Deaths Rate per 1,000 livebirths	8	2.08	4	1.16	4	1.27	1	0.34
Perinatal Deaths (Fetal & Neo-natal deaths 7 to 28 days) Rate per 1,000 livebirths	13	3.37	11	3.18	12	3.83	11	3.82
Infant Deaths (<1 yr. old) Rate per 1,000 livebirths	25	6.5	6	1.73	7	2.23	12	4.16
Child Deaths (<5 Yrs. Old) Rate per 1,000 livebirths	38	9.87	10	2.89	15	4.79	8	2.77
Live Births Rate per 1,000 population	3,852	10.95	3,461	10.33	3,132	9.90	2,880	9.58
Projected Population	351,918		334,922		316,335		300,729	

Health Workers/Facilities

Doctors	-	4
Nurses	-	7
Medical Technology- Lab. Technician	-	1
Midwives	-	11
Active BHWs	-	64
Dentist	-	1
Dental Aide	-	1
Sanitary Inspectors	-	8
Fumigator	-	1
Other Health Professionals	-	18

Table 14: Health and Sanitation Indicators

PARTICULARS	2012		2013		2014	
	NUMBER OF HOUSEHOLDS	% TO TOTAL NUMBER OF HOUSEHOLDS	NUMBER OF HOUSEHOLDS	% TO TOTAL NUMBER OF HOUSEHOLDS	NUMBER OF HOUSEHOLDS	% TO TOTAL NUMBER OF HOUSEHOLDS
PROJECTED NUMBER OF HOUSEHOLDS	54,678		57,678		60,894	
I - PROJECTED NUMBER OF HOUSEHOLDS WITH ACCESS TO:						
• SAFE WATER:						
<i>Level I</i>					443	0.73
<i>Level II</i>					3,984	6.5
<i>Level III</i>	50,875	93	53,880	93.4	56,467	92.7
• Unsafe sources						
• SANITARY TOILET	37,700	68.9	40,839	70.8	43,426	71.3
• SATISFACTORY GARBAGE DISPOSAL	40,376	73.8	40,510	70.2	43,097	70.8
COMPLETE BASIC SANITATION FACILITIES	37,700	68.9	40,839	70.8	43,426	71.3
II - FOOD ESTABLISHMENTS						
Total number of food Establishments	700		600		600	
Number & % with issued Sanitary Permits	571	81.6	552	92	538	89.7
Without Sanitary Permits						
Total number of Food Handlers (estimated)	4000		4,299	95.5		
Number & % issued Health Certificates to Food Handlers						
Without Health Certificates	4,765	119				
Sanitation complaints received/attended						
Salt Samples Tested	571		600		576	
Salt Samples Tested found (+) for iodine	571	0	600		576	100

Source: OHS Annual Report

UTILITIES:**Water Utility 1 (Metro Cotabato Water District)**

MCWD coverage	YEAR		
	2007	2008	2009
No. of Barangay Served	32	34	34
No. of Household Served	20,813	21,501	22,449

Source: MCWD

ENVIRONMENTAL AND HEALTH SANITATION
Year 2014 & Year 2013-2012 compared

CURRENT LAND USE

Residential

Most Residential activities in the city include, detached family dwelling, multi family dwelling such as apartments, pension house, dormitory, boarding, customary accessory like guard house, servants quarter, private garage, recreational facilities for family members such as swimming pool, tennis court, and other activities that support or complement residential use.

Residential use in the city covers an area of 796.1475 hectares. Most of these residential uses are concentrated in the urban centers due to its proximity to various services. More specific, these are in Barangays Rosary Heights (RH) Mother, RH I, RH II, RH III, RH IV, RH V, RH VI, RH VII, RH VIII, RH IX, PH X, RH XI, RH XII, RH XIII, Poblacion (Pob) Mother, Pob I, Pob II, Pob III, Pob IV, Pob V, Pob VI, Pob VII, Pob VIII, Pob IX, Bagua I, Bagua II, Bagua III, Tamontaka Mother Kalanganan Mother. Most residents in these zones occupy their own private lots or live in lands belonging to another properly secured by a consent of the real land owner. High density residential makeup are very noticeable in Barangays Poblacion Mother, part of Pob I, Pob IV, Pob VII, Bagua Mother, part of Bagua I, Bagua III. Most of these areas lack proper circulation, and good environment and some residential units are dilated and occupy properties belonging to another. It should be noted that some of the residents/squatters settled in these barangays owing to its proximity to the Central Business District (CBD) were economic opportunities and services abound.

Blighted areas are also very noticeable in the areas of Manday, Campo Muslim, Lugay-lugay, Supermarket area, Tukananes, Bagua, Malagapas, Notre Dame Avenue (formerly Minrapco area), Mabini Street, Punol Island and along major waterways following a linear style.

Low density residential areas are situated along the road leading to Barangay Kalanganan Mother following a linear or ribbon type of development. This development stretches to the center of Barangay Kalanganan Mother which acts as a node to the major urban center or the Central Business District (CBD).

Low Residential areas also stretched in a linear fashion along the national highway covered by Barangay Rosary Heights IX, most particular along Sinsuat Avenue from the New City Hall to the Tarbung River.

A linear development pattern of residential expansion has evolved along both sides of the national highway covered by Barangays Tamontaka I and Tamontaka Mother. Over the years, the road leading to shores of Barangay Kalanganan II has also developed into a low-density residential area following a linear type of development.

In the CBD, residential activities are mixed with commercial and institutional uses. Most of these dwelling units are owned by Chinese businessmen whose houses are either located at the top floor, roof top or within the commercial establishment itself.

Some residential development also took place intermittently in all barangays of Rosary Heights, Barangays Poblacion Mother, I, II, III, IV, V, VI, and VII and in Barangay Kalanganan Mother

Commercial

This designation is divided into two (2) sub-uses: Commercial I and Commercial II. Commercial I are those engaged in retail and wholesale trade. Financial and professional services but limited to: Office, stores, shops, food markets recreational centers, personal services shops, restaurants, catering services and other institutions of the same nature. Commercial II is for: repair shops, embalming establishments, cottage and manufacturing industries, stockyards and slaughterhouses, cold storage and warehouse s, bus terminals and car barns and other activities similar in nature

Most Commercial I activities are situated the CBD particularly in Barangays Poblacion V, VI and along major thoroughfares such as Sinsuat Avenue along Barangays Rosary Heights Mother, IV, VI, VII, IX, X, XIII and XII particularly along the length of Don TV Juliano Avenue being use now as an alternate route to and from the CBD. Commercial I activities has also slowly took shape along De Mazenod Street, Rosary Heights III as well. In Poblacion V and VI is where variety of stores, restaurants, government and privately operated offices, internet cafes, pharmacies, parlors, hotels and hostels, recreational centers, hardwares, filling stations, groceries, food chains, service centers, variety of personal care centers, department stores/shopping centers, photo shops, bakeries, groceries, clinics, banks, radio stations, optical shops, custom dressmaking and tailoring shops, aluminum and glass shops, electronic shops and a mall are located. In the rest of the barangays abovementioned, prominent commercial I uses are variety of stores mostly of small and medium sizes, internet cafes, hardwares, restaurants, hostels, parlors, pharmacies, filling stations government and privately owned offices, filling stations, grocery and meat shops, bakeries, and an auto service center. Commercial I activities recently sprouted at Brgy Rosary Heights 9 and Rosary Heights 10 where home-grown malls have set up along the Sinsuat Avenue. Another property investment (mall) have set up along Gov. Guttierrez at Brgy Rosary Heights 7.

Commercial I activities is comprised of 47.61 hectares the city's total area, while Commercial II activities encompass 17.29 hectares. Most commercial II uses operating in the city are auto repairs shops, junk shops, lumberyards, furniture shops, machine shops, motorcycle repair shops, transportations terminals, funeral parlors, and warehouses. Most auto and motorcycle repair shops are spread in Rosary Heights V, VI, VII, VIII, IX, X, XII and Rosary Heights Mother Barangay. These are residential zoned barangays and for obvious reason most owners have established shops right in their homes with established market of car and motorcycle owners surrounding it. Most of these shops have been regulated and have Certificates of Non Compliance pursuant to a relief provision of the existing ordinance. There are a few junkshops operating in the CBD and a few more in some other barangays although less restriction is imposed upon these shops as they support the effort of the city in recycling waste.

A substantial number of lumberyards are located in appropriate zones such as in Barangay Poblacion VI, Barangay Bagua Mother, Bagua I and Barangay Rosary Heights IX. Very few are located in other zones and most of them are small in size and operating as a display center only. Machine shops are situated in the CBD with a couple of them located in residential zone. But these were previously located also in the CBD and had to relocate for reason of circumstance and not by choice. Transportation terminals erstwhile strewn in the CBD are now situated in appropriate zone such as in Jose Lim Sr. St. and along Sinsuat Avenue, Rosary Heights IX. A privately owned north bound transport terminal was established, by virtue of a franchise passed by the Sanggunian Panlungsod of the city, at the north end (Jose Lim Sr. St.) of the city to accommodate north bound vehicles. Unfortunately, the franchise does not include aircon vans so much so that they have established their own terminals in the north end of the city as well.

A privately owned south bound transport terminal was similarly established at the southern part of the city specifically at the Barangay Rosary Heights IX. The same was issued a franchise and housed southbound transport vehicles.

There are a few furniture shop and even fewer warehouses outside their appropriate zone. These warehouses and furniture shops subsist for countless of years even before the city tried to regulate land uses. No new establishments of this nature were established or constructed in the past several years.

Industrial

Industrial use in the city is non-pollutive or hazardous and non-pollutive hazardous. It covers an area of 3.37 hectares or 0.038 % of the city. Most industrial uses in the city are light industries and neither pollutive nor hazardous. Some major industry in the City, the Cotabato Sawmill and Cotabato Light and Power Company are appropriately located in Barangay Poblacion VII and Barangay Rosary Heights I. Both areas are classified as industrial zone.

TOURIST SPOT:

Takumi Butai Memorial Shrine

Kutang Bato Cave

Rio Grande de Mindanao

Tamontaka Church

P.C. Hill

Timako Hill

Sultan Kudarat Monument

Grand Mosque

POINTS OF INTEREST:

Pedro Colina Hill or Tantawan

A historic significance, it served as the watchtower used by the Moros to detect and repel assaults by enemies. The hill, a military reservation area offers a panoramic view of the entire city and its surrounding areas.

Old Cotabato City Hall



A vintage Malay inspired architectural design structure showcasing a blend of ethnic culture.

New City Hall



A majestic structure located at Malagapas, Barangay Rosary Heights 10, combining ethno-modern architectural with Muslim-inspired roof symbolizing its Royalty. The entire bureaucracy of the Executive Department are now housed under one roof.

Some prominent non-pollutive and no-hazardous industrial uses in the city are manufacturing of luggage, handbags and other leather goods or leather substitute, along Gov. Guttierrez Avenue, Barangay Rosary Heights IX, printing and publishing at Barangays Rosary Heights III, Rosary Heights VI, and Rosary Heights VIII. miki factory Poblacion VI. Most of these industrial uses have been situated in their present location even before the previous land use plan of the city.

Parks and Open Spaces

The biggest park in the city is situated in the heart of the city, the City Plaza. The 1.42 hectare plaza is where some residents go and take some time out especially in the evening. Not completed yet is another park known as the children's park located beside the New City Hall. The total area for parks and open spaces in the city is 3.37 hectares.

Institutional

Institutional use includes government centers, schools, colleges and universities, hospitals, medical centers, museums and the likes. This designation has two (2) types: Government Institutions and Private Institutions.

Previously government institutions in the city are strategically strewned in the CBD purposely to achieve a widest range of service to the general public. However, with the passage of EO 304, most if not all of the regional offices had transferred to Koronadal City as seat of Region XII although, field offices have remain in the city.

The Cotabato Regional and Medical Center (CRMC) which has an area of 10.1611 hectares stayed in the city. And provide medical service and health care to residents of the city as well as those in adjacent municipalities and cities. The city is also the seat of Autonomous Region for Muslim Mindanao (ARMM). The office of the Regional Governor is housed in the ARMM complex which contain an area of 8.213 hectares and accommodates several ARMM offices and a few regional offices of Region XII. Albeit, some ARMM offices are situated outside the complex and situated in some Barangays of Rosary Heights such as Barangay Rosary Heights VI and VII. The compound of Department of Public Works and Highways contains an area of 2.8236 hectares. The City Hall, formerly located at Poblacion VI has transferred to a new site with a Malay inspired design building in Barangay Rosary Heights X. The City Hall complex, containing an area of 4 hectares, houses a building that hold several rooms for different offices of the City.

Except for the Sanggunian Panlungsod and the Motor Pool of the City Engineering Office most if not all are now in the new City Hall Complex. There are twenty eight (28) public elementary schools and one (1) high school/college – the Cotabato City State Polytechnic College. The total area of government institutions embraces 76.44 hectares altogether.

Kutawato Caves

Located at the foot of the hill, it is the only cave in the entire country located in the heart of the city. It has four major entrances offering various natural attractions like rock formations, salt water ponds, underground river and an army of fruit bats. It is also rich in historical and cultural legacy, and ideal for guided tour and spelunking.

Old Provincial Capitol

Inspired with an early American architecture, it was the seat of the then Empire Province of Cotabato.

Takumi Butai Memorial Shrine

The shrine was named after Col. Takumi Butai, the Provincial Commander of the Japanese Imperial Army in the then empire Province of Cotabato during the Second World War. Upon Takumi's request, part of his ashes was enshrined in Cotabato City, a place he considered his second home. The month of August is recognized by the Japanese as All Souls Month. It ushers a sentimental journey of relatives, friends and compatriots back to the city to pay homage to a fallen hero.

Timako Hill



The hill overlooks the Illana Bay and is protected by Bongo Island. The place is a good resort with its blue water, sandy white beach, lake and cave and is ideal for camping, skin diving, snorkeling, boating, fishing and other water sports.

Regional Autonomous Government Center

It houses almost all regional offices of the Autonomous Region in Muslim Mindanao (ARMM) and has a unique blend of modern and muslim architecture. Within the complex, a guest can visit the regional library, museum and on season can witness

Private institutions which consist mostly of schools are similarly located in the CBD particularly in Barangay Poblacion V and VI. Private institutions in the City are Notre Dame University and Elementary Training Department. Albert Einstein School, Dr. Ocampo College, Notre Dame (ND) of Cotabato, ND RVM School of Cotabato, Cotabato City Institute, Notre Dame Cathedral, St Benedict College, A.R. Pacheco College Inc., Agape School, CAS memorial School, Cot City Baptist Learning Center, Cot. Sacred heart Learning Center, Fernan Islamiah Learning School, HER Learning Center, Kids 'R Us Learning School, Lord of Peace, Nahda Central Academy, Ma'had Kutawato Al-Islamic, Mangiging Learning Center, ND Learning Center, Cot. City New Life Institute, ND Cathedral, Our Lady of Madonna Learning Center, Rapha Christian School, School of Character, Inc., St. Martha School, St. Peter and St Paul Parochial School, Sultan Kudarat Islamic Academy. The total area devoted to Private Institutions is 30.14 hectares.

Agriculture sub-sector

The agriculture sub-sector still comprises the biggest portion of the city's land resources consisting of crop production and fishery production. The western portion of the city is mostly used for brackishwater fishpond production with only a small fraction devoted to crop production and vegetable production. At the eastern portion is the bulk of lands for crop production and on the side, farmers here are also engaged in backyard-raising for poultry and livestock. A few local residents though are maintaining backyard freshwater fishponds for tilapia production.

The concentration of residential houses is along the main road, arterial roads and along river banks, not to mention the gradual sprouting of residential areas within the agriculture areas which is inevitable considering the massive growth of the city's population due largely to in-migration of internally-displaced persons (IDP's) coming from conflict-affected and conflict-prone adjacent areas and the natural influx of job-seekers and employment-seekers as well. Agricultural lands that are no longer very productive are being re-classified for non-agricultural purposes.

From the thirty-seven (37) barangays, at least sixteen (16) barangays have portions of agricultural land. These are Barangays Bagua I, II, Kalanganan Mother Barangay, I, II, Poblacion I, VIII, IX, Rosary Heights V, IX, Tamontaka Mother, I, II, III, IV and V. The overall area devoted for rice farming is present in all the sixteen (16) barangays while corn and vegetable farming can only be found in Barangay Kalanganan I. Coconut planting can also be found in almost all the 16 barangays above mentioned except in Barangays Bagua II, Rosary Heights V and IX.

Forest sub-sector

Timako hill is the only remaining forested area. It has an area of 148 hectares and standing at an elevation of 194 meters. For the past several years much of the forested has remain what it was before. No significant deforestation have been observed or reported

Agro-industrial sub-sector

The industry sub-sector occupies only a very small portion of land in relation to the total land area of the city. The so-called industrial activities are mostly agriculture support facilities like rice mills with warehouses spread in five (5) barangays, a vintage sawmill that has been operating since the 1970's and the surviving ice plant (the first that the city had) after the second plant closed shop. There are no other formal industrial activity thrived or even took place in the city. In the middle of the 1990's at the height of the seeming thrust of the National Government to establish Regional Growth Centers (RGC's), Cotabato City was fortunate to be the identified location of one of the two RGCs for the then configuration of Region XII. Thus, the so-called Metro Cotabato Regional Agri-Industrial Center (MCRAIC) was established and soon after, a Master Development Plan was formulated and adopted by the Sangguniang Panlungsod.

Unfortunately, the MCRAIC (even with the blueprint of development in place) never really took off the ground. Not even the changing of the guards so to speak was able to reverse the picture. One main reason for the lukewarm response from potential industrial locators is the high cost of land development. Other incidental reasons just cropped up over time, all the more that the MCRAIC failed to stride with development. However, in lieu of this, the present administration was able to identify a smaller site for agri-processing called Cotabato City Technological Park (Techno-Park). The City Government of Cotabato in cooperation with the Metro Kutawato Development Alliance (MKDA) was able to establish a start-up agri-processing facility consisting of a coco oil mill, compact rice mill, corn mill and feed mill.

Tourism sub-sector

The tourist attractions of Cotabato City is a mix of historical, cultural, man-made, political to natural landmarks with a close attachment to the city's glorious past. There are no tourist establishments to speak of where visitors could stay for a day or two and enjoy its amenities. All of the attractions are accessible by land transportation with paved roads. The smallest of these is a monument enshrining the remains of a Japanese Officer who gained the respect of old-timer city residents while the biggest is the Timako Hill (consisting of 196 hectares) that is neither a production nor protected area. However, the hill is being preserved for eco-tourism purpose because of its very ideal location. Some tourist attractions could be enhanced to entice more visitors to come without necessarily adding up land utilization.

Marshland sub-sector

The city has a total marshland area located at the southeast part of city particularly Barangay Tamontaka IV, V and on the northwest side specifically at Kalanganan Mother. Only during dry season or low tide these areas are planted with crops but basically the area is dominated by grasses. Since the city is below sea level water table in these areas are just above, or below the surface of the ground, depending of the level of the tide. These areas are easily inundated during continuous/heavy rainfall brought about by atmospheric depression.

Other Uses (special) sub-sector

Cemeteries

There are 4 cemeteries in the city namely, the Public cemetery, Malagapas Cemetery, Catholic cemetery, and the Chinese cemetery. The Public cemetery is located at Rosary Heights Mother Barangay, the Malagapas Cemetery is located at Barangay Rosary Heights X, while the Catholic Cemetery and the Chinese Cemetery are located are Barangays Rosary Heights I and IV respectively, All cemeteries are accessible being situated along Sinsuat Avenue (National Highway).

The Public Cemetery and the Catholic cemetery are full to capacity while the Chinese Cemetery which caters only to Filipino-chinese residents of the city is 85% occupied. The Malagapas cemetery has an effective area of 1.5 hectares out of the entire 3.3 hectares. The remaining area remains to be flood prone and requires further development. The total area of the 4 cemeteries is 7.0 hectares.

A substantial number of residents bury their dead at Marian Hill Memorial Park, Inc. located at the adjacent municipality of Datu Odin Sinsuat which is only about 6 kilometers from the downtown area and a few meters away from the boundary of the city.

There is no exclusive public burial grounds for the departed Islamic brethren in Cotabato City. They usually inter their departed relatives in their own private or family lots or avail with Muslim public cemeteries located outside the city. The Muslim faithful are sensitive to the choice of burial grounds.

Controlled dumpsite

A city's controlled dumpsite is located at Barangay Poblacion VIII containing an area of 1.0 hectare. It has a safe distance of more than five (5) kilometers away from the nearest urban center. It receives mixed waste from the twenty seven (27) out of the thirty five (35) barangays. Another 9 hectares is reserved in the same area as a disposal site but has not yet been developed.

DEVELOPMENT ISSUES AND CHALLENGES

1. The city is situated in the lowest portion of Maguindanao province, making it as the catch basin of the upstream provinces;
2. The city is basically a delta, formed by two big rivers, the Tamontaka River and the Rio Grande de Mindanao;
3. Seventy percent (70%) of its total land area is below sea level;
4. The city is seated within the earthquake belt/faults, the Cotabato Trench and Cotabato Sindangan Fault;
5. River bank along Matampay, Tamontaka and the Rio grande de Mindanao are susceptible to erosion;
6. The Mindanao River Basin, the second largest basin in the Philippines, located in Central Southern Mindano. Bounded on the north by the province of Bukidnon, on the northeast by the provinces of Agusan del Sur, on the west by the province of Maguindanao and Cotabato City, on the southwest by Sultan Kudarat and the south of Sarangani and South Cotabato. The Mindanao River Basin drains in Illana Bay;
7. Tamontaka and Rio Grande rivers regularly receive sediments from the surrounding highlands that causes its increasing siltation and received water hyacinth as well during heavy rains;
8. On the coastal areas there is an increasing frequency of seawater intrusion to low-lying agricultural lands;
9. The coastal area is vulnerable to tsunami or storm surge aggravated by declining mangrove population;
10. The natural landscape of the city having braided courses of rivers and or rivulets makes it prone to liquefaction.

LGU DEVELOPMENT CONSTRAINTS (ENVIRONMENTAL AND TOPOGRAPHIC CONDITIONS)

The city government of Cotabato shall endeavor to pursue the implementation of programs, projects and activities in harmony with its strategic directions that will suit its local environmental conditions and topographic constraints such as:

1. The enormity of the land area that is below sea level – it constitutes roughly 60% of the city's total land area that are flood-prone either due to tidal intrusion (during high tide) and flashfloods caused by heavy rains;
2. Heavily silted major waterways - the Rio Grande de Mindanao at the northern portion and Tamontaka River at the southern portion of the city serves as major outlet of water from upstream towards Illana Bay. Headwaters from as far as the Provinces of Agusan del Sur and Bukidnon ends up towards Rio Grande while downstream waters from as far as the Provinces of Sultan Kudarat and South Cotabato spill out towards Tamontaka River. Siltation has reduced the carrying capacity of both rivers and water run-offs add up to the danger of flooding;
3. The presence of 32 meandering rivers and creeks in and around the city – most of these small waterways are used as outlets for domestic wastes that end up as pollutants to the water system.

C. Planning Context

CURRENT AND USE POLICIES

In consideration of its local environmental conditions and topographic constraints, not to mention the indicators of climate change, the City Government of Cotabato shall pursue, among others, the following land use policies indicated in its CLUP:

1. In all land uses and zone districts, proper sanitation shall be observed. Riverways, drainage, and other waterway must be free from waste and other obstruction. Dried creeks shall be free from occupation and shall not be disposed off to the public in any manner.
2. Settlements on the Punol Island and those along the stretch of Rio Grande de Mindanao shall be transferred to one of the city's socialized/low cost housing or organized to form an Urban Poor Organization to avail of housing programs.

Since the settlers are living in danger zones, they shall have preference over those other organizations whenever a 20% allocation of low cost housing is allotted by subdivision owners in case of medium and high-cost housing is proposed.

3. To maximize land usage and protect lives and properties, periodic silt dredging of waterways should be carried out especially in major waterways of the city.

Growth nodes and other available land supply for development should attain a low level of vulnerability to flooding. Coordination with public, quasi-public and private entities shall be sought towards this end.

The city's Structure Plan, reflecting the growth directions of the city is indicating that growth is directed towards areas less prone to risk such as flooding.

4. Dredged silt shall be used to fill up waterlogged areas and those susceptible to flooding to maximize use of land. Whenever possible, appropriate dredged materials shall likewise be used as circumferential dikes to deter flooding in low level areas.
5. Proposed settlements in flood prone areas shall be elevated or on stilts whenever deemed possible. Appropriate toilet/latrine shall be provided to prevent spread of waterborne diseases brought about by e-coli and other harmful bacteria. The same shall be provided to settlement along waterways.
6. Provision of toilets/latrine shall be done by the owner or through the intervention of city/national government or donor agencies.
7. Low lying barangays shall endeavor to prevent loss of lives and properties. They shall come up with a Barangay Disaster Management Plan taking into account flooding among others. Barangays shall also conduct regular clearing of waterways within their area of jurisdiction.
8. Low lying areas shall be devoted only to agricultural and/or fishery production. Housing subdivision shall be discouraged in those areas.

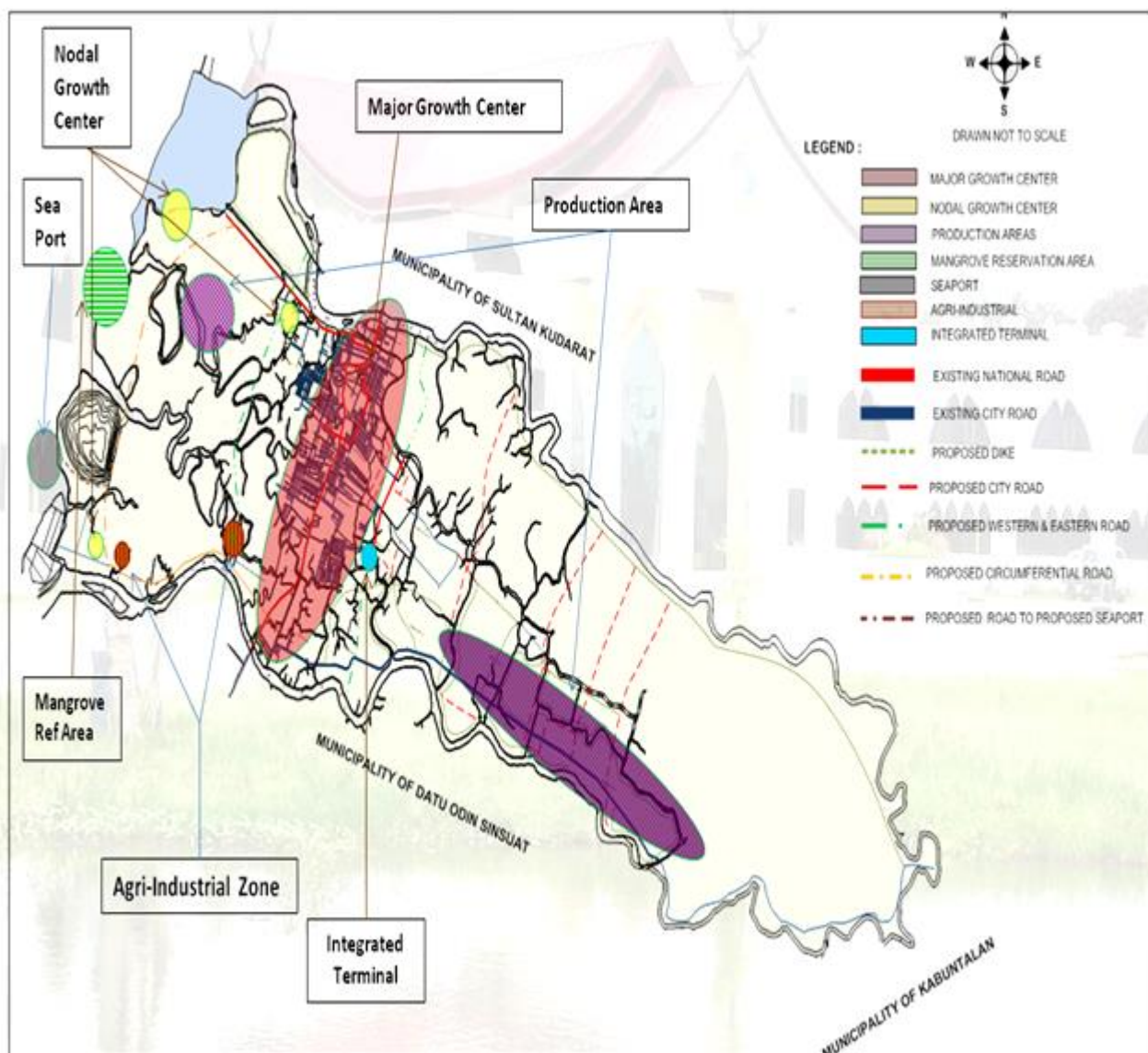


Figure 2 :
Structure Plan of Cotabato City

Urban Ecosystem

Short-Term

- De-Clogging of Drainage Canals;
- Construction of Flood Control and Drainage Canal System in other flood-prone areas where there are no existing ones;
- Rehabilitation damaged Drainage Canals;
- Enhancement of Solid Waste Management System (with continuing advocacy by the City Government for “honest-to-goodness” waster segregation starting from the household levels;
- Design and construct horizontal infrastructure that are climate-resilient.

Medium Term

- Enhancement of delivery of medical and health services down to the barangay level;
- Regulation on the use of 2-stroke motorcycle engines in tricycles as a transport mode (with a proviso for the ultimate ban and shift to 4-stroke engines);
 - Through Local Legislation, study the gradual phase-out of all fossilized-fuel run tricycles and introduce E-tricycles;
- Revisit the proviso in the Traffic and Transport Management Plan that regulates the number of public utility vehicles plying in the city in close coordination with LTFRB and craft ways and means on how to implement it to the letter;
- Revisit the local legislation that banning the use of styropor food containers (for take outs) by restaurants and the use of plastic sando bags in supermarts/grocery stores and even in other stores selling consumer goods and other related items. (the practice in some highly urbanized cities providing at least a day in week for “no plastic bags, styropor food containers in all food and non-food establishment could be replicated and use substitute materials like paperbags and food packs with waxed inner sides);
- Establishment of a Central Composting and Waste Conversion Facility

Long Term

- Total phase-out of tricycles as transport mode and replace it with E-Jeeps (modified version of tricycle with car body shaped like that of a PUJ)
- Total ban on the use of “sando bags” as carry bag in all supermarts, grocery stores, public markets, ambulant vendors and other commercial establishment
- Total ban on styropor food containers in all fastfood outlets, restaurants, carinderias, ambulant vendors
- Full implementation of the Septage and Sewerage Program;
- Establishment of a Sanitary Landfill in cooperation with a neighboring local government unit;
- Use of green technology in vertical infrastructure.

Agricultural Ecosystem

Short Term

- Adaptation to climate-resilient crops and grains;
- Gradual introduction of organic agriculture;
- Introduction of facilities to ensure water supply during dry season or extreme weather condition;

Medium Term

- Gradual transformation from traditional farming to semi-mechanized farming;
- Construction of irrigation facilities in applicable agricultural lands;

Long Term

- Food Security (grains, vegetables, fish, meat);
- Completion of Road Dikes along the entire periphery of the city;
- Full transformation to mechanized organic farming (corporate farming an option for economies of scale));
- Continuous dredging of Rio Grande de Mindanao, Tamontaka River and clearing of creeks and tributaries;
- Full operationalization of the home-grown handicraft industry using water hyacinth and balabak grass as major raw materials

Coastal Ecosystem

Short Term

- Delineation of all mangrove areas as Protected Area (supported by Local Legislation with Implementing Rules and Regulations);
- Establishment of Alternative Livelihood;
- Strengthening of the Coastal Resource Management System (Bantay-Dagat);
- Advocacy to good practices on proper solid waste management;
- Capacitation on the effects of coastal hazards to their livelihood.

Medium Term

- Rehabilitation of damaged Mangrove Areas and Enrichment of Good Mangrove Areas;
- Rehabilitation of marine life at Illana Bay [to include regulations (total banning a most likely option) on the use of fishing methods that are destructive to the marine life-support systems];
- Fortification of fishpond dikes against flooding;
- Use of renewable energy (solar power) for motor pumps and lighting facilities in houses and fishpond areas;
- Introduction of “halal” fish culture.

Long Term

- Permanent dredging on the coast of Illana Bay affected by massive siltation to improve marine life and navigability;
- Institutionalization of Inter-Regional Coastal Resource Management (for LGU sharers of Illana Bay) – this will be coordinated with DAF-ARMM and the respective LGUs (Datu Odin Sinsuat, Datu Blah Sinsuat, Sultan Kudarat, Sultan Mastura, Parang) in Maguindanao Province.

LGU DEVELOPMENT VISION, MISSION, GOALS

Vision

A peaceful, secure, and highly developed multi-cultural community in Central Mindanao.
(CDP 2010-2020)

Mission

To empower the community and strengthen capacities in the different ecosystems and become highly adaptive to climate change thru proactive initiatives in harmony with the development thrusts of the government with the end view of sustaining the resources towards creating decent living conditions with minimum risk to all constituents

Goals

Agriculture Ecosystem

A sustainable Agriculture Development Program able to ensure food security anchored on:

- Climate-resilient Organic High Value Crop Production (HVCC);
- Adequate supply of halal meat for domestic consumption and export market, and;
- Adequate supply of organically-grown freshwater fish products.

Coastal (and Riverine) Ecosystem

Higher productivity for sustainable livelihood to the general fisherfolk through:

- Rehabilitation of the municipal fishing grounds on the coast of Illana Bay (*fully protected by Inter-LGU Cooperation*);
- Restoration of vital life-support systems along the riverine, and;
- Development of a protected sanctuary for all aquamarine species.

Urban Ecosystem

Establishment of highly-developed communities peopled by well-informed peace-loving constituency that are:

- Well aware on the effects of Climate Change and Disaster Mitigation;
- Fully oriented on Green Technology, and;
- Less prone to recurring flooding;

EXISTING AND IMPLEMENTED CLIMATE CHANGE PLANS AND PROGRAMS

Based from the CLUP (2011-2020) addendum, the following are climate change adaptation and mitigation efforts implemented by the city for the year 2016 and even in the years before:

- Capacity-Building for the Cotabato City Disaster Risk Reduction Management Office;
- Conduct of Training for Alternative Livelihood Sources;
- Subsidy on flood-resistant variety of rice seeds through Department of Agriculture (DA);
- Mangrove and bamboo planting in identified areas;
- De-clogging of Flood Control and Drainage Canals;
- Capacity-Building and Strengthening of Farmer's Cooperatives;
- Establishment of Materials Recovery Facilities;
- Capacity-Building and Strengthening of Farmer's Cooperatives;
- "No Segregation/No Collection Policy"

Adaptation Pillar

Key Result Areas	P/P/A's	Location
Integrated Eco-System Based Management 1. Climate-Responsive Agriculture	1. Construction/Road Opening of Farm-to-Market Road cum Road Dike Along the Periphery of Rio Grande de Mindanao	Barangay Poblacion 9 to Tamontaka 4 and 5
	2. Rehabilitation & Upgrading of the Pagalamatan-Taviran Farm-to-Market Road cum Road Dike	Barangay Tamontaka 1 to Tamontaka 5
2. River Basin Management	3. Dredging of Rio Grande de Mindanao	Barangay Kalanganan Mother to Tamontaka 5
	4. Dredging of Tamontaka River	Barangay Tamontaka V to Kalangan II
	5. River Bank Protection and Rehabilitation	Rio Grande De Mindanao & Tamontaka River
3. Coastal and Marine Ecosystem Management	6. Preservation and Rehabilitation of Mangrove Forest Cover	Barangay Kalanganan Mother, Barangay Kalanganan1 and 2
	7. Establishment of Material Recovery Facility	All 37 Barangays
	8. Adapt a River Program	Tarbung River
	9. Protection and conservation of Sea Grass Areas	Kalanganan II
4. Eco-Tourism	10. Preservation of Timako Hill's Forest Cover	Barangay Kalanganan 2
5. Disaster Risk Reduction	11. Formulation of Disaster Preparedness and Response Plan (with accompanying Manual of Operations)	City-wide
	12. Formulation of Cotabato City Master Drainage Plan	City-wide

Mitigation Pillar

Key Result Area	P/P/A's	Location
Sustainable Infrastructure	1. Establishment of Flood-Free Relocation/Resettlement Areas for the Vulnerable Sectors	Six (6) barangays to be identified
	2. Establishment of Risk-Free Evacuation Centers	Five (5) strategic barangays to be identified that are proximate to low-lying and flood-prone barangays
Renewable Energy	3. Installation of Solar-Energy Powered Lighting Facilities	Barangay Rosary Heights 10 (City Hall Premises) and in other barangays to be identified
Environmentally-Sustainable Transport	4. Operation of Electric Motor-Driven Utility Vehicles for Short Distance Shuttling of Government Employees	Barangay Rosary Heights 10 (City Hall), Rosary Heights 7 (ARMM)
	5. Establishment of Dendro Fuel processing Plant	Tamontaka V
	6. Establishment of Monitoring Post, water level sensor	Rio Grande De Mindanao & Tamontaka River
	7. Installation of rainfall gauge meter at City Hall Compound	Rosary Heights X
Water Governance and Management	8. Preservation/Conservation of Dimapatoy Watershed (In Collaborative Capacity)	Datu Odin Sinsuat Municipality
Waste Management	9. Clearing of Small Waterways	Vilo & Kibatang Creeks, Bagua, Manday & Lugay-lugay Rivers
	10. Establishment of Cotabato City Central Composting Facility	Barangay Rosary Heights 10

Notwithstanding the current mitigating measures in place and the proposed programs, projects and activities to be implemented within the plan period, the City Government of Cotabato shall endeavor to introduce reforms and policies that would further strengthen its capacity to adapt to the prevailing climate change phenomenon. Hereunder are the envisioned institutional reforms/policies:

Reduction of Greenhouse Gas Emissions

1. Passage of Joint Executive - Legislative Measures (complete with necessary sanctions) to address the following concerns:
 - a. Discourage indiscriminate burning of solid wastes especially materials with plastic content/s
 - b. Gradual reduction on the use of styropor-based food containers by fast food chains, restaurants and home-based food caterers
 - c. Gradual reduction on the use of plastic bags ("sando" bags and packaging bags in all types of grocery stores, government-operated public markets, satellite markets, restaurants, fast food chains
 - d. Establishment of "Green Zones" in barangays with appropriate land area

Climate-responsive agriculture

2. Executive Action for stronger advocacy that would:
 - a. Encourage farmers in low-lying areas to shift to rice seed varieties with high saline resistance and increase the ratio of using organic fertilizers viz a viz synthetic fertilizers
 - b. Encourage fishpond owners/operators to shift to organic feeds and increase the ratio of using organic fertilizers viz a viz synthetic fertilizers

Climate-responsive health sector

3. Executive Action for the establishment of more responsive monitoring mechanisms and improved surveillance systems and emergency response in vulnerable areas prone to communicable as well as vector-borne and water-borne diseases

Capacity Development

4. Joint Executive-Legislative Measures to fund capability-building activities to:
 - a. Strengthen education, training and communication proficiency at all societal levels about climate change taking into account gender issues
 - b. Encourage and strengthen participatory approaches taking climate change considerations that could be integrated in relevant social, economic and environmental policies and actions.

D. Planning Approach

PLANNING FRAMEWORK

The city will pursue its strategic directions in addressing the global issue of climate change in accord with the Pillars of the National Framework Strategy on Climate Change; Adaptation and Mitigation (with Adaption as the Anchor Strategy). It should be noted that mitigating actions shall be considered and pursued more as a function of adaptation.

The essential elements to the strategic directions to be taken by the city as its enabling mechanisms shall include the following, among others:

1. **Building the Adaptive Capacity of Communities** – to help them increase their resilience and optimize mitigation opportunities;
2. **Taking of Pre-Emptive or Precautionary Actions** – to anticipate, prevent or minimize the potential impacts of disaster by addressing possible causes of risks.

The city will take positive and practical measures to surmount the limitation or absence of local information to be able to prepare action plans.

3. **Adherence to equitable adaptation measures** – this will ensure equal and equitable protection of the poor, women, children and other vulnerable and disadvantaged sectors;
4. **Form and Build Multi-Sector Partnership** – that the Local Government Unit shall establish partnerships with Civil Society Organizations (CSO), non-governmental organizations, the private sector, other government institutions/instrumentalities, the indigenous peoples groups, vulnerable sector and community organizations;
5. **Adherence to the Principle of Complementation** – this will ensure that other sectors shall not be restricted in promoting or advocating the climate change and disaster risk reduction initiatives by another sector, and vice versa.



GUIDING PRINCIPLES

In formulating the city's LCCAP, it took into consideration the National Framework Strategy on Climate Change (NFSCC) which was adopted in April 2010 with the following Guiding Principles.

1. It is envisioned to have a peaceful, secure and highly developed multi-cultural climate risk resilient city with thriving and productive ecosystem;
2. To build an adaptive capacity of the barangays/communities and increase resilience of the natural ecosystem to climate change, and optimize mitigation opportunities towards sustainable development.
3. Cotabato City as one of the city in the Philippines which is a State Party to the United Nations Framework Convention on Climate Change (UNFCCC), is committed to the country's core principle of common but differentiated responsibilities and respective capabilities.
4. The precautionary principle guides the city's climate change framework and shall take precautionary measures to anticipate, prevent or minimize the causes of climate change and its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures.

5. The Framework is risk-based, and strategies/activities shall be formulated, with decisions made based on the causes, magnitude and impact of risks.
6. Climate change knowledge is science-based, and shall draw from scientific contributions and best practices from communities taking into considerations local circumstances
7. The key priorities shall be adaptation and mitigation, with an emphasis on adaptation as the anchor strategy. Whenever applicable, mitigation actions shall also be pursued as a function of adaptation
8. Adaptation measures shall be based on equity, in accordance with common but differentiated responsibility; special attention must be given to ensure equal and equitable protection of the poor, women, children and other vulnerable and disadvantaged sectors.
9. Even with inadequate scientific information, anticipatory adaptation measures should be undertaken to prevent or minimize the causes and potential impacts of climate change, whenever necessary.
10. The Framework adopts the Philippine Agenda 21 for Sustainable Development, to fulfill human needs while maintaining the quality of the natural environment for current and future generations.
11. The principle of complementation shall be observed to ensure that climate change initiatives by one sector do not restrict the adaptation of other sectors.
12. The Framework recognizes the roles of agencies and their respective mandates as provided by law. The Framework also recognizes the principle of subsidiarity and the role of barangays as front-liners in addressing climate change.
13. The Framework recognizes the value of forming multi-stakeholder participation and partnerships in climate change initiatives, including partnerships with civil society, the private sector and barangays, and especially with the urban poor and other marginalized groups most vulnerable to climate change impacts.
14. Policy and incentive mechanisms to facilitate private sector participation in addressing adaptation and mitigation objectives shall be promoted and supported.

STAKEHOLDERS AND ENGAGEMENT

Stakeholders' participation is crucial in any plan formulation not only because they have legitimate and significant issue but also because it builds ownership and commitment to development activities and processes. It is also crucial in gathering information and building consensus and conclusion. In the context of LCCAP, stakeholder participation provides the opportunity to collectively analyze the different hazards in the community and assess their vulnerability and capacity. Doing so would offer the community mechanism to reduce disaster risk.

During the consultation, various sectors of the community were invited such as barangay officials, purok leaders, women's group, health care group, academe, Persons-With-Disability (PWD) group, civic organization and other CSOs operating within the community/barangay. Below is the list of stakeholders that were consulted together with the PVA tools used and indispensable partners who made it possible.

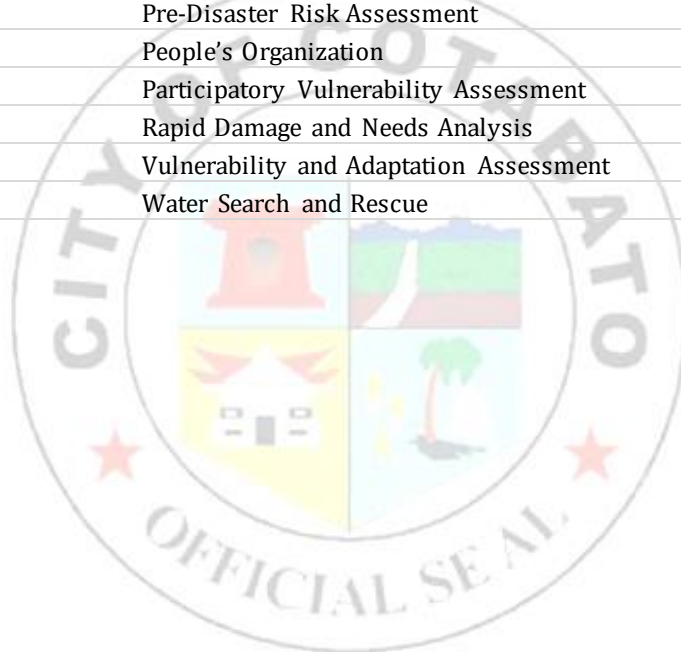
**Table 15 :
Stakeholders in LCCAP formulation**

Stakeholders/ Barangays	Engagement	Tools used	Remarks
Poblacion MB	Community Consultation	Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Poblacion 1	Community Consultation	Elements at Risk template, Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Poblacion 2	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Poblacion 3	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Poblacion 4	Barangay consultation	Elements at Risk template	Barangay Effort
Poblacion 5	Community Consultation	Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Poblacion 6	Community Consultation	Elements at Risk template, Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Poblacion 7	Community Consultation	Elements at Risk template, Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Rosary Heights MB	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Rosary Heights 1	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Rosary Heights 2	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Rosary Heights 4	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Rosary Heights 5	Barangay consultation	Elements at Risk template	Barangay Effort
Rosary Heights 6	Barangay consultation	Elements at Risk template	Barangay Effort

Stakeholders/ Barangays	Engagement	Tools used	Remarks
Rosary Heights 8	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5, Risk Assessment and Mapping	Partner with USAID-Be Secure, USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO, Center for Disaster Preparedness, PVA Core Team
Rosary Heights 9	Community Consultation	Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Rosary Heights 10	Community Consultation	Elements at Risk template, Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Rosary Heights 11	Barangay consultation	Elements at Risk template	Barangay Effort
Rosary Heights 13	Barangay consultation	Elements at Risk template	Barangay Effort
Bagua 1	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Bagua 3	Community Consultation	Disaster Timeline, Hazard Map, Elements at Risk, Key Facilities matrix, Social Venn Diagram, Seasonal Calendar, Top 5	Partner with USAID-Be Secure, Center for Disaster Preparedness, PVA Core Team
Tamontaka MB	Barangay consultation	Elements at Risk template	Barangay Effort
Tamontaka 5	Barangay consultation	Elements at Risk template	Barangay Effort
Kalanganan MB	Community Consultation	Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Kalanganan 1	Community Consultation	Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO
Kalanganan 2	Community Consultation	Risk Assessment and Mapping	Partner with USAID-Engage, Muslim Youth Religious Organization, Inc., CDRRMO

E. Glossary of Terms

BDRRMP	Barangay Disaster Risk Reduction and Management Plan
CBDRRM	Community-based Disaster Risk Reduction and Management
CC	Climate Change
CCA	Climate Change Adaptation
CCAM	Climate Change Adaptation and Mitigation
CCM	Climate Change Mitigation
CMA	Christian Muslim Association
CSO	Civil Society Organization
DRRM	Disaster Risk Reduction and Management
ICS	Incident Command System
IEC	Information and Education Campaign
LCCAP	Local Climate Change Action Plan
LGU	Local Government Unit
MYRO-i	
NGO	Non-Government Organization
PDNA	Post-Disaster Risk Assessment
PDRA	Pre-Disaster Risk Assessment
PO	People's Organization
PVA	Participatory Vulnerability Assessment
RDANA	Rapid Damage and Needs Analysis
VAA	Vulnerability and Adaptation Assessment
WASAR	Water Search and Rescue



II. VULNERABILITY ASSESSMENT

A. Identified climate-related hazards and their impacts to the LGU

CLIMATE

The city's climate belongs to the fourth type characterized by more or less even distribution of rainfall throughout the year. Dry season stretches from November to May with February as the driest month and June to October as its wettest months. Average temperature is placed at 25°C and rainfall ranges from as low as 2.71 inches in February and as high as 10.88 inches in July, except from the variation caused by degrees of elevation, the temperatures throughout the area is not significantly different. Average annual rainfall in the city registers at 7.07 inches.

No typhoon or other climatic disturbances of considerable impact was experienced as Cotabato City is located outside the typhoon belt and protected by hills and small mountains surrounding it. Occasional flooding however, do occur during the onset of heavy rains. The prevailing wind in the area comes from southeast and the relatively weak wind that sweeps the region makes the condition possible for the formation of thunderstorms which usually occur any time during the year, even during the dry season. The prevailing type of climate in the city favors the cultivation of rice, vegetables, root crops and legume.

CLIMATE RELATED HAZARDS

Cotabato City is no stranger to the effects of climate change marked by increased frequency of seawater intrusion to low-lying agricultural lands, heavy rains brought by strong typhoons hitting areas of Mindanao outside of the perennial typhoon belt and the succession of three (3) flooding that inundated even barangays that are not flood-prone from 2008-2009 and 2011.

As part of the *impact chain analysis*, climate-related hazards affecting specific areas in Cotabato City were identified. It is anticipated that changes in rainfall and temperature will most likely affect *flooding*, *sea-level rise*, and *drought/flooding* in the agricultural, coastal/riverine, and urban ecosystems, respectively.

ECOSYSTEM	CLIMATE-RELATED HAZARD	CLIMATE CHANGE STIMULUS / DRIVER
<i>Agriculture</i>	Flooding, Drought, Sea level rise	Seasonal increase in temperature; decrease in rainfall
Coastal (and riverine)	Sea-level rise, drought	(seasonal) increase in rainfall
Urban	Drought flooding	Decrease in rainfall; increase in temperature

The planning workshop was succeeded by a training activity on M&E. During that time, participants recognized that even coastal areas are being affected by *drought*.

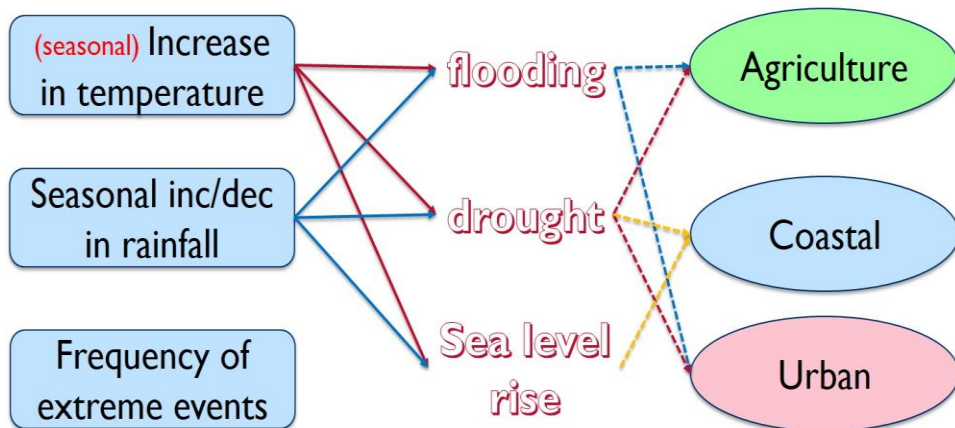


Figure 3 :
Summary of hazard impacts by climate related stressors in Cotabato City

▪ FLOODING



Figure 4 :
Flood Risk Map, Cotabato City. Source: CLUP 2011-2020 Addendum

In the recent years, Cotabato City has been constantly experiencing serious inundation problems. The months of June in 2008, August of 2009 and June of 2011 were all marked by staggering economic losses to the City exacted by perennial visitations of ruinous flooding.

Two water level gauges are installed in the two outlet rivers of the Ligawasan Marsh namely, Rio Grande de Mindanao and Tamontaka. Amidst the 2008 flooding, the gauge installed at the Quirino Bridge in Rio Grande measured record-high water level, the highest ever recorded since the station commenced operation in 1999. Thereafter, the water level in the Tamontaka was observed to return to normal

levels. Noteworthy, however, is Rio Grande’s abnormally high and enduring water levels which have not returned to normalcy since the 2008 inundation.

The 2008 flooding was characterized by large volumes of sediments transported downstream of the Rio Grande from the Ambal-Simuay River. It can easily be inferred hence that the transported sediments are the antecedent of perennial flooding subsequently occurring in the City, drastically reducing the Rio Grande’s flow capacity. (Source: *Mindanao River Basin, Feasibility Study*)

The susceptibility of the soils in the area to be eroded were those that are Erosion Potentials located along the banks of the Matampay River, Tamontaka River and the Rio Grande de Mindanao. Barangays located along low-lying areas occasionally experience flash floods brought about by heavy rains. It is also noted, however, that more than half of the city’s land area is below sea level, thus seemingly an appropriate drainage system could prevent flooding and clogging of waterways.

Potential flooding areas are those found in almost all four directions in the north, south, east and west. The meandering and occasional braided courses of rivers like Rio Grande de Mindanao, Tamontaka River, Tarbung, Kakar, Matampay, Miwaruy, Masukul, Manday, Lugay-lugay, Bagua and Kalanganan Rivers and Pagalamatan Creek could aggravate the flooding hazards of the area where these rivers are found especially during rainy season. Approximately, 85% of the soils in the area have good external and internal drainage while the other 15% have poor external and internal drainage.

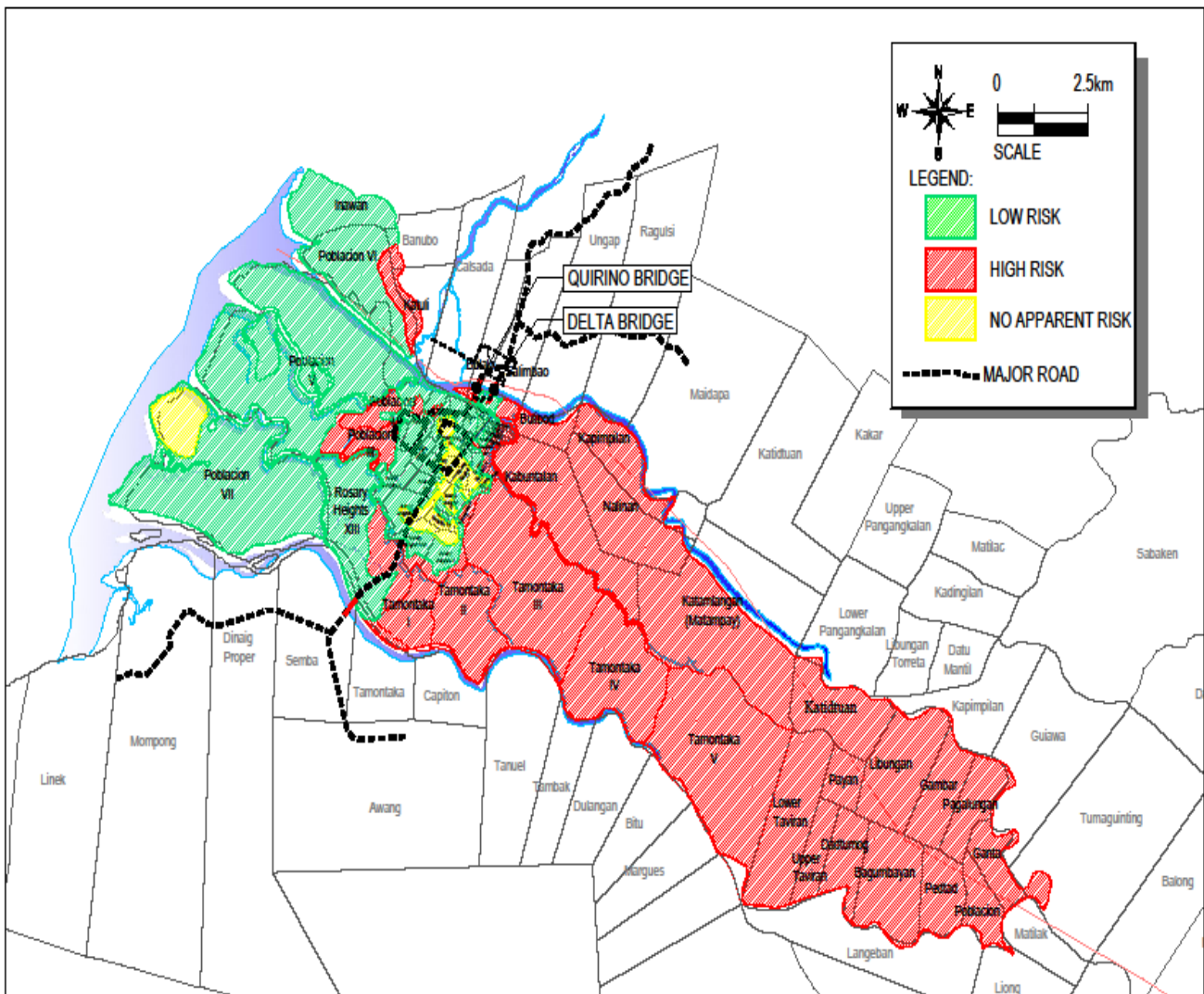


Figure 5:
Flood Risk Map, Cotabato City. Source: CLUP 2011-2020 Addendum

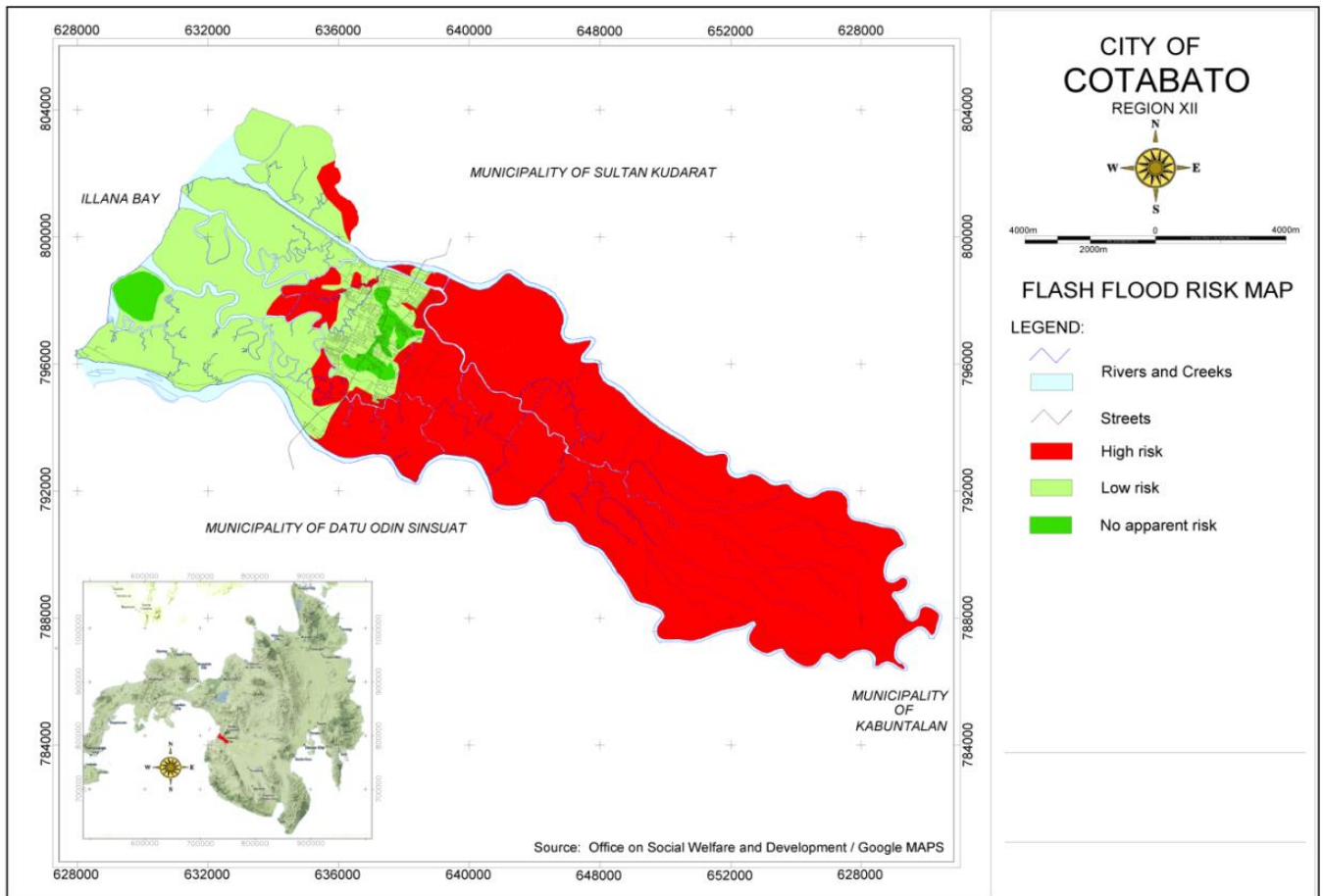


Figure 6: Flood Risk Map, Cotabato City. Source: CLUP 2011-2020 Addendum



Table 16:
Typhoons Experienced by Cotabato

Typhoon	Date	Damages
Typhoon Frank	June 2, 2008	Submerge more or less 80% of Cotabato City that lead to the declaration of state of calamity
Tropical Storm Washi or known as Sendong	December 17, 2011	Hardly hitting Cagayan de Oro and Iligan City; 1,268 people were killed/missing, thousands were left homeless and hopeless
	June 20, 2011	Heavy rainfall floods Cotabato City
Bopha or known as Bagyong Pablo	December 4, 2012	Hitting Surigao del Sur, Lanao del Sur, Agusan del Sur, and Agusan del Norte; recorded 1,901 killed, 1,033,364 families affected, shut down of power and water supply, damaging billions of pesos in infra, agriculture and properties
Typhoon Yolanda	Nov. 8, 2013	Hitting Tacloban, the strongest recorded super typhoon
Typhoon Domeng	April 6, 2014	Hitting General Santos City
Super Typhoon Ruby Or known as Hagupit	December 6, 2014	Hitting Tacloban, eastern Samar, Cataingan Island of Masbate and upper Mindanao (4 Landfall); recorded 18 people killed and \$144 million worth of damages

- SEA LEVEL RISE (SLR)

Currently, actual cases of sea level rise in Cotabato City still needs to be documented. In light of unconfirmed observations and experiences shared by some coastal residents, as well as anticipated impacts of SLR, a study to record actual cases has been identified in the plan.

Drought

The city experience like the rest of the country massive drought last 2015 which greatly affects the large portion of agriculture and other sectors on ecological environment. Common problems like electricity and power shortage as well as low water supply resulted to this phenomenon. Epidemics related extreme heat weather condition were also recorded by the Office of the health services were cases of pneumonia and other disease rise up during this season.

OTHER HAZARDS WHERE THE CITY IS EXPOSED TO

Exposure and responses of the city to these hazards are discussed on the Local Disaster Risk Reduction and Management Plan 2017-2022.

- GEOLOGICAL HAZARDS

Aside from the hazards mentioned above, the city has been identified to be within the earthquake belt. This was clearly demonstrated during the 1976 earthquake that caused vast destruction of lives and properties.

Table 17:
Timeline of earthquake events affecting Cotabato City

Date	Description of Event
------	----------------------

1606 March 9	Cotabato Valley. "The earth shook several times." Earliest mention of Mindanao earthquake.
1636 Dec. 21	Western Mindanao. Rossi-Forelscale (RF IX). Illana Bay Landslides
1836 Jan. 3/5	Illana Bay RF VII. Severe at Cotabato and Zamboanga very violent. Many volcanoes active.
1869 Apr. 29	Mindanao wall of Fort Polloc Fell, some military buildings cracked due to strong earthquake
1870 Nov. 4	Central Mindanao. Three strong shocks of long duration. RF VII. Landslides buried four men. Many after shocks. Intensity sufficient to damage store buildings
1871 Dec. 8	Lanao, Cotabato, Davao RF IX. Not a single building standing in Cotabato or Polloc. Two destructive shocks. (Classified as important event by Sieberg, 1932 and Lomitz, 1974)
1871 Dec. 9	Some region of Lanao and Cotabato RF VIII. Subterranean noise louder. Felt 500 kilometers.
1875 Aug. 12	Cotabato and Zamboanga damage to private and public buildings. RF VII
1882 Mar. 18	Swarm at Cotabato some violent with rumblings. RF VI
1918 Aug. 15	Cotabato RF IX. Mag. 8.3 Celebes Sea 5.5° N, 124.5° E. tsunami, Lebak to Glan. Aftershock Mag. 7.0
1923 Feb. 23	Rio Grande de Cagayan 6°45' N, 123°35'E. Waves entered river at Cotabato
1923 Mar. 2	Cotabato Mag. 7.2 RF VII Tsunami
1928 Dec. 19	Cotabato, Zamboanga Mag. 7.3 RF VII
1928 Dec. 28	Cotabato, Zamboanga Mag. 6.9 RF VII Tsunami
1931 Mar. 23	Cotabato RF VII
1955 Apr. 1	Lanao Mag. 7.6 RF VIII. Four Hundred (400) dead. Landslides and seiche on Lake Lanao. Quays and bridges destroyed. Two Mag. 6.4 aftershocks followed.
1976 Aug. 17	Moro Gulf, Celebes Sea. Mag. 8.0 dubbed as "Philippines worst earthquake disaster". 4,000-8,000 dead. 5 meter high Tsunami.

▪ HUMAN-INDUCED HAZARDS

Another calamity that is feared by the residents is man-made caused by armed conflicts. This is discussed in detail in the Local DRRM Plan.

CLIMATE PROJECTIONS

Climate projections for Cotabato City utilized during plan formulation is primarily referenced from DOST-PAGASA's (2011) *Climate Change in the Philippines* (values for Maguindanao province). The published material considers the *medium-range scenario: a future of rapid economic growth, with a balance on fuel sources*. It presents projected changes in temperature, rainfall and extreme events for 2020 (2006-2035) and 2050 (2035-2065) periods. A summary of projections are shown below.

Overall, Cotabato City may anticipate a future with:

- increasing temperature
- seasonal increase and decrease in rainfall
- frequent occurrence of extreme even

TABLE 18:
CLIMATE PROJECTIONS IN 2020 AND 2050 IN PROVINCES IN ARMM

Table a: Seasonal temperature increases (in °C) in 2020 and 2050 under medium-range emission scenario in provinces in ARMM

	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
ARMM												
LANAO DEL SUR	24.3	25.4	25.0	24.9	1.0	1.2	1.1	1.0	2.0	2.3	2.2	2.0
MAGUINDANAO	27.6	28.3	27.5	27.6	1.0	1.2	1.2	1.1	2.1	2.3	2.4	2.1

Table b: Seasonal rainfall change (in %) in 2020 and 2050 under medium-range emission scenario in provinces in ARMM

	OBSERVED BASELINE (1971-2000) mm				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
ARMM												
LANAO DEL SUR	293.8	369.4	661.5	562.2	7.2	-6.3	-7.2	0.3	-1.1	-4.6	-7.4	-3.6
MAGUINDANAO	225.3	399.1	635.3	553.6	6.3	1.4	-7.4	3.5	5.3	-1.4	-12.6	-1.2

Table c: Frequency of extreme events in 2020 and 2050 under medium-range emission scenario in provinces in ARMM

Provinces	Stations	No. of Days w/ Tmax >35 °C			No. of Dry Days			No. of Days w/ Rainfall >150mm		
		OBS	2020	2050	OBS	2020	2050	OBS	2020	2050
		(1971-2000)								
MAGUINDANAO	Cotabato	384	3382	5994	3516	5471	5788	2	10	5

Source: DOST-PAGASA (2011). Climate Change in the Philippines.

- PROJECTED SEASONAL TEMPERATURE

Table19: Projected temperature change in 2020 and 2050, Province of Maguindanao

Temperature (in °C)	Season	Baseline	2020 (°C)	2050 (°C)
	DJF	27.6	1	2.1
	MAM	28.3	1.2	2.3
	JJA	27.5	1.2	2.4
	SON	27.6	1.1	2.1

Relative to the baseline data (1976-2006), seasonal temperature change for Cotabato City has a generally steady increasing trend. Values for 2050 has also been observed to possibly double from the 2020 projection. *March-April-May* registers the highest temperature values from the baseline until 2050.

- PROJECTED SEASONAL RAINFALL

Relative to the baseline data (1976-2006), seasonal rainfall change for Cotabato City registers seasonal increase and decrease. Although DJF has the lowest baseline rainfall amount (in mm), these months are projected to have the relatively highest increase for 2020 and 2050. On the other hand, although JJA has the highest baseline rainfall amount (in mm), it registers the lowest percentage change in rainfall for 2020 and 2050. These months still remain with the highest rainfall amount.

Table 20 : Projected rainfall change in 2020 and 2050, Province of Maguindanao

	Season	Baseline	2020 (%)	2050 (%)
Rainfall (in % mm)	DJF	225.3	6.3	5.3
	MAM	399.1	1.4	-1.4
	JJA	635.3	-7.4	-12.6
	SON	553.6	3.5	-1.2

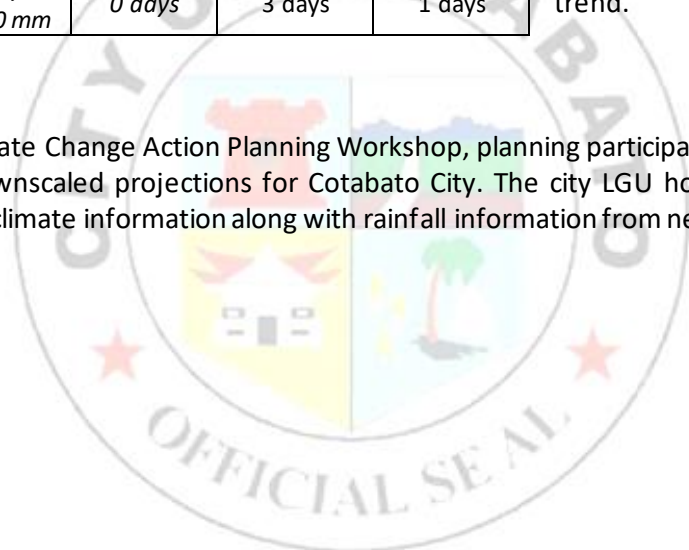
▪ FREQUENCY OF EXTREME EVENTS

Table 21: Projected frequency of extreme events in 2020 and 2050, Province of Maguindanao

		Baseline	2020 (# of days)	2050 (# of days)
Extreme events	hot days >35°C	384 days	3382	5994
	dry days (<2.5mm rainfall)	3516 days	5471	5788
	Heavy daily rainfall >200 mm	0 days	3 days	1 days

Relative to the baseline data (1976-2006), the frequency of extreme events (days with temp. >35°C; # of days with rainfall <2.5mm, and # of days with heavy daily rainfall >200 mm) also has a generally increasing trend.

During the Local Climate Change Action Planning Workshop, planning participants recognized the need to have localized downscaled projections for Cotabato City. The city LGU hopes it would help them further analyse local climate information along with rainfall information from neighbouring provinces.



B. Elements, sectors and institutions exposed to climate change impacts

SUMMARY OF ELEMENTS, SECTORS AND INSTITUTIONS EXPOSED TO CLIMATE CHANGE IMPACTS

Cotabato City has urban, coastal, and agricultural areas, which are said to be exposed to climate change impacts of drought, flooding, and sea-level rise. Table ___ shows the summary of exposed barangays, relative to the results from the *Sensitivity and Adaptive Capacity Assessment*.

Table 22
Summary of Climate Risk for Each Barangay of Cotabato City (to be validated and completed by CLGU)

BARANGAY	Drought			Flooding			Sea-level Rise			Land uses present
	Population	Facilities	Institutions	Population	Facilities	Institutions	Population	Facilities	Institutions	
A. Urban										
Bagua Mother				1,114 families						Urban
Bagua 1	9206 people; 1841 HH			9206 people; 1841 HH 1500 families			9206 people; 1841 HH			Agriculture, Urban
Bagua 2	19,720 people; 3944 HH			19,720 people; 3944 HH 1585 families			19,720 people; 3944 HH			Agriculture, Urban
Bagua 3				533 families						Urban
Kalanganan Mother	15,019 Individuals 3003 HH			15,019 Individuals 3003 HH			15,019 Individuals 3004 HH [/5 for average HH]	Health center – 1 Day care center – 2 High school – 1(high risk/HR) Elementary school – 2 (1 is HR: Datu Ayunan ES) Barangay hall – 1 Chapels – 3 (RC), 1 (Pentecostal) (*chapel in Purok 2 is HR) Mosques – 8 (*mosques in Purok 3,4,5,6 HR) Fish landing / Maritime Police – 1 (in purok 1 HR) Police station – 1 (HR) Special Forces (SF) Detachment – 1 Smoked fish building – 1 Fish ponds – _____ Hand pumps - _____	Coastal / Agriculture	

BARANGAY	Drought			Flooding			Sea-level Rise			Land uses
Poblacion Mother	20,734 people; 4146 HH			20,734 people; 4146 HH 1, 754 families			20,734 people; 4146 HH			Agriculture, Urban
Poblacion 1	5677 people; 1135 HH			5677 people; 1135 HH 1, 418 families			5677 people; 1135 HH			Agriculture, Urban
Poblacion 2				863 families						Urban
Poblacion 3				440 families						Urban
Poblacion 4				116 families						Urban
Poblacion 5				No data						Urban
Poblacion 6				266 families						Urban
Poblacion 7				2,803 families						Urban
Poblacion 8	8786 people; 1757 HH			8786 people; 1757 HH			8786 people; 1757 HH			Agriculture
Poblacion 9	5998 people; 1199 HH			5998 people; 1199 HH			5998 people; 1199 HH			Agriculture
Rosary Heights Mother				No data						Urban
Rosary Heights 1										
Rosary Heights 2				797 families						Urban
Rosary Heights 3				3098 families						Urban
Rosary Height 4				No data						Urban
Rosary Heights 5	5870 people; 1174 HH			5870 people; 1174 HH 501 families			5870 people; 1174 HH			Agriculture, Urban
Rosary Heights 6	6846 people; 1369 HH			6846 people; 1369 HH 750 families			6846 people; 1369 HH			Agriculture, Urban
Rosary Heights 7				1,222 families						Urban
Rosary Heights 8	8524 people; 1704 HH			8524 people; 1704 HH 1,894 families			8524 people; 1704 HH			Agriculture, Urban
Rosary Heights 9	7802 people; 1560 HH			7802 people; 1560 HH 1,019 families			7802 people; 1560 HH			Agriculture, Urban
Rosary Heights 10				254 families						Urban
Rosary Heights 11	7864 people; 1572 HH			7864 people; 1572 HH			7864 people; 1572 HH			Agriculture
Rosary heights 12				442 families						Urban
Rosary Heights 13				No data						Urban

BARANGAY	Drought			Flooding			Sea-level Rise			Land uses
Tamontaka Mother	12027 individuals; 2405 HH			12027 individuals; 2405 HH 900 families			12027 individuals; 2405 HH			Agriculture, Urban
B. Rural										
Tamontaka 1	4423 individuals; 884 HH			4423 individuals; 884 HH			4423 individuals; 884 HH			Agriculture
Tamontaka 2	4184 individuals; 836 HH			4184 individuals; 836 HH			4184 individuals; 836 HH			Agriculture
Tamontaka 3	2730 individuals; 546 HH			2730 individuals; 546 HH			2730 individuals; 546 HH			Agriculture
Tamontaka 4	3741 individuals; 748 HH			3741 individuals; 748 HH			3741 individuals; 748 HH			Agriculture
Tamontaka 5	1177 people; 235 HH			1177 people; 235 HH			1177 people; 235 HH			Agriculture
Kalanganan 1	5808 individuals; 1161 HH			5808 individuals; 1161 HH			5808 individuals; 1162 HH *Purok Kidupo	Mosque – 1 (HR) Day care – 1 (HR) Fish ponds – 2 Hand pumps -		Coastal / Agriculture
Kalanganan 2	5999 individuals; 1199 HH			5999 individuals; 1199 HH			5999 individuals; 1200 HH	Ice plant – 1 (HR, riverine area) Fish landing – 1 Grand mosque – 1 Orphanage (non-functional) – 1 HS – 2 [Buaya-Buaya NS, Bubong](2 HR) ES – 2 (1 HR) Bridge to Timako – 1 (HR) Barangay hall – 1 Day care center - 2 SF detachment (9th company) – 1 Fish ponds – _____ Hand pumps - _____		Coastal / Agriculture
Sub-total	20			36			20			

Note: data as of 2015

Note: for urban areas infrastructure was indicated as a whole. Facilities and institutions cited include: brgy. Health stations – 29; day care centers – 32; elementary & high schools – 52; informal structures - __

▪ AGRICULTURE ECOSYSTEM

The unpredictable shift in weather condition often affects the livelihood of the people most specifically in the agriculture ecosystem. Primarily damages occur in the crops of the farmers in relation to floods; heavy rainfall and drought because majority of the crops planted are not yet drought or flood resistant.

Table 23:
Workshop output on *Seasonal Calendar*, Agriculture Ecosystem

SITUATION/ACTIVITY	J	F	M	A	M	J	J	A	S	O	N	D
Livelihood activities e.g Agricultural activities												
a. Land Preparation				x								x
b. Crop Planting	x				x							
c. Harvesting (every 4months)				x				x				
d. Rice Milling				x				x				
Events/Festivities												
a. Chinese New Year		x										
b. Flores de Mayo					x							
c. Araw ng Cotabato						x						
d. Ramadhan						x						
e. Eid'l Fitr							x					
f. Eid'l Adha										x		
g. Rosary Heights Fiesta										x		
h. All souls day											x	
i. Immaculate Concepcion Fiesta												x
j. Shariff Kabunsuan Festival												x
k. Christmas Season												x
New Year												
Health Hazards (*should focus on agriculture areas)												
a. Dengue	x	x	x	x	x	x	x	x	x	x	x	x
b. Diarrhea/ Water-borne diseases						x	x	x	x	x		
c. Colds/ Flu	x	x	x	x	x	x	x	x	x	x	x	x
d. Skin Disease			x	x	x							
e. Stroke			x	x	x							
f. Hypertension	x	x	x	x	x	x	x	x	x	x	x	x
g. Diabetes	x	x	x	x	x	x	x	x	x	x	x	x
h. Tuberculosis	x	x	x	x	x	x	x	x	x	x	x	x
i. Pneumonia	x	x	x	x	x	x	x	x	x	x	x	x
j. Measles			x	x	x							
k. Sore eyes			x	x	x							
Shortage/ Scarcity of Supplies												
a. Water			x	x	x							
b. Electricity			x	x	x							
c. crablets								x				
d. bangus fries						x	x	x	x	x		
Period of High Indebtedness												
Enrollment					x					x		
Pre-planting season			x								x	
Planting season	x				x							
Christmas season												x
Ramadhan season						x						
Time of Illness	x	x	x	x	x	x	x	x	x	x	x	x
Disaster Events												
El Nino	x	x	x	x	x	x				x	x	x
Flood					x	x	x	x	x	x	x	
Typhoon (HEAVY RAINS)					x	x	x	x	x	x	x	
Pest Infestation (black bug)			x	x	x							
Rat infestation						x	x	x	x	x		
Rido	x	x	x	x	x	x	x	x	x	x	x	x

Table 24 :
Workshop output on Top 5 problems and Top 5 solutions, Agriculture Ecosystem

TOP 5 CLIMATE-RELATED PROBLEMS	TOP 5 SOLUTIONS (existing and proposed)
Low to zero production of crops (rice, corn) due to El Nino	Plant more drought resistant-crops such as Mongo, water melon, singkamas
	Raise goats and cattle during dry season
	Provide advocacy programs
Shortage of Water due to El Nino	
a. Potable	Proper Water conservation/ Water demand management
b. Irrigation	Communal Ground Water Irrigation (financial support from LGU and CSO's)
	Rain Water impounding/ Rain water collection
Incidence of Flooding	Declogging/ Repair of drainage system *construction of road dikes
Increase in climate-related diseases	Intensify health advocacy and awareness programs ex. Linis Bayan, Leadership by Example, ABKD (for dengue)
	Barangay Health Center (sufficient provision of health services and facilities)
Improper solid waste disposal	Intensify Advocacy on Solid Waste Management
	Strict enforcement with sanctions and penalties

▪ URBAN ECOSYSTEM

The vulnerability of the health of the people in sudden climate change often leads to high incidence of epidemics and high incidence of life style diseases. Additionally, the livelihoods sources of the people are affected since disruption of day to day activity related flood in case of sudden heavy rains and drought during dry season where water and power supply are affected that disrupts business operations which affects the production and service deliveries of the business sector.

Table 25:
Workshop output on Kalusugan, Kabuhayan, Kaugalian, Kalikasan, Urban Ecosystem

	BEFORE	DURING	AFTER
Kalusugan/ Health	Common cough, colds, diarrhea, fever Lifestyle diseases: Hypertension, Diabetes Mellitus, COPD)	Pneumonia, dehydration, skin diseases, leptospirosis	Clusters of diseases: Dengue, measles Disease Outbreaks Increase of lifestyles disease/communicable diseases
Kabuhayan/ Livelihood	Normal business operations	Interruptions of lifelines Interrupted business operations	Less income Disrupted business operations Scheduling of services: Light and water Interrupted communicable diseases
Kaugalian/ Attitude	Normal Attitude Lax	Abnormal behaviors: Bugnutin Selfishness	Disrupted behaviors Industrious community
Kalikasan/ Environment	Not so polluted Regulated settlements	Polluted Displacement of settler	Over polluted Sprawl of illegal settlers/informal settlers

Table 26:
Workshop output on Top 5 problems and Top 5 Solutions, Urban Ecosystem

	TOP 5 CLIMATE-RELATED PROBLEMS	TOP 5 SOLUTIONS (existing and proposed)
Health	Skin disease Dengue Leptospirosis Dehydration secondary to cholera	Strengthen health advocacies Involve community: Linis bayanihan Activate brgy health teams
Infrastructure	Overflow of drainages Road damaged/inaccessible Disrupted lifelines	Involve community: linis bayan Rehab and improvement of drainage system: redesign Need to reconstruct and elevate roads higher than 2.0 meters above sea level Improve solid waste management: Brgy level
Business	Imbalance of supply and demands	Create livelihood programs Create more jobs thru enhance community activities
Social	Disruption of social services More crimes Prostitutions Increase psychological imbalance	Collaboration of relief responses Psychosocial intervention
Environment	Improper disposal of garbage	Strictly enforcement of ordinances
Economic	Higher prices of goods	Regulation of prices

▪ COASTAL ECOSYSTEM

The major impact of climate change in coastal area post hazards in the life of the people due to possibility of storm surge but the most commonly affected aspect is the livelihood and food supply of the people since production of marine products will be affected. The sudden change in temperature results to changes in the oxygen resulting fish kill.

Table 27:
Workshop output on Scenario-building (Usual experience of LGU), Coastal Ecosystem

BAD/USUAL	WORSE	WORST
Temperatura na pumapalo sa 22-24 deg C	Temperatura na pumapalo sa 25-27 deg C	Magtaas na temperature na hindi kakayanin ng populasyon
Low production due to slow growth of fish specifically “bangus”	Lower production due to slow growth of fish specifically “bangus”	Fish kill. Food supply for the city will be affected
Cutting of mangroves for charcoal making	Increase in mangroves cutting for charcoal making	No income for population dependent on fishing. Exposure of population to storm surge/tsunami. Damage to fish habitat and fish production.
Stealing of fishpond products	Increase in stealing of fishpond products	Increase in crime rates.
Contamination of plankton with bacteria resulting to more inputs and expenses.	Affected growth of crabs, sugpu and shrimps	Population results to availing of loans with high interest rates.
Algae not fit for bangus food	Use of synthetic fertilizers to support growth of algae	Use of synthetic feed to support growth of fish. Fish production will no longer be organic.
Low income for the population	Lower income for the population	No income for the population. Hunger.

Table 28:
Workshop output on Scenario-building (projected future scenario), Coastal Ecosystem

BAD/USUAL	WORSE	WORST
Usual rainfall	Heavy rain	Severe rain
Business as usual	Damage to fishpond dikes	Overflow of fishponds
	Increase in loses	Collapse of fishpond dikes
	Buildup/increase of “talaba” population causing destruction of mangroves	Total devastation of fishponds
	Increase in siltation of coastal areas	No income for the population
	Solid wastes from urban areas flow towards the coastal areas	
		Heavy siltation at “Bucana” resulting to floods.
		More solid wastes flow towards the coastal areas

Table 29:
Workshop output on Top 5 problems and Top 5 Solutions, Coastal Ecosystem

TOP 5 CLIMATE RELATED PROBLEMS	TOP 5 SOLUTIONS (existing and proposed)
Extreme high tides	Capacity building of residents to react/respond to calamities
Storm surge	Rehabilitation/Development of mangrove areas including enforcement of mangrove preservation laws
Drought	Construction of seawall and riverbank protection structures
Earthquake	Dredging of Rio Grande and Tamontaka Rivers
Tsunami	Collaboration with neighbouring municipalities for joint undertakings to improve climate change adaptation/mitigation activities.

PROJECTED IMPACTS

Projected impacts of climate drivers for Cotabato City were identified per development sector. For agricultural areas, *decrease in rainfall and increase in temperature* are seen to exacerbate impacts of drought, flooding, and sea level rise. For coastal areas, *increasing rainfall* was seen to have an effect on sea level rise. For urban areas, *seasonal increase in temperature and decrease in rainfall* are anticipated to worsen flooding incidences in the future.

▪ AGRICULTURE ECOSYSTEM

Social sector

Impacts for this sector, in consideration of drought, revolve primarily on possible increased incidences of morbidity and mortality (e.g. heat stroke, dehydration, hypertension, skin disease). This is seen to lead in *shortage of supplies and medicines* as well as *increase of demands for health services and medicines*. Projected impacts to this sector from flooding is similar to these.

Economic sector

Impacts for this sector, from both drought and flooding are anticipated primarily on Low-to-zero yield of crop, Low-to-zero yield and damages to aquamarine (fish, crabs, prawns) resources, and low survival of livestock (poultry). These are seen to lead to *decrease / low income for farmers* and in their alternative sources of income coupled with *escalation of prices of agricultural produce*.

The farming sector will be greatly affected as *Indebtedness, Hunger, Malnutrition, morbidity* are expected to rise in this scenario. Farmers might also be unable to send children to schools, who in turn will have less attendance in schools.

Environment sector

Impacts for this sector are similar to the impacts identified in the economic sector in terms of crop damages and economic losses. Emphasis was given on the possibility of more saltwater intrusion which increases soil acidification. In turn, soil might become non-arable which may result to shortage of food supply.

Infrastructure sector

There have been no identified projected impacts of drought listed for this sector. For flooding however, non-passable Farm to Market Road due to immersion in floodwaters will lead to spoilage of agricultural products and ultimately to Low income for farmers.

Institutional sector

Drought and flooding impacts to the aforementioned sectors are seen to lead to increased financing for food subsidy. The city LGU may result to realignment of funds which on the other hand may affect / deplete other services.

▪ URBAN ECOSYSTEM (FLOODING)

Social sector

Temporary disruption in education (*e.g. suspension of classes*) and health services delivery are seen to be the primary impacts from projected increases in flooding incidences. These will be in the midst of possible Increase in mortality and morbidity (*e.g. outbreaks, increase in flood-related diseases, malnourishment*). Moreover, issues on security (*e.g. increase in crime rate*) and mental health (*e.g. imbalance in equilibrium of the psychosocial aspect*) are also foreseen.

Economic sector

Similar to the social sector, flooding results to temporary disruption of operations, trade and commerce, which may lead to decrease in revenue and hoarding of supplies. These threatens to lead to increase in prices of all commodities.

Environment sector

Based from actual experience, flooding results to increase in loads of uncollected garbage, which might lead to increase in health-related disease due to uncollected garbage/waste. Residents are also seen as contributory to this due to increase in improper waste disposal. Possibility to liquefaction might also lead to inability to establish infrastructure projects.

Infrastructure sector

Destruction of basic infrastructure (e.g. roads, bridges and water facilities) in the urban areas are projected to largely affect disruption of lifelines and services for both residential and commercial areas.

Institutional sector

Flooding impacts in the urban areas may also lead to re-focusing of human and capital resources, disturbance of governance that may result to poor (governance) performance.

- COASTAL ECOSYSTEM (SEA LEVEL RISE)

Social sector

Increasing rainfall and sea level rise are anticipated to possibly lead to increases in incidence of diseases, and increase in expenses for health services. Security issues such as public disturbance and increase in crime rates are also seen. Compounded impacts might also result to low self-esteem of residents.

Economic sector

The fisherfolks' sector is seen to be largely affected as they might experience low income and high expenses. Incidence of high indebtedness may lead affected fisherfolks to resort to other source of income (e.g. charcoal making).

Environment sector

Flooding at upstream areas will lead to heavy siltation and erosion. As flow of waste materials run towards coastal areas, there may be cases of increase of freshwaters / floodwaters in fishpond area. These will lead to water pollution and low aquamarine production. Tertiary impacts include *damage to properties, health problems and low income*.

Infrastructure sector

The primary impacts of sea level rise to infrastructure in coastal areas are damages to dike systems. The need to repair dike systems will be an additional financial burden to fishpond operators.

C. Summary and findings of vulnerability and adaptive capacity assessment

FINDINGS OF THE VAA

Agriculture Ecosystem

The vulnerability on social sector is higher than the adaptive capacity that should be strengthened while in terms of economic sector the need for alternative livelihood program should be strengthened since many are of the community are dependent on crop and marine production as source of income. Finally, data revealed a need for building more infrastructure for flood control and standard guidelines for earthquake safe buildings.

Social sector

THREAT LEVEL – 4	ADAPTIVE CAPACITY – 3
<ul style="list-style-type: none"> <input type="checkbox"/> Houses made of Light materials <input type="checkbox"/> Clogged rivers due to poor Solid waste practices <input type="checkbox"/> Houses built on creeks (reclaimed creeks) <input type="checkbox"/> Dependency to government assistance (4Ps) <input type="checkbox"/> Families focus on their own survival instead of disaster preparedness <input type="checkbox"/> Indifference towards the threats posed by climate change <input type="checkbox"/> Presence of Flood-related diseases 	<ul style="list-style-type: none"> <input type="checkbox"/> food and non-food assistance <input type="checkbox"/> medical assistance <input type="checkbox"/> PSS interventions

Economic sector

THREAT LEVEL – 3	ADAPTIVE CAPACITY – 2
<ul style="list-style-type: none"> <input type="checkbox"/> Families are dependent to farming as main source of income <input type="checkbox"/> Limited alternative sources of livelihood <input type="checkbox"/> Limited opportunity for other source of livelihood (lack of capacity/actual opportunity) <input type="checkbox"/> Sources of livelihood located at risk areas 	<ul style="list-style-type: none"> <input type="checkbox"/> Freshwater fishing during rainy season as alternative source of income in Tamontaka areas <input type="checkbox"/> Banka transportation during flooding

Environmental sector

THREAT LEVEL – 4	ADAPTIVE CAPACITY – 2
<ul style="list-style-type: none"> <input type="checkbox"/> Low lying areas (below sealevel) <input type="checkbox"/> Catch basin of Mindanao River Basin <input type="checkbox"/> Surrounded by 2 Major Rivers and 37 creeks and rivulets- <input type="checkbox"/> High Tide contributes to flooding (tamontaka) <input type="checkbox"/> Clogging of Major rivers due to water hyacinths coming from upstream <input type="checkbox"/> Siltation of river from upstream <input type="checkbox"/> Riverbanks are eroded (specify barangays affected) <input type="checkbox"/> Presence of unsuitable materials under bridges contributing to flooding 	<ul style="list-style-type: none"> <input type="checkbox"/> Cotabato city is not prone to typhoons <input type="checkbox"/> Environmental conservation and rehabilitation project (mangrove reforestation) initiated by different city stakeholders <input type="checkbox"/> Desilting of rivers <input type="checkbox"/> Using mini excavator for rivers and creeks in agri- <input type="checkbox"/> Removing garbage in the rivers

Infrastructure sector

THREAT LEVEL – 5	ADAPTIVE CAPACITY – 2
<ul style="list-style-type: none"> <input type="checkbox"/> Clogged drainages <input type="checkbox"/> Most of the river banks are not concrete “riprap” <input type="checkbox"/> No regular dredging of rivers (DPWH) 	<ul style="list-style-type: none"> <input type="checkbox"/> Alternative roads for transportation of agri-products (circumferential road)

Institutional sector

THREAT LEVEL – 4	ADAPTIVE CAPACITY – 3
<input type="checkbox"/> No regular dredging of rivers project/ activity <input type="checkbox"/> Slow pace of implementation of river bank protection projects	<input type="checkbox"/> Capacity building conducted by CSOs and Government <input type="checkbox"/> Support programs for response from BFP/ CSWD/ OHS/ PNP / CDRRMO

▪ URBAN ECOSYSTEM

The increasing number and high statistics record on informal settlers and the behavioural outlook of the people that government has the major obligation in preparation to disaster contributes to vulnerability to disaster situations of the community; thus strengthening community capacity and provision of technical support in disaster preparation, livelihood assistance programs and SWM program will improve adaptive capacity.

Social sector

THREAT LEVEL – 4	ADAPTIVE CAPACITY – 3
<input type="checkbox"/> Walang pakialam” attitude <input type="checkbox"/> Large population along the riverside (Pob MB-2, 3, & 7, Bagua MB,1, Tamontaka MB, RH 3, 5, 6, 7, 8, 11, 12 <input type="checkbox"/> Informal settlers along road right of way <input type="checkbox"/> Settlements in low lying areas (Pob MB,1, 2, 3, 7 RH 2,3, 8, 10, 11, 12 and all Bagua	<input type="checkbox"/> Presence of Urban Poor Associations <input type="checkbox"/> Advocacy campaign on Sanitation code <input type="checkbox"/> “Linis Bayan”/ “Tapat ko, Linis ko” implementation city-wide

Economic sector

THREAT LEVEL – 2	ADAPTIVE CAPACITY – 2
<input type="checkbox"/> High dependency ratio <input type="checkbox"/> Fast growth in business activities	<input type="checkbox"/> Livelihood assistance program <input type="checkbox"/> Compliance of the building code in business establishments

Environmental sector

THREAT LEVEL – 5	ADAPTIVE CAPACITY – 2
<input type="checkbox"/> Heavy river siltation/accretion <input type="checkbox"/> Criss-crossing of river and creeks <input type="checkbox"/> Catch-basin (Cotabato is situated at the lowest part of the downstream) <input type="checkbox"/> Improper sanitation practices	Ordinances on use of non-biodegradable materials Solid Waste Management policies are implemented Initial coordination <input type="checkbox"/> Initial coordination of inter-provinces and agencies <input type="checkbox"/> Implementation of Solid Waste Management code <input type="checkbox"/> Septage Management program implementation <input type="checkbox"/> Mangrove Rehabilitation

Infrastructure sector

THREAT LEVEL – 3	ADAPTIVE CAPACITY – 3
<input type="checkbox"/> Clogged drainage (Santos St. Brgy. Bagua, RH 12-13, RH 6, RH 8, Poblacion 6, RH 2, RH 4, Pob 4, Pob 5) <input type="checkbox"/> Inappropriate drainage system <input type="checkbox"/> Weak housing materials (informal settlement areas in all low-lying areas)	<input type="checkbox"/> On-going rehabilitation of drainage system by the City <input type="checkbox"/> Dredging river and creeks <input type="checkbox"/> Declogging of drainages <input type="checkbox"/> Resettlement sites are identified

Institutional sector

THREAT LEVEL – 3	ADAPTIVE CAPACITY – 2
<input type="checkbox"/> No local policy on restraint and limits to informal settlements in riverside areas (only RA 7279) <input type="checkbox"/> No Early Warning System/ Evacuation Plan <input type="checkbox"/> Lax in the implementation of policies	<input type="checkbox"/> LGU with funds for resettlement <input type="checkbox"/> Policies in place <input type="checkbox"/> Partnership with NGO's, INGO's, CSO's, NGA's <input type="checkbox"/> Ordinances on use of non-biodegradable materials <input type="checkbox"/> Material Recovery Facilities in the barangays <input type="checkbox"/> Procurement of Equipment <input type="checkbox"/> National grants for bottom-up budgeting

▪ COASTAL ECOSYSTEM

The capacity level is higher than the threat level which postulates better capacity in managing and addressing possible disaster situation however a need to prioritize dredging of river basin and planting of mangroves as basic sustainable programs.

Social sector

THREAT LEVEL – 4	ADAPTIVE CAPACITY – 2.86
<input type="checkbox"/> Existence of informal settlers along coasts <input type="checkbox"/> Houses made of light materials <input type="checkbox"/> Poverty <input type="checkbox"/> Incidences of water-borne diseases during rainy season (*not yet reported to OHS) <input type="checkbox"/> No orientation yet on Sea level rise <input type="checkbox"/> "rido" <input type="checkbox"/> Location <input type="checkbox"/> Struggle to meet services <input type="checkbox"/> Severe damages and danger of continuing damage on infrastructure & environment	<input type="checkbox"/> Existence of trained disaster responders (barangay-level) <input type="checkbox"/> Presence of schools which can be tapped for information and dissemination <input type="checkbox"/> Barangay has vehicles for emergency purposes (1) <input type="checkbox"/> Presence of barangay volunteers <input type="checkbox"/> Availability of DRRM trainings for the barangay <input type="checkbox"/> Current mitigation efforts of city LGU <input type="checkbox"/> Presence of 5 cooperatives

Economic sector

THREAT LEVEL – 3.57	ADAPTIVE CAPACITY – 3.14
<input type="checkbox"/> Illegal fishing (as identified by BFAR) [dynamite fishing] <input type="checkbox"/> Damaged dike systems (fishponds); fishponds located in high risk areas which leads to loss of aquamarine products <input type="checkbox"/> Livelihood largely dependent on fishing (inland and coastal)	<input type="checkbox"/> Fishing remains main source of income, but population are employed in other services (35 people) Ongoing training on Bantay-Dagat <input type="checkbox"/> Presence of fisherfolk organizations; organized fishpond operators; FARMC <input type="checkbox"/> Fishpond owners able to do repairs in damaged dikes

Environmental sector

THREAT LEVEL – 4.14	ADAPTIVE CAPACITY – 3
<input type="checkbox"/> Cutting of mangroves <input type="checkbox"/> Geographical location (open-sea, drain area of the Mindanao Riverbasin) <input type="checkbox"/> Low-lying area	<input type="checkbox"/> Planting of mangroves <input type="checkbox"/> Dredging (CLGU & DPWH) <input type="checkbox"/> Presence of elevated (protected) area (Timako hill)

Infrastructure sector

THREAT LEVEL – 3.71	ADAPTIVE CAPACITY – 2.57
<input type="checkbox"/> Presence of privately owned boats in risk areas <input type="checkbox"/> Evacuation areas available but inadequate	<input type="checkbox"/> Hand pumps not in high risk areas <input type="checkbox"/> Presence of privately owned boats <input type="checkbox"/> Presence of evacuation centers (in town – Central ES); additional (1) to be constructed next year <input type="checkbox"/> Presence of available lands in the city for resettlement (for worst case incidence of sea level rise) {*for acquisition} <input type="checkbox"/> Availability of strong communication facilities from barangay LGUs to city LGU (“White House” base); fast response <input type="checkbox"/> Access roads as well as distance (~5 km) from the city center allows for fast response <input type="checkbox"/> DPWH has 4 river gauging stations (where data on SLR may be sourced from) <input type="checkbox"/> Ongoing riverbank protection (steel sheet piles / road dike) by DPWH

Institutional sector

THREAT LEVEL – 3.71	ADAPTIVE CAPACITY – 2.57
<input type="checkbox"/> Need for (risk) assessment / documentation of actual sea level rise cases	<input type="checkbox"/> City LGU has trainers (for DRRM-CCAM) which could provide orientation on SLR

SUMMARY OF THE VAA

The findings based on the participatory vulnerability assessment conducted last 2016 revealed that Cotabato City has higher threat level compare to adaptive capacity revealing an overall outcome of medium low relative vulnerability in the three areas in ecosystem towards possible hazard in relation to climate change, the need to strengthen adaptive capacity and formulate sustainable programs will increase capability level.

Table 30:
Summary of Relative Vulnerability Scores

Ecosystem	Climate-related Hazard	Threat Level score	Adaptive Capacity score	Relative vulnerability	
				Score	
Agriculture	Drought, sea-level rise& flooding	3.8 (Medium High)	2.8 (Medium)	1.36	Medium Low
Coastal	sea level rise	3.826 (Medium High)	2.826 (Medium)	1.35	Medium Low
Urban	Flooding, drought	3.4 (Medium)	2.4 (Medium Low)	1.42	Medium Low

D. Vulnerability and cross-sectoral analysis

The findings on the vulnerability assessment inferred in Table 15 revealed that continuous occurrence of flooding in low lying areas and long period of drought affects the different sectors which disrupts the business sector lives of the people. Additionally, the peace and order situation in Cotabato City are major concern that affects investors and safety and security of the people in the city. Thus, a sustainable program should be formulated to address these problems for this affects ecological development of the city.

Agricultural

The agricultural sector is highly vulnerable in flood during rainy season and drought during dry season. This often results to damages in the crops planted which often results to failure and loss of income in their capital.

Coastal

The coastal areas are high risk to danger of tsunami which contributes to greater risk in the life of the people since there were hisoptiries of trsunami occurrence in the past years.

Urban

The urban sector is often experiencing flood in the city are since many of the drainage are clogged up and because of geppgraphical location as lowlying area. This disrupts classes and business operations in the city when water level is higher. Similarly, drought also causes higher risk for fire and health related probems affecting the lives of the people.

E. Identified climate change key development issues

The need for behavioral change through information dissemination as a means of empowrment of the people in the community to support climate change adaptation program as a prioritized strategy towards prompting resilience. The intensification of practicing environment friendly interventions supported by local ordinances on protection and preservation of natural resources and environement that starts at family level going up to community level.

Formulation of sustainable climate change program embedded in the LCCAP that will address livelihood needs of the people in the different sectors focusing on the agriculture, urban and coastal sectors.

Strengthen participatory approach and collaborative partnership of stakeholders in working as one towards climate change adaptation.

III. PLAN OBJECTIVES

A. LCCAP 2017-2022 Goal and Linkage to Development Plans

“A peaceful, secure, and highly developed multi-cultural climate risk resilient city with thriving and productive ecosystems”

The current goal of the Cotabato City LCCAP 2017-2022 is culled out from the city’s current development vision. The composite planning team arrived at a consensus to include “climate risk resilient” and “thriving and productive ecosystems”.

B. LCCAP 2017-2022 Objectives

In view of the goal to be achieved, several objectives per ecosystem were set. These takes primary consideration to the priority hazards per area whose impacts are projected to be exacerbated by specific climate change stimulus.

AGRICULTURE ECOSYSTEM

- To enhance capacities of farmers on climate-resilient and sustainable farming
- To avoid occurrence of flood through improved infrastructure support
- To intensify protection of agricultural livelihoods against flood and drought
- To ensure stable and sufficient food supply for families in Cotabato city

COASTAL (AND RIVERINE) ECOSYSTEM

- To increase awareness of barangays on coastal hazards and impacts
- To develop and enhance livelihood sustainability in coastal areas
- To prevent damages to riverine-coastal environment and protection infrastructure
- To formulate, strengthen, and enforce coastal protection policies

URBAN ECOSYSTEM

- To ensure mitigating measures towards sustaining the delivery of social services
- To enhance policy compliance and laws relative to Disaster risk reduction Management and Climate Change Adaptation
- To strengthen partnership and linkages between private-public sectors and civil society organizations

IV. ADAPTATION ACTIONS

A. Identified adaptation options

The climate change adaptation and mitigation options in the Cotabato City LCCAP 2017-2022, cover programs, projects, activities and policies for the agricultural, coastal, and urban ecosystems of the LGU. These are aimed at responding to the results of and available data from their vulnerability and adaptation assessment (VAA). The LGU deemed it necessary to categorize PPAs according to the seven (7) priority areas of the National Climate Change Action Plan (NCCAP) 2011 – 2028: *food security, watery sufficiency, environmental and ecological stability, green industries and services, sustainable energy, and knowledge and capacity development*. Further, the five (5) development sectors have also been considered in the process.

PRIORITY AREA 1: FOOD SECURITY

Priority Area 1: Food Security – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies (1)	Targets of PPAs and policies		Indicators (3)	Institutions/ Sectors/ or Department involved / in-charge (4)	Resources Required (5a)	Fund Sources (5b)	CC typology Code (6)
	Short term (1-3 years) (2a)	Medium term (4-6 years) (2b)					
Program on improvement of agricultural and aquaculture practices in Barangay Mother Kalanganan 1, Kalanganan 2, Mother Tamontaka and Tamontaka 2 <input type="checkbox"/> Piloting of organic demo farms (mixed crops) <input type="checkbox"/> Establishment of DemO	- 1 Organic Demo Farm per agricultural barangay managed by Farmer's Association	-additional 2 Organic Demo Farms per agricultural barangay managed by Farmer's Association	-# of organic demo farms established -# of Farmer's Association engaged	OCM-Agri. Div. DA,BFAR FARMC	Rice/Vegetable Seeds Organic fertilizer and pesticides Farming tools and equipment Land Labor Nightcrawlers 1 Million	DA LGU BFAR program DA OCM City	AI14-03

Priority Area I: Food Security – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Establishment/Promotion of city agri-tourism</p> <p><input type="checkbox"/> Promotion of Agri-tourism to schools, local office and other municipalities in the province through social media, local radio and tv shows, newspapers, invitations, training program, tie-ups and partnerships with colleges, universities and CSO</p>		-# of promotional activities for agri-tourism to targeted stakeholders	# of people visiting organic demo farms	Members of Task Force (OCM-Agri/Tourism/ Information/Community Affairs Divisions)	Recycled Brochures Payment for TV, Radio spots and newspaper Honorarium for RPs Food and Drinks for Participants Training Kits 20,000	CMO/Tourism: MOOE CMO Information: MOOE Agri/CMO Tourism: MOOE	

Priority Area I: Food Security – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Creation of Organic Farmers Market day	-conduct of a weekly market day with possible location in front of the city hall	-1 permanent organic market established	-# of market days held -# of permanent organic market established		Collapsible tent/booth Tables Payment for Rent 300,000	CEO: MOOE OGS: MOOE Subsidized by LGU for initial year with Counterpart of farmer for succeeding years	
<input type="checkbox"/> IEC on diversified farming (crop-rotation, integrated farming) for farmers / Crop mix more suited to climate change	-Released IECs on 5 agricultural barangays (Kalanganan M,1,2, Tamontaka 1, 2)	- Released IECs on remaining 5 agricultural barangays (Tamontaka 3,4,5, Poblacion 8.9)	# of Barangays successfully targeted by IEC		IEC Materials Transportation Food and Drinks 10,000/IEC activity	DA and Agri Office Agri Office DA and Agri Office	AI 13-08 AI 14-03

Priority Area I: Food Security – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Provision of cash incentives for male and female farmers practicing organic farming (contest)	-10 men and women farmers receiving incentive per barangay per year	-10 farmers receiving incentive per barangay per year	# of Men and Women farmers receiving incentive		Cash	Social Fund of cooperative operating in the city	
<input type="checkbox"/> Establishment of hatchery for aquaculture farmers (milkfish, crabs, prawns)	Year 1 I Research on hatchery operations best practices		# of research crafted		Transportation	MOOE	A122-02
<input type="checkbox"/> Submission of Proposal on construction of hatchery facility to BFAR	I Proposal drafted and submitted		# of proposal submitted		Office supplies and materials		
<input type="checkbox"/> Survey and identification of area for hatchery facility	-Survey and identification of area for hatchery facility		# or size of surveyed area	Assessor's Office City Engineering Office BFAR CMO-Agri	Transportation Human Resource	MOOE	
<input type="checkbox"/> Construction of Hatchery Facility	Year 2: I Hatchery Facility Constructed		# of hatchery facility constructed	City Engineering Office CPDO CMO-Agri BFAR	Construction Materials Labor Construction Equipment 2million	BFAR – Award Incentive	
<input type="checkbox"/> Procurement/Fabrication of Machinery and Equipment (oxygen tanks, water tanks, deepwell etc.)	Procurement of Machinery and Equipment		# of procured machinery and equipment	GSO	Facbrication of Hatchery Tanks Water System		

Priority Area I: Food Security – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<ul style="list-style-type: none"> ➤ Hiring of Hatchery Facility Staff ➤ Training for Hatchery Facility Staff 	Hired and Trained Hatchery Staff		# of hired and trained	HRMD (note: please hire someone who has a degree on fisheries)	Oxygen Tanks Office Supplies and equipment Water Pump 1 million Salary 4.740 million	General Fund	
<p>Production and Distribution of climate-resilient rice variety for agri barangays</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identification and Establishment of seed production farm <input type="checkbox"/> Train rice farmers for seed production of indigenous-climate resilient rice variety <input type="checkbox"/> Forging of MOA with trained seed producers 	7 hectares of land identified for seed production farm		# of hectares of land identified	CMO- Agri PhilRice Farmers Association	Land Farm inputs Farm machinery and equipment Farm tools 500,000	DA	
	7 farmers trained		# of farmers trained	DA-ATI PhilRice CMO-Agri	Training materials Honorarium Meals and Snacks Transporation Training Venue 20,000.00	DA-ATI PhilRice CMO-Agri	AI13-08
	1 MOA signed		# of MOAs signed	CPDO Legal Office CMO-Agri	Office Supplies and Materials	LGU: MOOE	

Priority Area I: Food Security – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Distribution of seed to farming families				SP			
	500 sacks of seeds distributed		# of sacks of seeds distributed # of farming families targeted	CMO-Agri	Transportation Human Resource Fund for Purchasing of Palay Seeds 150,000.00	CMO-Agri: MOOE	
Creation and Sustaining Alternative Livelihoods for Farmers and Fish Pond Operators <input type="checkbox"/> Scoping of available alternative livelihood support from NGAs and I/NGOs <input type="checkbox"/> Identification of men and women Farmers Association (FA) and Fish Pond Operators (FPO) to be granted alternative livelihood programs <input type="checkbox"/> Assessment of appropriate alternative livelihood for	(Year 1) -List of available alternative livelihood support through interviews			CPDO I/NGO, DOLE, DTI, DA BFAR, DSWD, DOST	Transportation Travel Allowance if necessary	MOOE of respective offices	
	-Identified 3 men and women FA and 3 FPO	(Year 4) Additional 6 men and women FA and 6 FPOs identified	# of identified FA and FPO	CMO-Agri CMO-Community Affairs	Transportation		
	Identified alternative livelihood for all 6	Identified alternative livelihoods for additional	# of FA/FPOs with identified alternative	CMO-Agri CMO-Community Affairs	Transportation		

Priority Area I: Food Security – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
each Farmers Association/Fish Pond Operators Association	FA/FPOs	12 FA/FPO	livelihood				
<input type="checkbox"/> Conduct of trainings for alternative livelihood sources: -Option 1: (LIVESTOCK RAISING - food processing, balut making, duck raising, salted egg production) -Option 2: (e.g. reflexology, weaving and dress making) Required training: Gender Sensitivity Training	-2 nd year: 1 training for each alternative livelihood	Year 5 1 training for each alternative livelihood	# of technical training conducted	CMO-Agri CMO-Community Affairs CMO-Trade and Industry I/NGO, DOLE, DTI, DA BFAR, DSWD, DOST	Training materials Honorarium 20,000.00	I/NGO, DOLE, DTI, DA BFAR, DSWD, DOST	
	-1 GST for all 6 FA/FPO	-1 GST for all additional 12 FA/FPO	-# of GST conducted	OSWDS	Meals and Snacks Transportation Training Venue 60,000.00	MOOE	
<input type="checkbox"/> Technical Assistance on Project Proposal Preparation (for accessing Soft Loans from NGAs)	(3 rd Year_) -Technical coaching on Project Proposal for all 6 FA/FPO	(6 th year) Technical coaching on Project Proposal for additional 12 FA/FPO	-# of FA/FPO assisted	CPDO CMO-Community Affairs DTI, DA, DOLE, OSWDS	Meals Office supplies and materials	MOOE of respective offices	
		(4 th year) -Conducted 1 training for batch 1	-# of Operations and Management trainings conducted	CMO-Agri DTI, DA, DOLE,	Training materials Honorarium/	I/NGO, DOLE, DTI, DA	

Priority Area I: Food Security – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Conduct of training for skills and technology upgrading		(6 th year) -Conducted 1 training for batch 2	-# of skills and technology upgrade training conducted	OSWDS	Tavelling Expenses 20,000.00	BFAR, DSWD, DOST	
					Meals Travelling Expenses Training Venue 20,000.0	MOOE	
<input type="checkbox"/> Conduct Business matching		(5 th – 6 th year) -1 Business Matching event per year	# of business matching event conducted				
Policy on “Use of Idle lands for Agricultural and Aquaculture purposes” <input type="checkbox"/> Conduct research on / inventory of available idle lands for agricultural use	-1 st year: Conduct ___ consultations with key stakeholders		# of consultations conducted	City Assessor OCM-Agri. Div. SP Office on Legal Services	Office supplies & Materials Meals & Snacks	MOOE of OCM-Agri. Div.	
<input type="checkbox"/> Sponsorship of Policy for Legislation	-Identify 1 Champion from SP		# on champion engaged				
<input type="checkbox"/> Drafting of Policy	-2 nd year: 1 ordinance drafted and approved		# of drafted and approved ordinance				
<input type="checkbox"/> Contract with private land owners, farmers, LGU	-2 nd year: contract signing with ___ number of private		# of signed contract # of private land				

Priority Area I: Food Security – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
	land owners		owners engaged				
*consider: crop insurance							

Priority Area I: Food Security – Urban Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET Typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Adopt the National Policies on Greening Program to the communities <input type="checkbox"/> Enforcement of Policies through Executive Order (EO) or ordinances	I EO and I ordinance issued		- I of signed EO signed, - I of ordinance passed	For Ordinance CENRO- initiate, City Development Council-endorsement,	-Office supplies None	CENRO MOOE	A111-01

Priority Area I: Food Security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET Typology
	Short term (1-3 years)	Medium term (4-6 years)					
				<p>Sangguniang Panlungsod (Committee on Environmental Protection)-passage, Liga ng Barangay-implementation</p> <p>For EO Office of the City Mayor- Issuance Liga ng Barangay-implementation</p>			
<input type="checkbox"/> Sustaining the “ <i>Gulayan sa Barangay</i> ” initiatives (all barangays have current initiatives)		26 barangays with sustained gulayan	26 of barangays with established <i>Gulayan sa Barangay</i>	Barangay Officials-ensure the implementation	-Vegetables seeds & seedlings -Garden tools & equipments	-MOOE of OCM-City Agri. Div. & -Barangay Funds	A111-02
Promotion of urban greening initiatives (e.g. hydroponics and vertical / urban gardening) <input type="checkbox"/> Conduct of information and	-3-5 Forum per Barangay		- 3 of forums held per	OCM, CENRO,	-Resource	Brgy Funds	A113-01

Priority Area I: Food Security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET Typology
	Short term (1-3 years)	Medium term (4-6 years)					
education campaign (IEC)	held -3-5 Posters in each barangay		barangay -3 of posters per barangay	OSWDS, PIO, Local Finance Committee, CPDO, SP Local Media	Speakers -Meals & Snacks -Posters & other campaign materials (60,000.00)		
<input type="checkbox"/> Conduct community capacity building	-6 pilot barangays trained on hydroponics, vertical / urban gardening	-all 26 urban barangays trained on hydroponics, vertical/urban gardening	-30 of barangays trained on hydroponics, vertical/urban gardening At least 50%	DA, BFAR, CENRO, OSWDS, DOST	-Trainers -Training materials on hydroponics, vertical/urban gardening -Meals & Snacks 100,000.00	Calamity Fund/NGA	A113-08
<input type="checkbox"/> Promotion of communal gardening in all urban barangays)	50% of urban barangays have established their community garden/s	100% of all urban barangays have established their community garden/s	% of urban barangays with community garden/s	-OCM-Agri. Div. -Barangay Officials of urban barangays	-Vegetable seeds & seedlings -Garden tools & equipments	-Calamity Fund -MOOE of OCM-Agri. Div. And Urban brangays/ NGA	M114-10
Ensure availability and adequacy of food and non-							

Priority Area I: Food Security – Urban Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET Typology
	Short term (1-3 years)	Medium term (4-6 years)					
food supplies (health & other essential commodities) <input type="checkbox"/> Memorandum of Agreement (MOA) / Memorandum of Understanding (MOU) with public and private sectors (e.g. NFA / Mercury drugstore/ Puregold/ Superama)	-MOA / MOU with public and private sectors		1 of MOU forged with public sectors 2 of MOUs forged with private sectors	OSWDS, CDRRMO, HOSPITALS /PHARMACIES	Office Supplies NONE	CDRRMO MOOE	A113-02
<input type="checkbox"/> Stockroom accessible to constituents	-1 (accessible) stockroom constructed	-1 stockroom maintained	1 of stockroom/s accessible to constituents	OSWDS, CDRRMO, CEO, GSO	Basic emergency non-food and fooditems 500,000.00	Calamity Fund	A114-04

Priority Area I: Food Security – Coastal Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	

Priority Area I: Food Security – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
Strengthen the City Fishery and Aquatic Resources Management Council (FARMC) <input type="checkbox"/> Trainer’s Training and Roll-Out training (Leadership and Management Training for FARMC Officers)	- Leadership and Management Training for FARMC Officers	- Refresher Training for FARMC Officers	- No. of FARMC Officers Trained	- OCM-Agri, CSO/Resource Persons, BFAR, FARMC	- Training Modules, Supplies, Venue	- BFAR, CGC - P50,000.00	- A 113-08
	- Roll-Out to FARMC Members • 3 Trainings for the 12 Coastal Organizations’ Officers		- No. of Trainings conducted	- OCM-Agri, CSO/Resource Persons, BFAR, /farmc	- Training Modules, Supplies, Venue	- BFAR, CGC - P50,000.00/day	- A113-08



OCM-Agri,

Priority Area I: Food Security – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
	<ul style="list-style-type: none"> 1 Training for the 5 Inland Organizations' Officers 	- Refresher Training for FARMC Officers		CSO/Resource Persons, BFAR, FARMC - OCM-Agri, CSO/Resource Persons, BFAR, /farmc -		- BFAR, CGC - P50,000.00 - BFAR, CGC - P50,000.00/day -	



Priority Area I: Food Security – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Ensure good quality and sufficient supply of aquamarine products</p> <p><input type="checkbox"/> Trainer’s Training for Organic Fishpond Technology and Management</p> <p><input type="checkbox"/> Adoption of Organic Fishpond Technology and Management</p>	<ul style="list-style-type: none"> - Identification of Trainers for the Organic Fishpond Technology and Management Training - OCM-Agri Personnel to be trained on Organic Fishpond Technology and Management - Profiling of Fishpond Operators - SP Resol. Urging Fishpond Operators to Shift to Organic Fishpond Technology - Pilot-testing for Organic Fishpond Technology in the 3 Kalanganan Barangays 		<ul style="list-style-type: none"> - No. of Trainers identified - No. of OCM-Agri Personnel trained - No of Fishpond Operators profiled - SP Resolution sponsored by Chairman, Committee on Agri. - 1 Fishpond per barangay pilot-tested 	<ul style="list-style-type: none"> - OCM-Agri, FARMC, BFAR - BFAR, CMO-Agri, - OCM-Agri - OCM, SP - OCM-Agri, BFAR, FARMC 	<ul style="list-style-type: none"> -0- - Training Materials, Venue - Survey Forms, Fuel - Bangus Fries, Organic Feeds and Fertilizers - Bangus Fries, Organic Feeds and fertilizers 	<ul style="list-style-type: none"> -0- - BFAR - P10,000.00 - OCM-Agri MOOE - BFAR P50,000./fishpond 	

Priority Area I: Food Security – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Establishment of Organic Feedmill	- Hands-on Training of assigned personnel	- Fishpond operators gradually adopting to Organic Fishpond Technology - Organic Feedmill fully operational	- No. of fishpond operators adopting to Organic Fishpond Tech. - Volume of organic feeds produced	- OCM-Agri, BFAR, FARMC - OCM-Agri, CSO Partner/Operator, Trainers - OCM-Agri, DA, CPDO, CSO Partner/Operator, Barangay	- Raw Materials for Feeds, Packaging Materials - Feedmill Bldg., Eqpt., Raw Mat., Other supplies	- Fishpond Operators, BFAR, CGC - CGC, BUB Fund - DA – P5.0M - CGC – P1.0M	
<input type="checkbox"/> Infrastructure Support Facility/Equipment for Fishpond Development and/or Improvement	- Establishment of a Mini Ice Plant		- Min Ice Plant Operational	- OCM-Agri, BFAR, CEO, CPDO Barangay, CSO Partner/Operator	Building, Ice Plant Equipment, Electrical Accessories	BFAR, CGC - P7.7 M	AI 22-05

Priority Area I: Food Security – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
	- Acquisition of Floating Power Tillers for Equipment Pool		- No. of Floating Power Tillers acquired	- OCM-Agri. Div., DA, FARMC, ICCAFC	Project Proposals	- BFAR, CGC (20% CDF) -P250,000	AI22-05
		- Acquisition of Additional Floating Power Tillers	- No. of Floating Power Tillers acquired	- OCM-Agri. Div., DA, FARMC, ICCAFC	- Project Proposals	- BFAR, CGC (20% CDF) -P250,000.	
		- Establishment of a Cold Storage/Blast Freezer Facility	- 1 Cold Storage/Blast Freezer established at Kalanganan Mother	- OCM-Agri, CEO, CPDO, BFAR, Barangay, CSO Partner/Operator	- Land, Equipment, Electrical Accessories	- BFAR, CGC Counterpart,	

PRIORITY AREA 2: WATER SUFFICIENCY

Priority Area 2: Water sufficiency – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/ Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
(1)	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
<p>Program on New Water Supply Infrastructure for Waterless Communities (Irrigation Program)</p> <p>1. Creation of TWG and identification of barangays to receive Shallow Tube Wells (STW)</p> <p>2. Preparation and submission of request for STW to NIA</p> <p>3. Site visitation and verification</p> <p>4. Installation of STW as source of irrigation</p>	<p>1 TWG created</p> <p>STW recipient sites identified</p> <p>Request prepared and submitted</p> <p>Site validation activity</p> <p>10 STW installed at 5 STW per year</p>	<p>Additional 15 STWs installed</p>	<p># of recipient sites identified</p> <p>-# of request prepared/submitted</p> <p>-# of sites visited/validated</p> <p>-# of STWs installed</p>	<p>TWG: CMO-Agri, CPDO, City Assessors office, CEO, CENRO, barangays (Tamontaka 1-5, Poblacion 8-9 NIA Maguindanao</p> <p>TWG NIA Maguindanao</p>	<p>Travelling expenses</p> <p>Human resource</p> <p>Office supplies</p> <p>Pipes</p> <p>Labor/</p> <p>Php2.5M</p>	<p>AIP</p> <p>20% CDF of LGU</p>	<p>A214-02</p> <p>A114-05</p>

Priority Area 2: Water sufficiency – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/ Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
Implementation of Water Harvesting Technologies (Water Security Project for Communities with No Source of Potable Water in Kal MB & Kal I)							A214-05 A213-01 A114-05
1. Creation of TWG on Water Security Project for areas with no potable water supply	TWG created			TWG: CEO, CPDO, CENRO, OSWDS and Brgy LGU	Human resource Travelling expenses Office Supplies	MOOE of LGU and BLGU	
2. Identification of HH beneficiaries in Kalanganan I	List of identified HH beneficiaries		# of HH identified				
3. Clustering of HH	37 clusters with 30HH per clusters		-# of clusters created				
4. Technical training on Operation Rainwater catchment system	Trained all HH beneficiaries		-# of training conducted	INGO	Honorarium Training kits Meals and Venue/ Php20,000 per day	BLGU	
5. Pilot testing on communal rainwater catchment	2-3 clusters piloted with communal water catchment system		-# of piloted communal catchment system				
6. Construction of Rainwater catchment	37 communal rainwater catchment system installed	Maintenance of 37 installed communal	-# of rainwater catchment system installed and		Labor Construction	20% CDF INGO	

Priority Area 2: Water sufficiency – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/ Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
suited for the area		rainwater system	maintained	CEO INGO BLGU	materials (e.g. pipes,tanks)/ Php450,000		

Priority Area 2: Water sufficiency – Urban Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET Typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Ensure sufficient (potable) water supply <input type="checkbox"/> Regular water distribution to community level / water Rationing assistance in coordination with the service groups/agencies		-Continuous distribution to 26 barangays	26 of urban barangays with interrupted lifeline (water) benefitted from water distribution	DILG, MCWD, LGU-CEO	Heavy equipment Human resource Technical requirement (DED) 250,000.00	BUB allocation (12.75M) under GAA	A214-02
	-5 units water tanker procured (*MCWD currently has	-5 units water tanker procured (*MCWD currently	-5 of water tanker units procured	MCWD (2)/LGU (3)	Proposals/Refer to LDRRMP	Will be funded under the	

Priority Area 2: Water sufficiency – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET Typology
	Short term (1-3 years)	Medium term (4-6 years)					
	1 unit purchased)	has 1 unit purchased)				capital outlay of MCWD	
	-1 MOA/MOU with BFP and Chinese Auxiliary Volunteer, water refilling stations		At least 2 of signed MOA/MOU with BFP and Chinese Auxiliary Volunteer, water refilling stations	CDRRMO, BFP, CFCFV, water refilling stations	Office supplies NONE	CDRRMO/ MOOE/ LDRRMP	
<input type="checkbox"/> Conduct community capacity and awareness building on water conservation and water-demand management	-Annual meetings on water conservation and water-demand management -Trainings on community rain water catchment	-continuing advocacy on water conservation and water-demand management	2 of annual meetings conducted 5 trainings on community rainwater catchment	CENRO, CHO, MCWD, LGU	Meeting venue Meals & Snacks Office supplies 300,000.00	MOOE of CENRO	A213-03
Water purification program for (non-potable) water supply	1 water purification treatment procured (Machine, tablets, solution or powder liquid)		1 water purification treatment procured	DOH/CHO, LGU, NGO's, INGO's	Proposal 1,000,000.00	Calamity Fund	A234-01
<input type="checkbox"/> Provision of water purification treatment (e.g. Aqua tablets, waterine)							
<input type="checkbox"/> water desalination		-2 Water-desalination equipment purchased	1 of water-desalination equipment purchased	OSWDS, LFC, SP, OGS	Proposal	Calamity Fund	A214-01 A214-05
<input type="checkbox"/> utilization of treated septage discharge		-1 reservoir constructed	1 of reservoir constructed	CEO, MCWD, CENRO, (septage management board)	Reservoir/s 1,000,000.00	Calamity Fund	A214-03 A214-06

Priority Area 2: Water sufficiency – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
<p>Ensure sufficiency of (potable) water supply to coastal barangays [for domestic use]</p> <p><input type="checkbox"/> Expansion of water supply distribution system</p> <p><input type="checkbox"/> Mitigating Measures to Provide Alternate Water Supply for Domestic Use</p>	<p>-Delineation/Clearing of Road-right-of-Way (RROW) in the three (3) Coastal Barangays</p> <p>- Project Proposal - Fund Sourcing for the Installation of Water Pipes</p> <p>- Installation of Hand Pumps in Identified Communities</p>	<p>-Continuing activity</p> <p>-Installation of Water Pipes</p>	<p>- Length of RROW delineated/cleared</p> <p>- Project Proposal submitted to prospective fund donor</p> <p>- No. of water pipes installed with top stands</p> <p>- No. of household who benefited</p> <p>- No. of hand pumps installed</p>	<p>-CEO, DPWH, 3 Coastal Barangays</p> <p>- CPDO, CEO, MCWD</p> <p>- CEO, MCWD, Barangay, FARMC, ICCAFC</p> <p>- OCM-AGRI, CEO, FARMC, ICCAFC, Bgy.</p>	<p>- Equipment, Manpower, Vehicle, Fuel</p> <p>-0-</p> <p>- Water Pipes, Equipment, Earthfilling Materials</p> <p>- Boring Eqpt., Hand Pumps, G.I.</p>	<p>- CGC, DPWH, Barangay -PI.5M</p> <p>- CGC Fund Donor (Local, Foreign)</p> <p>- CGC, MCWD, Donor Institution</p> <p>- DA, CGC P 100,000.</p>	

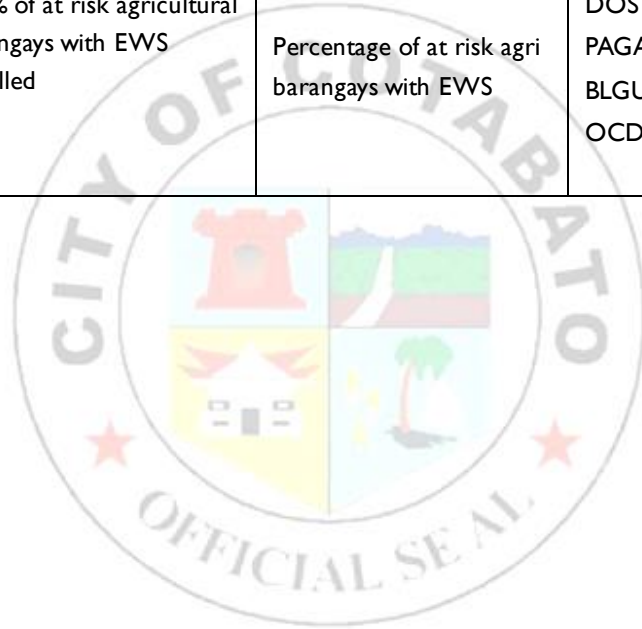
Priority Area 2: Water sufficiency – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
					Water Pipes, Water Tester		
	- I coastal barangay pilot-tested for solar-powered motor pump* *Optional		- I solar-powered motor pump pilot-tested at Kal. Mo.	OCM-Agri, ICCAFC, Bgy.	-Solar powered motor pump, PVC Pipes	- DA P100,000.	
		- 3 Kalanganan Bgys. utilizing solar-powered motor pumps* * Dependent on the outcome of the pilot-testing	-				

PRIORITY AREA 3: HUMAN SECURITY

Priority Area 3: Human Security – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
(1)	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
Assessment of CC and CV impacts on livelihoods and poverty with emphasis on vulnerable communities (farming and fishing)	1 assessment on CC and CV impacts	1 assessment on possible new CC and CV impacts	# of assessments conducted # of vulnerable farming and fishing communities evaluated	CENRO CDRRMO OCM-Agri BLGU DA BFAR	Human resource Travelling expenses Office supplies/ Php5,000	Calamity Fund	A412-02
Training for health emergency preparedness and response	1 training yearly 50% of BHWs trained in health emergency preparedness and response	1 training yearly 100% of BHWs trained	# of trainings conducted Percentage of BHWs trained	CHO CDRRMO DOH BLGU INGOs/NGOs	Trainors Venue/Meals/Training Kits/ Php20,000 per day	LDRRMF INGOs	A413-04

Priority Area 3: Human Security – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
Installation of Early Warning Systems	At least 2 EWS installed per year 50% of at risk agricultural barangays with EWS installed	Additional EWS installed 100% of at risk agricultural barangays with EWS installed	# of installed EWS Percentage of at risk agri barangays with EWS	CDRRMO CENRO DOST PAGASA BLGU OCD	Hazard and risk assessment maps Identified evacuation sites Trained manpower Handheld radios/ Php300,000	BLDRRMF	A424-10



Priority Area 3: Human security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
<p>Implementation of city master plan for flood control</p> <p><input type="checkbox"/> Formulation and adoption of the city master plan for flood control programs</p>	-1 master plan formulated, adopted and implemented		<p>1 master plan adopted and implemented</p> <p>-controlled flooding 80% reduction in the number/occurrence of flooding</p>	CDRRMO, CEO, CPDO	<p>-Office Supplies -Manpower -Meals & Snacks of planning team 300,000.00 -Office Supplies -Manpower -Gasoline & vehicles 5,000.00</p>	Calamity Fund/NGO	A421-01
<p><input type="checkbox"/> De-clogging and dredging / de-silting of major rivers</p>	-2 major rivers regularly de-clogged and dredged / de-silted	-2 major rivers regularly de-clogged and dredged / de-silted	<p>2 regular de-clogging, dredging, de-silting activities of 2 major rivers</p> <p>80% reduction in siltation levels/annually</p>	DPWH, OCM, CENRO, CEO	<p>-De-clogging/dredging machines -Manpower -Gasoline 500 M</p>	LDRRMF	A 634-07

Priority Area 3: Human security – Urban Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Clearing of water ways and rivulets	-12 waterways and rivulets periodically cleared	-12 waterways and rivulets periodically cleared	26 of clearing operations for 12 waterways and rivulets -(improved) level of water quality for the 12 waterways and rivulets	CEO	-Clearing machines and equipments -Manpower -Gasoline 1,000,000.00	LDRRMF	A 634-07
<input type="checkbox"/> Procurement of amphibious excavator	-2 amphibious excavators purchased	2 amphibious excavators purchased	2 amphibious excavators purchased	OGS, CEO,	Procurement documents 180M	LDRRMF/ LOAN	A 634-07
Strengthen existing efforts for prevention of (climate-related) disease outbreaks and other incidents							
<input type="checkbox"/> Reactivate community health teams	-26 community Health teams reactivated	-26 community Health teams reactivated	26 community health teams reactivated	CHO, OSWDS, DOH			
<input type="checkbox"/> Conduct capacity building for healthcare providers	-4 seminars conducted annually on Proper Early Assessment/ detection and management of diseases	--4 seminars conducted annually on Proper Early Assessment/ detection and management of diseases	1 seminar conducted annually		-Training modules -Training venue -Meals & snacks -Honorarium of trainors/resource persons 150,000.00	-Calamity Fund -LIPH Fund -DOH	A413-01 A413-04

Priority Area 3: Human security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Community awareness/ Promotion on preventing disease and outbreaks	-1 poster / flip chart per barangay health center on hygiene, sanitation, healthy lifestyle, nutrition, etc.		1 poster / flip chart per barangay health center		posters/flipcharts 40,000.00	-Calamity Fund -CHO, OSWDS -DOH	A413-02
	-1-2 forums per month on different topics on every barangay on hygiene, sanitation, healthy lifestyle, nutrition, etc.		1-2 forum per month on different topics on every barangay		-IEC materials -Resource speakers -Meals & snacks 70,000.00	-CHO -OSWDS -Brgy. LGU fund	A413-02
	-2 Mother's Class per month on each barangay		2 mother's class per month on each barangay		Training Modules -Venue -Meals & snacks -Honorarium of Trainers 35,000.00	-Calamity Fund -LIPH Fund -DOH	
<input type="checkbox"/> Augmentation/procurement of additional vaccine to strengthen regular immunization program to prevent diseases (vaccine-preventable diseases)	- 10% augmentation in the volume of vaccines procured per year	- 10% augmentation in the volume of vaccines procured per year	10% augmented in the volume of vaccines procured per year	OHS, DOH	-Procurement documents -Manpower 250,000.00	-LIPH Fund -MOOE of OHS	
	10 barangays where community awareness activities on the benefits of immunization are held		10 of barangays where community awareness activities on the benefits of immunization are held	OHS, DOH	IEC materials Human Resource Meals & snacks 50,000.00	Barangay LGU Fund	A413-02

Priority Area 3: Human security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
Institutionalization of emergency response team <input type="checkbox"/> Creation of Barangay Emergency Response teams (BERT) <input type="checkbox"/> Capacity-building activities for BERT (e.g. BLS, WASAR, SAR, SFA, MCI, RBOM, Psychosocial First Aid, etc.)	-all barangays with resolution creating a Barangay Emergency Response Team (BERT)		At least 20 barangays with resolutions on the creation of BERT in each barangay	BDRRMC, Barangay Council	Office supplies NONE	MOOE- Barangay Funds	
	5 barangays with BERT capacitated on different emergency response skills	10 barangays with rescue and response equipage purchased	At least 10 barangays with skills enhancement emergency response skills conducted At least 10 barangays with rescue and response equipage procured	CDRRMO, OHS, DOH, OSWDS, BDRRMC, CDRRMO	Refer to LDRRMP		A423-02
Synergize implementation of policies and programs related to DRR and CCA/M <i>(*activities for possible integration to the LDRRMP)</i> <input type="checkbox"/> Amplify laws through local legislative actions	-1 inventory of DRRM-CCAM related laws and policies		1 of inventory on DRRM-CCAM related laws and policies done	SP, CDRRMO	Manpower Office Supplies NONE	MOOE of CDRRMO	A421-01
	2 Laws and IRRs related to DRR and CCA reviewed		2 laws and IRRs related to DRR and CCA reviewed	SP, CDRRMO			

Priority Area 3: Human security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Strengthen Private School's DRR Programs	-1 ordinance formulated requiring private schools to formulate their DRR Plans	5 private schools with regularly updated DRR plans	-1 of ordinance passed and implemented	CDRRMO, SP on environment, DepEd, CHed,			
<input type="checkbox"/> Strengthen Disaster Preparedness and Response Plans (Contingency Plan-CP)	-1 evacuation plans formulated for the city -37 barangays with evacuation plans formulated		-1 of evacuation plans formulated for the city and in each barangay	CDRRMC, BDRRMC	Office supplies Meals & snacks of planners 10,000.00	CDRRMO MOOE	A423-01 A424-05
	-1 CP for flood and high density gathering is updated		1 CP for flood and high density gathering updated	CDRRMC	Office Supplies/meals / snacks 20,000.00	CDRRMO/ MOOE	A423-01
<input type="checkbox"/> Improve mechanisms for early warning system (EWS)	-CPs for Earthquake, Tsunami, Storm Surge formulated		2 CPs for other hazards formulated	CDRRMC	Office Supplies/meals / snacks 40,000.00		A423-01
	-37 barangays with early warning systems formulated and devices (EWD) installed	-37 barangays with EWS regularly updated and EWD maintained	At least 10 barangays with EWS formulated and EWD installed	CDRRMC, BDRRMC	EWDs/LDRRMP 120,000.00	BDRRM Fund	A424-10
	-37 barangays with IECs and signage for EWS installed		At least 10 barangays with EWS IECs and signage installed		EWS IECs signage Manpower 50,000.00		

Priority Area 3: Human security – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Re-operationalize and maintain the Automated Weather System (AWS)	-1 MOA with PAGASA on establishing weather forecasting station		1 MOA with PAGASA amended	DOST-PAGASA, CDRRMO, CEO	Office supplies NONE	MOOE of CDRRMO	A423-02
	1 land allocated for establishment of flood forecasting station/s		1 flood forecasting stations are established	City LGU, CDRRMO DOST-PAGASA	Land -Govt owned NONE	DOST-PAGASA	
	-1 AWS repaired	-1 AWS maintained	1 fully-functional AWS	DOST-PAGASA, CDRRMO,	Construction materials Manpower 250,000.00		
	-2-3 technical experts on operating the AWS		2-3 technical experts on operating the AWS		Manpower Office supplies & other MOOE		
<input type="checkbox"/> Risk Assessment on hazard, vulnerability and capacity	-10 remaining barangays with community-level PCVA done	-10 remaining barangays with community-level PCVA done	At least 7 barangays with PCVA data	CDRRMO, BDRRMO	-Manpower -Computers & other office equipments -Office supplies & other MOOE -Charge to respective office	Calamity Fund/NGO	A422-02 A422-03 A422-04
		10 barangays with updated PCVA.	At least 7 barangays with updated PCVA data				
	-1 (integrated, city-level) database established on human resource, equipment, directories and location of critical infrastructure	-1 database regularly updated	1 integrated, city-level database established	CDRRMO		150,000.00	

Priority Area 3: Human security – Urban Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Establishment of Emergency Operation Center (OpCen)	-1 OpCen constructed	-1 OpCen maintained	1 fully-functional operation center constructed				

Priority Area 3: Human security – Coastal Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
Strict enforcement of RA 10654 to address illegal fishing <input type="checkbox"/> Provision of adequate personnel and equipage for law enforcement in coastal areas	-Composite Bantay-Dagat organized	- Bantay-Dagat fully functional	- Executive Order creating the Composite Bantay-Dagat - Provision of additional equipage	- BLGU, CSO, CGC, PNP Maritime Police, AFP, DENR, DILG, BFAR - CGC, AFP, DILG	- Logistics, Fund Support for MOOE - Logistics, Fund Support for MOOE	- BFAR,CGC, DILG, AFP P200,000. - BFAR, CGC, DILG, AFP P 200,000.	

PRIORITY AREA 4: ECOLOGICAL AND ENVIRONMENTAL STABILITY

Priority Area 4: Ecological and Environmental Stability – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
(1)	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
Seedling production and management of mangrove nursery 7. Seedling production 8. Establish city-owned mangrove nursery 9. Mangrove planting activities (to include bamboo trees)	10k seedlings produced per year (833/month)	Additional 10k seedlings produced per year	-# of seedlings per year	OCM-Agri BLGU DENR BFAR CENRO	Seedlings Human resource Land area/ PhpIM	AIP DENR BFAR LGU BLGU	A314-07

Priority Area 4: Ecological and Environmental Stability – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Conservation and protection of existing mangrove areas</p> <p>FORMULATION of ORDINANCE</p> <p>10. Creation of TWG (Assesor's Office and CENRO)</p> <p>11. Baseline data gathering / Conduct of field survey on current coverage of mangroves</p> <p>12. Drafting of Request</p> <p>13. Formulation of ordinance on identification of mangrove protected areas</p>	<p>Year 1: TWG created</p> <p>Baseline data gathered</p>		<p># of hectares identified as protected area</p>	<p>OCM City Administrator</p> <p>CENRO BLGU</p>	<p>Travelling expense Human resource</p>	<p>MOOE (LGU/BLGU)</p>	<p>A314-02 M314-07 M314-03</p>

Priority Area 4: Ecological and Environmental Stability – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
(>5 hectares)							
IMPLEMENTATION of ORDINANCE							
14. Creation of barangay bantaybakawan (BBB) team(5 members per team)	I Request drafted I Ordinance formulated and approved		# of ordinance formulated, approved and implemented	CENRO DENR SP LGU BLGU	Office supplies		
15. Installation of signages of protected area along river banks	Year 2: I BBB team created per barangay located along the river banks I installed signage every 500m along the river banks		# of BBB teams created for barangays along river banks # of installed signages for identified protected areas	BLGU	Office supplies Honorarium of BBB team members Travelling expenses/ Php3M	MOOE (BLGU)	

Priority Area 4: Ecological and Environmental Stability – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Intensify environmental / sanitation program implementation <input type="checkbox"/> Management of waste produced by the city	-26 barangays with MRF (re)activated (thru LnB) -all schools within urban barangays with MRF activated (thru DepEd)		At least 20 MRF in urban barangay and schools are activated	CENRO, CSWM Board, CSWM TWG, DepEd, Liga ng mga Barangay (LnB)	-Manpower, Gasoline & vehicles for IEC and monitoring 30,000.00	-MOOE of CENRO	M323-01 M324-02 M324-04
	60% households practicing proper segregation (Strictly implement the “No Segregation, No Collection Policy”)		50% of households practicing proper segregation	CENRO, CHO-CSI, CSWM Board	-Manpower, Gasoline & vehicles for IEC and monitoring 30,000.00	MOOE of CENRO	M323-01 M324-01 M324-04
	-2-3 IEC on each barangays and different establishments on proper segregation		2-3 IEC on each barangays and different establishments	CENRO, CSWM Board, CSWM TWG, Liga ng mga Barangay (LnB)	-Manpower, Gasoline & vehicles for IEC and monitoring 30,000.00	MOOE of CENRO	M323-01 M324-01 M324-04
		-(annual) contest on cleanest and Greenest (recycling, MRF) barangay			CENRO, CSWM Board, CSWM TWG, Liga ng mga Barangay (LnB)	-Prizes -Manpower, gasoline & vehicles for evaluation	MOOE of CENRO

Priority Area 4: Ecological and Environmental Stability – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Establishment of City waste processing System					30,000.00		
	-land acquired for 1 eco-park to be constructed - 1 eco-park constructed / established	- 1 Eco-Park operationalized	1 eco-park constructed/ established	CENRO, CSWM Board, CEO	-Construction materials for Eco-park -Manpower -Office supplies & other MOOE 30,000.00	LGU Loan	M324-04

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
Strict enforcement of mangrove preservation laws <input type="checkbox"/> Declare mangrove areas as protected areas (ongoing preparation of Integrated Coastal Management policy; with ordinance on cutting and selling of mangroves)	-Survey and Delineation of Mangrove Areas (with Technical description) to be declared as “Protected Area”		-Ordinance enacted - Survey result with Maps	-CENRO, OCM, OLS, CEO, OCM-Agri. Bgy., BFAR	- Office supplies, Fuel, Food	- CGC (Gen. Fund), BFAR	

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Mangrove planting and growing twice a year for riverbank and coastal areas	- Inventory of other Mangrove Areas (For Rehabilitation and Enrichment Purposes)		- No. of hectares per Barangay	- BFAR, OCM-Agri. Div., CENRO, CEO, Bgy. - Bantay-Dagat, FARMC, ICCAFC, Bgy.	- Office supplies, Fuel, Food - Logistics	- CGC (Gen. Fund), BFAR - CGC, Bgy. Dev't. Fund	
		- Mangrove protected area is sustained	- Enrichment of marine life				
		- Total ban on cutting of mangroves imposed	- Legislation passed and implemented -Reports of the Bantay-Dagat	-OCM, OLS, SP, CENRO, DENR-EMB, Bantay-Dagat	- Logistics	- CGC, Bgy. Dev't. Fund	
	- Establishment of Mangrove Nursery		- Mangrove Nursery established at Kalanganan Mo. and Kalanganan 2	- OCM-Agri, Bgy., FARMC, ICCAFC, BFAR	- Materials for the Nursery, Garden Tools, Plastic Bags, Mangrove Propagules	- CGC P 50,000. - BFAR P200,000.	
	- Bi-semestral planting of Mangroves (Multi-sectoral participation)	- Continuing activity of Bi-semestral planting of Mangroves	- No. of mangrove seedlings planted - No. of institutions who participated	- OCM-Agri, CPDO, OCM, City Adm. CDRRMO, BFAR, CSO's, Bgy.	- Mangrove Seedlings, Conveyance, Food	- CGC P 20,000./planting	

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Riverbank Protection within the area of coastal barangays	- Monitoring of Areas Planted with Mangroves	- Continuing monitoring of areas planted with Mangroves	- Survival rate of Mangrove Seedlings	- OCM-Agri, Bantay-Dagat, Bgy.	- Monitoring Sheets, Food, Fuel, Motorized Bancas	- BFAR P30,000./planting - CGC P10,000. - Bgy. P10,000.	
	- Propagation of bamboo and nipa seedlings		- No. of seedlings propagated	- DA, OCM-Agri, BFAR, ICCAFC	- Bamboo and Nipa Propagules, Plastic Bags	- DA P50,000. - BFAR P50,000. - CGC P20,000.	A314-07
	- Planting of bamboo, nipa and mangrove seedlings along riverbanks within the area of coastal barangays (bi-semester) by the Bgy. Communities (Food for Work Scheme)	- Continuing activity for the planting of bamboo, nipa and mangrove seedlings	- No. of seedlings planted	- DA, OCM-Agri, BFAR, ICCAFC, Bgy. Community	- Mangrove seedlings, bamboo and nipa seedlings, Food, Fuel	-CGC - P20,000. - DA, P 30,000.00 - BFAR P30,000.	

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
	- Monitoring of areas planted	- Continuing monitoring of areas planted	- Survival rate of seedlings planted	- OCM-Agri, Bantay-Dagat, Bgy. Commnities	- Office supplies, Fuel Food	- CGC P10,000. - Bgy. P10,000.	
<p>Regular barangay / city coastal cleanup (including canals and tributaries)</p> <p><input type="checkbox"/> Bi-semesteral cleanup drive in the coastal areas [also thru Food for Work]</p>	-Communities in the 3 coastal Barangays shall undertake the Clean-up Drive	- Continuing activity of the Clean-up Drive	- Volume of wastes gathered	- CENRO, OCM-Agri, Bgys., OSWDS	-Cleaning tools, - Food Packs, Conveyance	- CGC - P 20,000. - Bgys. P10,000/	
<p>Coastal rehabilitation program</p> <p><input type="checkbox"/> De-silting of Illana Bay</p>	- Stationing of Dredging		- Volume of silt	- CENRO, DPWH, Bgy.	Dredging	- DPWH, - CGC P200,000/yr .	A314-01

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors/ or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Coastline facing the Kalanganan Barangays</p> <p><input type="checkbox"/> Artificial reefs to attract fishes; mangrove planting</p>	<p>Equipment at the mouth of Rio Grande de Mindanao</p> <p>- Planting of artificial reefs along the coast of Illana Bay (with the assistance of DENR-EMB; Bantay-Dagat and BFAR will jointly monitor the reefs)</p>	<p>- Continuation of dredging activities</p> <p>- Planting of more artificial reefs (if necessary based on the results of monitoring)</p>	<p>materials</p> <p>- Volume of silt materials</p> <p>- No. of artificial reefs planted</p> <p>-No. of additional artificial reefs planted and area coverage</p>	<p>Gov't.</p> <p>- CENRO, DPWH, Bgy. Gov't.</p> <p>- CENRO, DENR-EMB, OCM-Agri, Brgy. Gov't., Bantay-Dagat, BFAR</p> <p>- CENRO, DENR-EMB, OCM-Agri,, Bgy. Gov't., Bantay-Dagat, BFAR</p>	<p>Equipment, Fuel, Food</p> <p>- Logistics, artificial reefs</p> <p>- Logistics, artificial reefs su</p>	<p>- DPWH P200,000.</p> <p>- CGC P 100,000.</p> <p>- City Govt. P 10,000.00</p> <p>- DENR-EMB P 100,000.</p> <p>- BFAR P 30,000.00</p> <p>- City Gv't. P10,000.00</p> <p>- DENR-EMB P50,000.</p> <p>- BFAR P20,000.</p>	


PRIORITY AREA 5: GREEN INDUSTRIES AND SERVICES

Priority Area 5: Green Industries and services – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
(1)	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
<p>Promotion and implementation of Agricultural Waste Management in partnership with men and women farmer’s association and fisherfolks associations</p> <p>Creation of TWG</p> <p>Immersion of local men and women farmers and fisherfolk association for baseline data gathering in present agricultural waste management practices</p> <p>Passage of local ordinance for agricultural waste management</p>	<p>I TWG created</p> <p>50% of identified FFAs</p> <p>I city ordinance passed</p>	<p>100% of identified FFAs</p>	<p>Percentage of identified FFAs immersed</p> <p># of city ordinance passed</p>	<p>CENRO OCM-Agri</p> <p>CENRO OCM-Agri SP</p>	<p>Human resource Travelling expenses Supplies & materials</p> <p>Office supplies</p>	<p>MOOE (CENRO & OCM-Agri)</p>	<p>MI14-04</p>

Priority Area 5: Green Industries and services – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Promotion and access of locally produced organic agri-products and recycled products in local establishments</p> <p>20. Meetings with local establishments' representatives in the promotion of locally produced agri-products and recycled products</p> <p>21. Crafting and signing of contract agreement between local establishments, LGU and farmers / fisherfolks association</p> <p>22. Allotment of supermarkets of space for locally produced agri-products for easy access of local community</p>	<p>At least 3 meetings conducted</p> <p>I Contract Agreement crafted and signed</p>	<p>Additional 2 meetings per year</p> <p>I contract agreement crafted and signed</p>	<p># of meetings conducted</p> <p># of contract agreements between local establishments, LGU and FFAs</p>	<p>OCM-TTID OCM-Agri DTI</p> <p>LGU FFAs Private establishments</p>	<p>Venue Meals Supplies/ Php 10,000 per meeting</p>	<p>MOOE</p>	<p>M514-01 M514-02</p>

Priority Area 5: Green Industries and services – Urban areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Implementation of policies and legislations that promote green infrastructure and services (in the urban areas) <input type="checkbox"/> Enforcement of Green Building Code of 2016	5 concerned offices and institutions (CEO and other construction firms) oriented on the implementation of Green Building Code		new buildings and constructions compliant to green building code	CEO, CPDO, PICE, DPWH	Office supplies Meals & snacks 20,000.00 For other activities refer to LDRRMP	MOOE of CEO	A511-02 M424-01
			6 monitoring activities of the CLGU for strict compliance of business establishment	6 business establishments monitored that are compliant with the Green Building Code of 2016.	CEO CENRO		

Priority Area 5: Green Industries and services – Urban areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Require business establishment / subdivisions provide green spaces	- I ordinance formulated requiring establishments / subdivisions to provide green spaces		I ordinance formulated requiring establishments / subdivisions to provide green spaces	CEO/SP	Office supplies NONE		
<input type="checkbox"/> Implementation of city ordinance 4203	- I IRR for city ordinance 4203 reviewed, finalized and approved (*prohibiting the use, selling and distribution of non-biodegradable plastic as secondary packaging material and non-biodegradable styrofoams as food and beverage containers)		I IRR approved All establishments compliant to the ordinance	SP Committee on Environment, CENRO	Office supplies 10,000.00	CENRO	M321-01
		10 community awareness activities to encourage compliance to the city ordinance	10 community awareness activities conducted in support of C.O. 4203	CENRO TWG-CSWMB OCM-Licensing Div.	Office supplies Meals Gasoline & vehicles 10,000.00	CENRO	M323-01
<input type="checkbox"/> Sustain implementation of anti-smoke-belching ordinance of the city	Installed signage on anti-smoke belching along main streets of the city		10 signages installed	CENRO, GSO	Manpower Signage 20,000.00	Private Sector LGU	M624-07

Priority Area 5: Green Industries and services – Coastal Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Promote alternative livelihood options in coastal areas <input type="checkbox"/> Capability-Building (Training on Alternative Livelihood)	<ul style="list-style-type: none"> - Members of Coastal Fishery Associations and Inland Fishery Associations to train on Solid Waste Composting - - Establishment of Solid Waste Composting Facility - 	-	<ul style="list-style-type: none"> - No. of members trained - 1 Solid Waste Composting Facility established per bgy. 	<ul style="list-style-type: none"> - OGS, OCM-Agri, CENRO - OGS, OCM-Agri, CENRO, FARMC, DA, CEO OGS Coastal barangays 	<ul style="list-style-type: none"> - Training materials, office supplies - - Solid Waste Composting Equipment, Building Equipment, seed capital, 	<ul style="list-style-type: none"> - CGC P20,000. -- DA P 100,000. - CGC P 10,000. - Bgy. P 10,000. - CGC P 50,000. - FARMC P 5,000. CGC TESDA, CGC 	- M314-08

Priority Area 5: Green Industries and services – Coastal Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Encourage use of LED bulbs for households in coastal areas</p> <p><input type="checkbox"/> Replace incandescent bulbs with LED bulbs (CoLight program)</p>	-__ coastal households utilizing LED bulbs	-__ households (city-wide) utilizing LED bulbs	<p>-# of LED replacement activities done by the CLGU</p> <p>-# of households utilizing LED bulbs</p>	CENRO, Colight	<p>Mobilization</p> <p>Vehicle for delivery, logistics</p>	Households	
(Note: some PPAs not listed here but are considered under “Green Industries and Services”, have been primarily listed priority areas #1 and #2)							
<p>Ensure sufficiency of (fresh) water supply for domestic and fishpond operations</p> <p><input type="checkbox"/> Provision of water systems (e.g. solar-powered motor pumps)</p>							
<p>Ensure good quality and sufficient supply of aquamarine products</p> <p><input type="checkbox"/> adoption of organic feeds and fertilizers (organic lime); gradual phase out of synthetic fertilizers</p>							

PRIORITY AREA 6: SUSTAINABLE ENERGY

Priority Area 6: Sustainable Energy – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
<p>Development of Sustainable and Renewable energy (Solar power and Biogas)</p> <p>Conduct of assessment to identify potential areas for renewable energy</p> <p>2 assessments conducted</p> <p>2 identified barangays with at least 1 ha of area suitable/available for renewable energy</p> <p>Training on biogas and solar energy operation and management</p> <p>2 trainings</p>	<p>2 assessments conducted</p> <p>2 identified barangays with at least 1 ha of area suitable/available for renewable energy</p> <p>2 trainings</p>	<p>2 additional barangays identified for establishment of solar or biogas energy</p> <p>2 trainings</p>	<p># or size of area identified for biogas/solar</p> <p># of trainings conducted</p>	<p>DOST CEO CPDO TESDA</p> <p>TESDA DOST LGU/BLGU</p>	<p>Human resource Travelling Expenses Supplies and Materials</p> <p>Venue Meals Supplies/materials Honorarium of Speakers/ Php20,000 per day</p>	<p>MOOE Calamity Fund</p> <p>20% CDF of CLGU and BLGU</p>	<p>A612-01</p>

Priority Area 6: Sustainable Energy – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CC typology Code
	Short term (1-3 years)	Medium term (4-6 years)					
Training on Production of Charcoal Briquettes from Agriwaste to reduce deforestation and mangrove cutting	2 trainings on briquette making	2 trainings on briquette making	# of trainings conducted	TESDA DOST LGU/BLGU	Venue Meals Supplies/materials Honorarium of Speakers/ Php20,000 per day	MOOE of BLGUs	M314-08

Priority Area 6: Sustainable Energy – Urban Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
<input type="checkbox"/> Promotion of solar energy program <input type="checkbox"/> Installation of solar energy street lights	1000 establishments with solar energy facilities installed		At least 1000 establishments utilizing solar energy	CENRO, CEO	Manpower Gasoline and vehicle 30M	Private sector NGAs/ LOAN/ NGO	M614-02 M624-06
<input type="checkbox"/> (consider: waste to energy conversion, e.g. pyrolysis)							

Priority Area 6: Sustainable Energy – Coastal Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
Promotion of renewable energy program for households in coastal areas <input type="checkbox"/> Conduct feasibility study on possible utilization of solar energy in coastal households (willingness to pay & availability of counterpart) <input type="checkbox"/> Identification of households in coastal areas not yet served by Cotabato Light (as initial targets for solar energy program)	-I feasibility study on possible utilization of solar energy in coastal households		-# of feasibility studies conducted on utilization of solar energy in coastal households	(academe)	-logistics	CSO	M622-02
	-I survey conducted	- __ inventory of households utilizing solar energy -coastal households use alternative energy source	-no. of residents who signified to use solar energy # of inventory of households per coastal brgy. utilizing solar energy -no. of coastal households/brgy. who adopted the use of solar energy	NEA, CENRO, Brgy.	logistics	Private residents, NEA CGC	M624-06

Priority Area 6: Sustainable Energy – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
(Note: some PPAs not listed here but are considered under “Green Industries and Services”, have been primarily listed priority areas #2 and #5)							
Ensure sufficiency of (fresh) water supply for domestic and fishpond operations <input type="checkbox"/> Provision of water systems (e.g. solar- powered motor pumps)							
Promote alternative livelihood options in coastal areas <input type="checkbox"/> Training on how to utilize alternative options for charcoal-making <i>(e.g. coconut as charcoal brickets, paper charcoals, dried water hyacinth)</i>							
Encourage use of LED bulbs for households in coastal areas <input type="checkbox"/> Replace incandescent bulbs with LED bulbs (CoLight model)							



PRIORITY AREA 7: KNOWLEDGE AND CAPACITY DEVELOPMENT

Priority Area 7: Knowledge and Capacity Development – Agricultural Areas							
Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
(1)	(2a)	(2b)	(3)	(4)	(5a)	(5b)	(6)
Awareness Raising Program in Climate Change and Climate Variability Develop IEC materials on Climate Change and Climate Variability Information Campaign on climate change and climate variability to public and private HS and colleges	1 set of IEC materials developed	1 set of of updated IEC materials	# of IEC materials developed # of IEC materials updated	OCM-Info tech CENRO OCM-Agri DA/BFAR DENR	Supplies/Materials Computers	MOOE Calamity Fund LDRRMF	A713-01
	-2000 copies of IEC materials distributed -Conduct information campaign in 2 schools per month	- additional 8000 copies of IEC materials distributed	-# of IEC materials distributed -# of information drive conducted -# of people attending information drive -# of schools engaged	CENRO CDRRMO	Human resource Supplies/materials Travelling expenses		A713-02

Priority Area 7: Knowledge and Capacity Development – Agricultural Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required/Estimated Project Cost	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<p>Capacity Building to Climate Change and Climate Variability</p> <p>23. Training on climate change and climate variability</p>	-I Training of trainers on CC and CV for LGU personnel (15 pax)	-I TOT on climate change update	<p>-# of training of trainers conducted</p> <p>-# of men and women attendees</p>	LGU (Agri Div, OHS, OSWDS, CPDO), CENRO, CDRRMO I/NGO	Honorarium Training Kits Meals and Venue/ Php20,000 per day		A713-01 A713-04
24. Training on weather forecasting	-I TOT on Weather forecasting for LGU personnel (15 pax)	-I TOT on updated weather forecasting	<p>-# of training of trainers conducted</p> <p>-# of men and women attendees</p>	LGU (Agri Div, OHS, OSWDS, CPDO), CENRO, CDRRMO, I/NGO	Honorarium Training Kits Meals and Venue/ Php20,000 per day	Calamity Fund MOOE	
25. Training on climate change adaptable technology in farming	-2 skills training/ year on CC adaptable technology in farming	-4 skills training/ year on CC adaptable technology in farming	<p>-# of trainings conducted</p> <p>-# of men and women attendees</p>	DA LGU Trainers on CC and CV	Honorarium Training Kits Meals and Venue/ Php20,000 per day	20% CDF/Calamity of BLGU	
Training on adaptable technology in aquaculture	-2 skills training/ year on CC adaptable technology in aquaculture	-4 skills training/ year on CC adaptable technology in aquaculture	<p>-# of trainings conducted</p> <p>-# of men and women attendees</p>	BFAR LGU Trainers on CC and CV	Honorarium Training Kits Meals and Venue/ Php20,000 per day	20% CDF/Calamity of BLGU	

Priority Area 7: Knowledge and Capacity Development – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions/ Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Increase community involvement on DRRM/CCAM/M <input type="checkbox"/> Capacitate the community on DRRM/ CCAM (e.g. Standard first aid for community responses, CBDRRM) <input type="checkbox"/> Formulate BDRRM Plan/CCAM <input type="checkbox"/> IEC on DRR and CCA for schools and barangays	3 DRRM/CCAM community-level capacity building activities conducted - 20 barangays with BDRRM plan / CCAM plan 100% of barangays and schools given IEC on DRR and CCA	3 enhanced DRRM/CCAM capacity building conducted 37 Brgy with BDRRM plan/CCAMP -80% CSOs profiled	3 DRRM/CCAM community-level capacity building 3 enhanced DRRM/CCAM capacity building conducted At least 25 barangays with BDRRM plan and CCAM plan 80 % of barangays and schools given IEC on DRR and CCA	OHS, CDRRMO, CENRO Barangay LGUs CDRRMO, CENRO, OHS, OSWDS Barangay LGUs CDRRMO, CENRO, OHS, OSWDS DEPED, Barangay LGUs	Human resource Supplies and materials Food Travel expenses 150,000 Refer to LDRRMP	Calamity Fund (LGU/BLGUs) BLGU Fund CENRO	A713-01 A713-04
Implementation of PPP at the local level <input type="checkbox"/> CSO profiling/meeting <input type="checkbox"/> CSO accreditation	- 2 CSO profiling/meeting activity held -80% CSOs profiled - 2 CSO accreditation activity held	2 CSO profiling activity held 60 % of CSOs profiled	CSO accreditation activity held at SP	OCM-Info. Div. CPDO, OSWDS CMA CPDO/OCM OSWDS SP	Manpower Office Supplies Travel expenses Office supplies Meals NONE	MOOE of departments/offices concerned	

Priority Area 7: Knowledge and Capacity Development – Urban Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
<input type="checkbox"/> Conduct CSO summit	-100% CSOs accredited		80 of CSOs accredited	CMA			
	1 CSO summit held/year		1 CSO summit held/year	CPDO, CMA, OCM-Info.	Office supplies Meals	CSOs	
Strengthening city-level institutional capacities for DRRM (*also in draft LDRRMP)							
<input type="checkbox"/> Conduct of trainings on DRRM (incident command system level 3, Communication Protocol, WASAR, PDRA, RDANA, PDNA, Stress debriefing for responders)	2 DRRM training conducted (2018 and 2019)	2 DRRM enhancement training conducted (2020)	2 trainings conducted per year 2 of DRRM enhancement training conducted	CDRRMO, OHS, OSWDS, RED CROSS, DEPEd	-Modules -Supplies and materials -Meals -Resource persons -Travel expense Refer to LDRRMP	Calamity Fund/NGO/OCD	A713-03 A713-04

Priority Area 7: Knowledge and Capacity Development – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
I	(2a)	(2b)	(3)	(4)	(5a)	(5b)	
Capacity-building for coastal barangays on DRRM and CCAM <input type="checkbox"/> Conduct of risk assessment and documentation of actual sea level rise cases (and other related impacts of climate change in coastal/marine resources) <input type="checkbox"/> capacity building activities for fisherfolks, barangay officials and residents (to address illegal mangrove cutting & “sudsod”) on fishery law <input type="checkbox"/> Enforce regulation on different sizes and types of fishnets based on BFAR Standards	- / Risk assessment / documentation of actual sea level rise cases done (CBDRRM training/roll-out)		-# of risk assessment / documentation on SLR done -# of CBDRRM trainings for the 3 coastal barangays	3 Coastal barangays OCM-Agri. Div. CENRO CDRRMO	Logistics Venue Meals	MOOE Calamity Fund of 3 coastal barangays	A713-01 A713-03
	- __ capacity building activity conducted for fishery laws	- __ capacity building activity conducted annually for fishery laws	- / capacity building activity conducted annually on fishery laws per barangay	Barangay officials OCM-Agri. Div. BFAR ICCAFC, FARMC	Logistics Venue Meals	-DENR -MOOE of 3 coastal barangays	A713-04
	__ local legislation enforced		-# of local legislation enforced for regulation of fishnets	BFAR, CENRO OCM-Agri. Div.	logistics	MOOE of OCM-Agri. Div.	A713-04
	__ monitoring activities conducted		-# of monitoring activities for regulation of fishnets		logistics		
(Note: some PPAs not listed here but are considered under “Green Industries and Services”, have been primarily listed priority areas #1, #5, #6)							
Strengthen the City FARMC <input type="checkbox"/> Conduct training of trainers and							

Priority Area 7: Knowledge and Capacity Development – Coastal Areas

Programs, Projects, Activities (PPAs) and Policies	Targets of PPAs and policies		Indicators	Institutions / Sectors / or Department involved / in-charge	Resources Required	Fund Sources	CCET typology
	Short term (1-3 years)	Medium term (4-6 years)					
roll-out training (leadership training, training on new technologies for fishpond operations)							
Promote alternative livelihood options in coastal areas <input type="checkbox"/> Training on how to utilize alternative options for charcoal-making <i>(e.g. coconut as charcoal briquettes, paper charcoals, dried water hyacinth)</i>							
Promotion of solar energy program for households in coastal areas <input type="checkbox"/> Identify # of households in coastal areas not yet served by Cotabato Light <input type="checkbox"/> Information dissemination							



B. Prioritized PPAs

Presently the local government of Cotabato City has focused in formulating long term program of activities in all sectors. The primary focus presently is on improvement of agricultural and aquaculture practices of the people by introducing modern and organic techniques that are disaster resilient in both sectors. Secondly, the City Government is focusing on increasing eco- tourism development of feasible areas for this will provide additional income, employment and environment preservation.

The government is starting to invest in capability building towards environment friendly practices in the community which includes solid waste management programs and go green activities which will help in provding additional sources income and will promote envirmenetal protection and preservation.

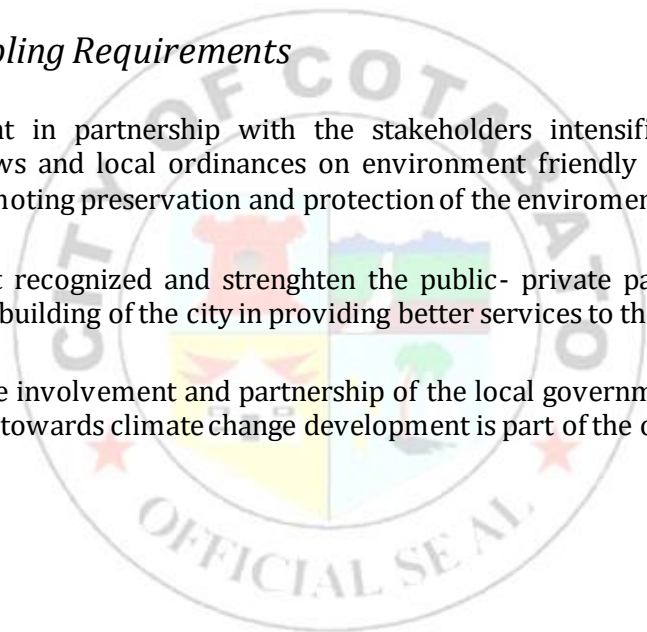
The local government is currently prioritizing the building of disaster resilient and environment friendly infrastructure around the city that can promote safe structures for the people specially during disaster and extreme weather conditions.

C. Identified Enabling Requirements

The local government in partnership with the stakeholders intensifies the formulation and implementation of laws and local ordinances on environment friendly activities as an effective measure towards promoting preservation and protection of the enviroment.

The local government recognized and strenghten the public- private partnership relationship as vital part of capability building of the city in providing better services to the people.

The ehancement of the involvement and partnership of the local government in the community as the most effective tool towards climate change development is part of the overall agenda.



V. MONITORING AND EVALUATION (M&E)

Although Cotabato City has come up with a Local Climate Change Adaptation Plan (LCCAP) that will serve as one of its guides for its long-term development, the Program, Plans and Activities (PPAs) identified are subject to evaluation and analysis. If the PPAs are found to be ineffective, or with gaps, or not delivering the impacts/s expected, they are subject to amendments or improvements.

Monitoring and Evaluation (M&E) will focus on the management of project activities in order to improve efficiency and over-all effectiveness of project implementation. Monitoring will be done to review the efficiency of the PPAs and to collect and analyze data that can provide necessary information to help the LGU set its priorities, policies and yearly budgets.

Specifically, the system aims to:

1. Check on what PPAs have been done and how they have been implemented;
2. Measure and track progress and impacts of identified PPAs during mid-program implementation;
3. Evaluate the applicability of PPAs to the communities where they are being implemented;
4. Determine unexpected/unintended impacts, if there are any;
5. Identify needs and constraints (e.g. technical, human and financial resources); and
6. Aid the LCCAP Core team to make corrective actions and recommendations.

Post evaluation will be conducted during the end of the whole program on year 2022 which will provide fundamental strategies and lessons learned that will be considered in the development of the next LCCAP.

A. M&E Team

COMPOSITION

The Monitoring and Evaluation team will consist of government and non-government stakeholders with different sectoral representation on Education, Health, Youth, Social Welfare, Policy, Economic, and other clusters in the City to get a better and objective evaluation result. The team shall be a coordinative body and shall be established through an Executive Order. The CENRO will take the lead in the M&E process, the DILG as their co-lead.

As per Section 1 of the EO ___, December 2016, the M&E Team shall be composed of the following offices and organizations:

Chairman – CENRO

Vice-Chairman – DILG

Members:

- LGU Offices – City Disaster Risk Reduction and Management Office
- City Engineering Office
- Office on Health Services
- Office on Social Welfare and Development Services
- Office of the City Mayor – Agriculture Division
- Office of the City Mayor – Community Affairs & Coop. Services
- City Planning and Development Office (CPDO)
- President, Liga ng mga Barangay

Local NGOs – MYROI
 Christian Muslim Association (CMA)
 MOSEP

Representative of:
 Local PNP
 Local BFP
 Academe – Cotabato City State Polytechnic College
 Bureau of Fisheries & Aquatic Resources
 Notre Dame University

Secretariat: CENRO Staff

BUDGET

The M&E Team shall be provided with a budget by the City Government of Cotabato in doing key M&E activities. Budget will be taken from the Maintenance and Other Operating Expenses (MOOE) of the CENRO.

Table 31: Costing for M & E

Key M&E Activities	Transportation	Meetings	Documentation	Dissemination	Other Direct Costs
Activity 1 e.g. Field Assessment/Data Gathering	150,000	100,000	50,000	100,000	100,000
Activity 2 e.g. Data Analysis	200,000	150,000	50,000	100,000	100,000
Activity 2 e.g. Post-monitoring meeting/Post-evaluation meeting	250,000	200,000	50,000	100,000	100,000

FREQUENCY OF M&E

The M & E Team shall be provided with a budget by the City Government of Cotabato in doing key M&E activities. Budget will be taken from the Maintenance and Other Operating Expenses (MOOE) of the CENRO.

Monitoring of the implementation of the PPAs will be done annually. Community is encouraged to conduct a regular feed backing on the output, outcome and impacts of the interventions made. Re-assessment of the activities that have negative results or have ineffective outcome will be discussed and planned during the updating. Evaluation of the results from the yearly monitoring will be done by the M&E Team immediately after the monitoring has been done. Analyzing what are the main factors for hindrances to achieve the desired goal will be taken into action closely right after the presentation of monitoring outputs. The result of consistent monitoring will be reported during regular meetings, and in-depth analysis of the outcome can be done through consultations, mapping and workshops.

Periodic mid-program evaluation will be done every three (3) years to assess the impacts of the PPAs. Such assessment will also determine how effective the whole plan is to Cotabato City and its population.

B. M&E Plan and Target

The monitoring tool for Cotabato City LCCAP 2017-2023 was developed based from the suggested LCCAP M&E tool from DILG MC 2013-1. Enhancements done are show by the addition of columns 1 (PPAs and CCET code), 2 (project cost), 5 (data collection methods), and 7 (actual disbursement / percentage). Table 16 shows the description of columns in the M&E tool:

Table:32
M&E tool for Cotabato City LCCAP 2017-2022

Column	M&E information	Description
1	PPAs / CCET code	<i>Programs, projects, activities (PPAs) identified in the plan and the corresponding climate change expenditure typology (CCET) from the DBM-CCC-DILG JMC 2015-1.</i>
2	Project cost	<i>Shows indicative budget from the plan.</i>
3	Baseline data	<i>Information on the current conditions used as reference with which future expected results can be compared to</i>
4	Expected outputs and OVI Year: _____	
5	Data collection methods	<i>How will we get the data? Interviews, focus group discussions, surveys, workshops, field visits, and scorecards may be used. The methods depend on the available time and resources, and the depth of information required.</i>
6	Actual accomplishments	<i>show status of physical accomplishments versus expected outputs/targets and objectively verifiable indicators. Done by year and may be expressed in units or percentage, etc.</i>
7	Actual disbursement / percentage	<i>shows status of financial accomplishments versus project cost</i>
8	Justifications and comments	

PRIORITY AREA I: FOOD SECURITY

Priority Area I: Food Security – Agricultural Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: _____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Program on improvement of agricultural and aquaculture practices</p> <p>Piloting of organic demo farms (mixed crops)</p> <p>Establishment of Demo Farms</p> <p>Establishment/Promotion of City Agri-tourism</p> <p>Promotion of agri-tourism to schools, local offices and other municipalities in nearby provinces through social media, local radio and tv shows, newspapers, invitations, training programs, tie-ups and partnerships with colleges,</p>		<p>Absence of identified and established organic farms in the agricultural barangays</p> <p>Some farmers in Brgy Kalanganan 2 are growing organic rice.</p>	<p>At least 3 farms practicing organic farming in each agri. Barangay</p> <p>Widespread and effective promotional activities of agri-tourism conducted</p>	<p>Site visit</p> <p>OCM-Agri and DA data</p>			

Priority Area I: Food Security – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: _____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<p>Production and Distribution of climate-resilient rice variety for agri. Barangays</p> <ul style="list-style-type: none"> • Identification and establishment of seed production farm • Train rice farmers for seed production of indigenous climate resilient rice variety • Forging of MOA with trained seed producers • Distribution of seeds to farming families <p>Creation of and Sustaining Alternative Livelihoods for Farmers and Fish Pond Operators</p> <ul style="list-style-type: none"> • Scoping of available alternative livelihood support from NGAs and I/INGOs 		<p>Nonexistence of identified/established seed production farm for climate-resilient rice variety</p> <p>Farmers have not undergone training on growing and production of climate-resilient rice variety</p>	<p>At least 7 hectares of land are identified for seed production farm</p> <p>Majority of farmers in agri. Barangays are well-trained on production of climate-resilient rice variety</p>				


Priority Area I: Food Security – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: _____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<ul style="list-style-type: none"> • Identification of men and women Farmers Association (FA) and Fish Pond Operators (FPO) to be granted alternative livelihood programs • Assessment of appropriate alternative livelihood • Conduct of trainings for alternative livelihood sources <p>Technical Assistance on Project Proposal Preparation (for accessing soft loans from NGAs)</p> <ul style="list-style-type: none"> • Conduct of operations and management training of alternative livelihoods 		<p>Available alternative livelihood support from DA ,BFAR, OCM-Trade & Industry, DTI, USAID, Villar Foundation, DSWD, DOLE, TESDA, MCCIFI</p> <p>A total of 55 identified FAs and FPOs for alternative livelihood projects</p> <p>Conducted trainings on fish processing and other by-products of major produce (e.g. bottled bangus sardines, shrimp kropek, bangus deboning, smoked fish, bagoong making), dressmaking, bag making (from water hyacinth), handicraft</p>	<p>Identification of NGAs and NGOs/INGOs that can provide additional livelihood financial and technical support</p> <p>At least a total of 6 Fas/FPOs have been selected for each year of implementation</p> <p>At least 1 training for every identified alternative livelihood per year</p>				

Priority Area I: Food Security – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<ul style="list-style-type: none"> • Conduct of training for skills and technology upgrading • Conduct of business matching <p>Policy on “Use of Idle lands for agricultural and aquaculture purposes”</p> <ul style="list-style-type: none"> • Conduct research on/inventory of available idle lands for agricultural use • Sponsorship of policy for legislation • Drafting of policy • Contract with private land owners, farmers, LGU 		<p>making (e.g. corn husk)</p> <p>Conducted trainings on simple bookkeeping and accounting (DT/OCM-Trade & Industry), packaging & labeling, marketing of products</p> <p>Conducted crab fattening training last CY 2014</p> <p>Conduct of business matching by DTI and OCM-Trade & Industry for farmers/fishpond operators with resellers (supermarkets) and restaurants</p>	<p>At least 2 trainings on operations and management (e.g. FS preparation, project proposal preparation) per year</p> <p>At least 6 FAs and FPOs trained on operations and management</p> <p>At least 2 trainings on skills and technology upgrade conducted</p>				

Priority Area I: Food Security – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
		Absence of inventory of available idle lands for agricultural purposes	 <p>1 list of identified idle lands for agricultural use</p> <p>At least 2 consultations with key stakeholders</p> <p>1 policy drafted and approved</p> <p>At least 2 signed contracts between private landowners, the farmers and the LGU</p>				

Priority Area 1: Food Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Adopt the National Policies on Greening Program to the communities</p> <ul style="list-style-type: none"> <input type="checkbox"/> Enforcement of Policies through Executive Order (EO) or ordinances A111-01 <input type="checkbox"/> Sustaining the “<i>Gulayan sa Barangay</i>” initiatives (all barangays have current initiatives) A111-02 		<p>Absence of Exec. Order or ordinance on the enforcement of National Policies on Greening Program</p> <p>26 barangays have current initiatives on “<i>Gulayan sa Barangay</i>”</p>	<p>1 E.O. or Ordinance is issued on enforcement of National Policies on Greening Program (Year 2)</p> <p>26 barangays have sustained and maintained their “<i>gulayan</i>” within plan period (Year 3)</p>	<p>Interviews and review of document (E.O. or ordinance)</p> <p>-Review of Accomplishment Reports -Actual field/site visitations</p>			

Priority Area I: Food Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Promotion of urban greening initiatives (e.g. hydroponics and vertical / urban gardening)</p> <p><input type="checkbox"/> Conduct of information and education campaign (IEC) A113-01</p>		IEC on hydroponics and vertical/urban gardening is not yet done in Cotabato City	<p>3-5 forums held in all urban barangays/year</p> <p>3-5of posters distributed in all urban barangays/year</p>	<p>-Validation of accomplishment reports from OCM-Agri.Div.</p> <p>-Ocular inspection of all urban barangays</p>			
<p><input type="checkbox"/> Conduct community capacity building A113-01</p>		No training/s on hydroponics and urban/vertical gardening has been conducted	<p>-6 barangays trained (Year 2)</p> <p>-5 barangays trained/year</p>	<p>-Validation of accomplishment reports from OCM-Agri.Div.</p> <p>-Ocular inspection of all urban barangays</p>			

Priority Area I: Food Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Ensure availability and adequacy of food and non-food supplies (health & other essential commodities)</p> <p><input type="checkbox"/> Memorandum of Agreement (MOA) / Memorandum of Understanding (MOU) with public and private sectors (e.g. NFA / Mercury drugstore/ Puregold/ Superama) AI 13-02</p>		<p>Absence of MOA/ MOU forged between the LGU and the public and private sector</p>	<p>1 MOA/MOU forged with public and private sector (Year 2)</p>	<p>Interviews and actual review of documents</p>			
<p><input type="checkbox"/> Stockroom accessible to constituents/AI 14-04</p>		<p>Absence of accessible stockroom</p>	<p>1 stockroom constructed and made accessible to constituents (Year 3)</p>	<p>-Ocular inspection/validation -Review of Project Completion report/s</p>			

Priority Area I: Food Security – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Strengthen the City Fishery and Management Council (FARMC)</p> <p><input type="checkbox"/> Conduct training of trainers (ToT) and roll-out training/A113-05 (leadership training, training on new technologies for fishpond operations)/</p>		<p>Absence of ToT trainings conducted for FARMC on leadership and new technologies in fishpond operations</p>	<p>-1 TNA conducted for FARMC Officers - 100% of FARMC male & female members who participated in the TNA (Year 2) -100% of fishpond operators and workers already adopting new technologies (Year 3)</p>	<p>-Review of Project Completion report/s -Interview of participants -Ocular inspection/validation</p>			
<p>Ensure good quality and sufficient supply of aquamarine products</p> <p><input type="checkbox"/> adoption of organic feeds and fertilizers (organic lime) and gradual phase out of synthetic fertilizers/A122-05</p>		<p>Fishpond operators still uses synthetic fertilizers in their operations</p>	<p>-2 trainings on use of organic feeds, fertilizers and pesticides conducted (Year 2)</p>	<p>-Review of Project Completion report/s -Actual interview</p>			

Priority Area I: Food Security – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
			- # of male and female participants - 1 local legislation passed supporting the use of organic lime in fishpond operations (Year 2)				
<input type="checkbox"/> construction of organic feed mill for aquaculture and livestock development (ongoing and currently programmed under DA)		Absence of feed mill for aquaculture and livestock development	1 feed mill constructed (Year 3)	-Review of Project Completion report/s -Ocular inspection			
<input type="checkbox"/> MOA on rental/purchase of heavy equipment (e.g. baby backhoe, floating power tiller, crane) for fishpond development / dredging (also to address siltation)		Absence of MOA/contract for rental of heavy equipment for fishpond development between city/brgy. LGU and private contractors Absence of heavy equipment purchased for fishpond development	1 MOA/contract forged (Year 2) # of heavy equipment purchased for fishpond development (Year 3-4)	Review of documents -Ocular inspections -Review of document			

Priority Area 1: Food Security – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<input type="checkbox"/> Monitoring and evaluation for the program		Absence of organized TWG for monitoring activities	-I TWG organized for monitoring activities (Year 3) -conducted quarterly monitoring activities (Year 4-6)	-Review of document			

PRIORITY AREA 2: WATER SUFFICIENCY

Priority Area 2: Water Sufficiency – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Program on New water Supply Infrastructure for Waterless Communities (Irrigation Program) <ul style="list-style-type: none"> • Creation of TWG and identification of barangays to receive shallow tube wells (STW) • Preparation and submission 		Barangays Tamontaka 4 & 5 are recipients of STWs from DA.	I TWG created Additional barangays identified to receive STWs				

Priority Area 2: Water Sufficiency – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<p>of request for STW to NIA</p> <ul style="list-style-type: none"> • Site visitation and verification • Installation of STW as source of irrigation <p>Implementation of Water Harvesting Technologies (Water Security Project for Communities with No Source of Potable Water)</p> <ul style="list-style-type: none"> • Creation of TWG on water security project for areas with no potable water supply • Identification of HH beneficiaries in Brgy Kal I • Clustering of HH • Technical training on operation of rainwater catchment system • Pilot testing on communal 		<p>Other agri. Brgys don't have STWs.</p> <p>Agri. Brgys in Tamontaka have already been identified for NIA's irrigation project but project was hindered by residents whose property will be affected by the project.</p> <p>Nonexistence of TWG on water security project</p> <p>Agri. Brgys in Kalanganan are dependent on the river's tides for irrigation.</p>	<p>5 STWs installed per year</p> <p>100% of waterless communities in agri. Barangays with installed STWs</p> <p>I TWG created</p> <p>List of identified HH beneficiaries</p> <p>At least 12-15 clusters</p>				

Priority Area 2: Water Sufficiency – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<p>rainwater catchment</p> <ul style="list-style-type: none"> Construction of rainwater catchment suited for the area <p>Expansion of Water System Program in Kalanganan 2 and Kalanganan Mother</p> <ul style="list-style-type: none"> Coordination and Consultation with MCWD Submission of proposal to NGA Installation of reservoir Installation of water lines 		<p>Nonexistence of available rainwater catchment system in identified communities</p> <p>Water pipelines from MCWD are already installed in Kalanganan MB and 2</p> <p>Low water pressure</p> <p>Insufficient water lines to serve all HHs</p> <p>Existing MCWD study on use of river as source of water</p>	<p>with 30 HH per cluster per year</p> <p>At least 1 consultative meeting between LGU, MCWD and concerned BLGU per year</p> <p>At least 1 project proposal submitted to NGA per year</p> <p>1 reservoir constructed in every identified barangay</p> <p>100% water lines are installed</p>				

Priority Area 2: Water Sufficiency – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Ensure sufficient (potable) water supply</p> <p><input type="checkbox"/> (continuous) water distribution to community level / water Rationing assistance in coordination with the service groups/agencies/A214-02</p>		<p>MCWD has 1 water tanker used in water distribution</p> <p>Water refilling stations provides potable water to the city's constituents</p> <p>Absence of MOA with BFP, Chinese Auxiliary Volunteer and water refilling stations on water rationing/distribution</p>	<p>27 urban barangays benefitting from water distribution (Year 3)</p> <p>3 units water tankers procured by the LGU (Year 4)</p> <p>2 units of water tankers procured by MCWD (Year 3)</p> <p>1 MOA forged with BFP, Chinese Auxiliary Volunteer and water refilling stations (Year 1)</p>	<p>-Interviews -Review of Accomplishment Reports</p> <p>-Inspection -Review of Project Completion Reports</p> <p>Actual inspection of document/s</p>			

Priority Area 2: Water Sufficiency – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
Conduct community capacity and awareness building on water conservation and water-demand management/A213-03		Insufficient advocacy on water conservation and water-demand management	1 meeting conducted on water conservation and water-demand management per year	-Review of Minutes of Meeting			

Priority Area 2: Water Sufficiency – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Water purification program for (non-potable) water supply Provision of water purification treatment (e.g. Aqua tablets, waterine) for displaced families during calamities /A234-01		- About 800 families were displaced during the last flooding in the city -a family of 5 consumes 10 liters of potable water/day -a 67mg. aquatablet can purify 20 liters of clear water	Daily water purification treatment provided	-Review of Project completion report/s -Field/ocular inspections -Interview with project recipients			

Priority Area 2: Water Sufficiency – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
		-2 pieces 67 mg. aquatable can purify 20 liters of cloudy water					
water desalination/A234-01		Absence of desalination equipment	2 desalination equipment purchased (Year 3)	-Review of Project completion report/s -Actual inspection of equipment			
utilization of treated septage discharge/A212-03, A214-06		On-going negotiation with financing institutions to finance the LGU's SEPTAGE PROJECT	1 reservoir constructed for treated wastewater (septage) (Year 2)	-Review of Project completion report/s -Actual inspection			



Priority Area 2: Water Sufficiency – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Ensure sufficiency of (fresh) water supply to coastal barangays [for domestic (potable) use and for fishpond operations]</p> <p><input type="checkbox"/> Provision of water supply systems to coastal barangay</p>		<p>-50% of household in Kalanganan MB is not covered by the water system of MCWD -Kalanganan I is not covered by the water system of MCWD</p>	<p>3 coastal barangays with continuous water supply</p>	<p>-Field visits/Ocular inspections -Interviews</p>			
		<p>-Households from Kal. MB & Kal. I not covered by the MCWD's water system depend on hand pumps and other water sources for household use and fishpond operations</p>	<p>1 inventory report of hand pump users per coastal barangay (Year 2)</p>	<p>-Field visits/Ocular inspections -Interviews</p>			
			<p>-3 coastal barangays pilot-tested / utilizing</p>	<p>-Field visits/Ocular inspections</p>			

Priority Area 2: Water Sufficiency – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
			solar-powered motor pumps (Year 3)	-Review of Accomplishment Reports			
			At least 2 possible water sources identified (Year 3)	-Field visits/Ocular inspections -Interviews			

PRIORITY AREA 3: HUMAN SECURITY

Priority Area 3: Human Security – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
Assessment of CC and CV impacts on livelihoods and poverty with emphasis on vulnerable communities (farming and fishing)		Conducted assessment on drought impacts on farming and fishing communities in years 2015 and 2016	Continuous and comprehensive assessment of CC and CV impacts on highly vulnerable agri. Communities				
Training for health emergency preparedness and response		Trainings conducted for BHWs and midwives in 2014: SPEED	1 Comprehensive yearly trainings on health emergency preparedness and response				

Priority Area 3: Human Security – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<p>Installation of Early Warning Systems</p>		<p>(Surveillance in Post Extreme Emergency Disaster), PIDS (Phil. Integrated Disease Surveillance & Response) and Brgy Alerto sa Sakit at Epidemya</p> <p>Trainings conducted for BDRRM response teams of flood-prone agri. barangays in 2016: Basic Life Support (BLS), Simple First Aid (SFA) and WASAR</p> <p>Indigenous early warning system (e.g. ringing of church bell and use of sound system of mosque to warn communities, movement of bangus in fishpond to warn of sea level rise and behavior of dogs to warn of possible disaster)</p>	<p>All BHWs/Midwives and BDRRM response teams are well-prepared to respond effectively in times of emergency</p> <p>EWS installed and operational in all at-risk agri. Barangays</p>				

Priority Area 3: Human Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Implementation of city master plan for flood control</p> <p><input type="checkbox"/> Formulation and adoption of the city master plan for flood control programs/A421-01</p>		<p>Absence of City Master Plan for Flood Control</p>	<p>1 Master Plan adopted and implemented (Year 2)</p> <p>-At least 75% reduction in the number/occurrence of flooding</p>	<p>Actual inspection of document/s</p> <p>-Review of Accomplishment Report/s</p> <p>-Field visits/ocular inspections</p>			
<p><input type="checkbox"/> De-clogging and dredging / de-silting of major rivers/A634-07</p>		<p>-DPWH undertakes the dredging of the city's major rivers.</p> <p>-The LGU has current initiatives in de-clogging and dredging/de-silting of its major rivers</p>	<p>-Monthly dredging/ de-silting activities of 2 major rivers</p> <p>-75% reduction in siltation levels</p>	<p>-Review of Accomplishment Report/s</p> <p>-Field visits/ocular inspections</p>			

Priority Area 3: Human Security – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<input type="checkbox"/> Clearing of water ways and rivulets/A634-07		Waterways and rivulets are periodically cleared by the LGU	-Weekly de-clogging/clearing operations for 12 waterways and rivulets	Review of Accomplishment Report/s -Field visits/ocular inspections			
Priority Area 3: Human Security – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<input type="checkbox"/> Procurement of amphibious excavator /A634-07		Currently, the LGU has 2 amphibious excavator	2 of amphibious excavators purchased (Year 3-4)	Review of Accomplishment report/s -Actual inspection			
Strengthen existing efforts for prevention of (climate-related) disease outbreaks and other incidents							

Priority Area 3: Human Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<input type="checkbox"/> Reactivate community health teams		There are 26 community health teams that are inactive	26 of community health team reactivated (Year 2)	-Review of Accomplishment report/s -Interviews			
<input type="checkbox"/> Conduct capacity building for healthcare providers A413-01/A413-04		Health care providers have not yet undergone CCA-related capacity building activities	4 seminars conducted annually	-Review of Accomplishment report/s -Interviews -Review of documents (Training Design, etc.)			
<input type="checkbox"/> Community awareness/Promotion on preventing disease and outbreaks A413-02		Community awareness activity on prevention of diseases and outbreaks are being done during Mother's Classes only. -Insufficient IEC materials on prevention of disease and outbreaks	-1 Poster/Flip chart per health center per barangay (Year 2) - 2 to 3 forums per month per barangay on the following topics: hygiene, sanitation, healthy life style and nutrition - 2 Mother's Class per month per barangay	-Review of Accomplishment report/s -Interviews -Review of documents (Training Design, etc.)			

Priority Area 3: Human Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<input type="checkbox"/> Augmentation/procurement of additional vaccine to strengthen regular immunization program to prevent diseases (vaccine-preventable diseases)		90% of the vaccine of the OHS is provided by DOH	- 10% augmented in the volume of vaccines procured per year	-Review of Accomplishment reports -Ocular Inspection			
Institutionalization of emergency response team <input type="checkbox"/> Creation of Barangay Emergency Response teams (BERT) <input type="checkbox"/> Capacity-building activities for BERT (e.g. BLS, WASAR, SAR, SFA, MCI, RBOM, Psychosocial First Aid, etc.)/A423-02,A423-03		BERT are not yet created in the barangay	37 BERT created (Year 2) 37 barangays with skills enhancement on emergency response skills conducted (Year 2-3)	Review of document/s -Review of Accomplishment reports -Review of Training documents -Interview			

Priority Area 3: Human Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
			37 barangays with rescue and response equipage procured (Year 2-3)	-Review of procurement documents -Ocular inspection			
<p>Synergize implementation of policies and programs related to DRR and CCAM/A421-01 <i>(*activities for possible integration to the LDRRMP)</i></p> <p><input type="checkbox"/> Amplify laws through local legislative actions</p>		Absence of inventory of DRRM-CCAM related laws and policies	1 inventory conducted on DRRM-CCAM related laws and policies (Year 1)	Review of document			
<p><input type="checkbox"/> Strengthen Private School's DRR Programs</p>		Absence of ordinance requiring private schools to formulate their DRRPlan	-1 ordinance passed (Year 1) -All private schools with regularly updated DRR Plan (Year 2)	Review of document			
<p><input type="checkbox"/> Strengthen Disaster Preparedness and</p>		Absence of Evacuation Plan at the city and barangay level	1 Evacuation Plan formulated for the city and in each barangays	Review of document			

Priority Area 3: Human Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
Response Plans (Contingency Plan-CP)/A423-01, A424-05		Absence of contingency plan for earthquake, tsunami storm surges and other hazards Contingency Plan for high density gathering needs to be updated	(Year 2) 1 Contingency Plan for other hazards formulated (Year 2) Updated 1Contingency Plan for high density gathering (Year 2)	Review of document Review of document			
<input type="checkbox"/> Improve mechanisms for early warning system (EWS) A424-10		Absence of formulated EWS systems and installed EWD devices in the barangays Absence of IECs and signages on EWS in the barangays	37 barangays with formulated EWS and with installed EWD devices (Year 2) 37 barangays with EWS IECs and signages installed (Year 2-3)	Ocular inspection/s Field visitation/s			
<input type="checkbox"/> Re-operationalize and maintain the Automated Weather System (AWS)/A423-02		Absence of MOA with PAGASA on the establishment of weather forecasting station	-1 MOA forged (Year 2) -1 fully fuctional forecasting station established and maintained with 2-3 technical persons operating the AWS (Year 3)	-Review of document -Ocular inspection/s			
<input type="checkbox"/> Risk assessment on		27 barangays have done	10 remaining barangays have	-Review of			

Priority Area 3: Human Security – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
hazard, vulnerability and capacity/A422-02, A422-04		community-level PCVA	done community-level PCVA (Year 2) 37 barangays with updated PVCA (Year 2) I regularly updated integrated (city-level) database established on human resource, equipment, directories and location of critical infrastructure (Year 2)	Accomplishment report -Field visit and interviews			
<input type="checkbox"/> Establishment of Emergency Operation Center (OpCen)/A422-05		Absence of OpCen	1 fully functional OpCen constructed (Year 3)	-Review of Accomplishment Report -Ocular inspection/s			

Priority Area 3: Human Security – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Strict enforcement of RA 10654 to address illegal fishing</p> <p><input type="checkbox"/> Provision of adequate personnel and equipage for law enforcement in coastal areas</p>		<p>Absence of organized Bantay Dagat</p> <p>LGU has 1 lighthouse located at Kalanganan Mother Barangay</p>	<p>-3 Bantay-Dagat organized and strengthened (1 per coastal barangay) (Year 2)</p> <p>-1 fully-functional lighthouse (Year 2)</p> <p>-75% reduction in cases of illegal fishing (Year 2-3)</p> <p>-100% reduction in cases of illegal fishing (Year 4-onwards)</p>	<p>-Review of Accomplishment Reports</p> <p>-Field Visitation/ Ocular inspection</p>			

PRIORITY AREA 4: ECOLOGICAL AND ENVIRONMENTAL STABILITY

Priority Area 4: Ecological and Environmental Stability – Agricultural Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Seedling production and management of mangrove nursery</p> <ul style="list-style-type: none"> Seedling production Establishment of additional mangrove nursery Mangrove planting activities to include bamboo trees 		<p>Cot. City does not produce mangrove seedlings and does not have its own nursery.</p> <p>Existing sources for mangrove seedlings is Lebak and otherneighbouring coastal municipalities</p> <p>Rehabilitation of mangrove areas was done from 2013 to 2016 (NAFC funded)</p>	<p>10K seedlings are produced yearly;</p> <p>At least 2 well-managed mangrove nurseries in coastal barangays;</p> <p>Decreased dependency of the city for seedlings on other coastal municipalities;</p> <p>Mangrove nurseries in the city are capable of selling seedlings to other coastal municipalities</p> <p>1 hectare of coastal area planted with mangroves and bamboo trees per year</p>				

Priority Area 4: Ecological and Environmental Stability – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<p>Conservation and protection of existing mangrove areas</p> <p>A. Formulation of Ordinance</p> <ul style="list-style-type: none"> • Creation of TWG (Assessor's office and CENRO) • Baseline data gathering/Conduct of field survey on current coverage of mangroves • Drafting of request • Formulation of ordinance on identification of mangrove protected areas (>5 ha) <p>B. Implementation of Ordinance</p> <ul style="list-style-type: none"> • Creation of barangay bantay bakawan (BBB) team <ul style="list-style-type: none"> • Installation of signages of protected areas along river banks 		<p>Nonexistence of TWG</p> <p>Coverage of mangroves is more extensive in Kalanganan MB compared to the other coastal barangays.</p> <p>Existing ordinance is on "Mangrove Cutting Ban"</p> <p>Bantay Dagat has been created but is currently not functioning.</p> <p>DENR signages in Kalanganan MB and 2 only</p> <p>Nonexistence of signages and fencing of protected mangrove areas in other coastal barangays</p>	<p>TWG created</p> <p>1 Site inspection of mangroves every 3 months</p> <p>1 Ordinance on conservation and protection of existing and newly-established mangrove areas</p> <p>Reactivation of Bantay Dagat; Creation of 1 Barangay Bantay Bakawan team per barangay situated in river banks</p> <p>100% of identified protected mangrove areas in coastal barangays have signages (DENR and LGU)</p>				

Priority Area 4: Ecological and Environmental Stability – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Intensify environmental / sanitation program implementation</p> <p><input type="checkbox"/> Management of waste produced by the city/ M323-01 M324-02, M324-04</p> <p><input type="checkbox"/> Establishment of City waste processing System/A232-01, A234-03</p>		<p>10 barangays have MRF but needs reactivation</p> <p>Out of 85 public & private (all level) schools, 23 have MRF</p> <p>LGU's had initiated IEC on SWM (e.g. recorda", Leadership by Example) but were not sustained</p> <p>Cleanest and Greenest barangay was initiated but was not sustained</p> <p>Negotiations with funding institutions is on-going for the establishment of an eco-park in the city</p>	<p>26 barangays with established MRF (Year 2)</p> <p>100% of schools with established MRF (Year 2)</p> <p>Conducted 2-3 IEC in each barangay and different establishments/year</p> <p>Conducted annual Cleanest and Greenest Barangay (with emphasis on recycling and presence of MRF)</p> <p>1 Eco-park established</p>	<p>-Review of Accomplishment Reports -Validation thru ocular inspection</p> <p>-Review of Accomplishment Reports -Validation thru ocular inspection</p> <p>-Review of Project Accomplishment Report -Ocular inspection/s</p> <p>-Review of Project Accomplishment Report -Ocular inspection/s</p>			

Priority Area 4: Ecological and Environmental Stability – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments

Priority Area 4: Ecological and Environmental Stability – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Strict enforcement of mangrove preservation laws <input type="checkbox"/> Declare mangrove areas as protected areas (ongoing preparation of Integrated Coastal Management policy; with ordinance on cutting and selling of mangroves)		<u>Absence of:</u> a. legislation on mangrove preservation b. inventory of mangroves areas in the city c. co-management agreement on mangrove management between the LGU and coastal residents	I legislation passed and implemented (Year I) All mangrove areas inventoried (Year I) I co-management agreement forged per coastal barangay	Review of document -Review of Accomplishment Report/s -Review off inventory conducted -Ocular inspection			

Priority Area 4: Ecological and Environmental Stability – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
		d. identified mangrove areas to be developed as eco-tourism	(Year 2) At least 50% of inventoried mangrove areas developed as eco-tourism (Year 3)	-Review of Accomplishment Reports -Ocular inspections -Field/site visitations			

Priority Area 4: Ecological and Environmental Stability – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<input type="checkbox"/> mangrove planting and growing every 6 months (continuous) for riverbank and coastal areas [also thru food for work /A314-07		<u>Absence of:</u> a. areas identified for establishment of mangrove nursery b. absence of city-owned mangrove nursery	1 city-owned mangrove nursery established (Year 2) 8-10 institutions mobilized for tree planting & growing activities (Year 2)	-Review of Inventory reports and Accomplishment Reports -Ocular inspection/ Site visitation			

Priority Area 4: Ecological and Environmental Stability – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
			2 tree planting and growing activities per year				
<input type="checkbox"/> Planting & growing of bamboo, nipa, mangroves along riverbanks A314-07		Absence of capacity building activities for technical skills on growing of mangrove seedlings, nipa and bamboo-tree	-1 capacity building activities held per coastal barangay (Year 2) -Monthly monitoring conducted -80% survival of mangrove seedlings grown (Year 2)	-Review of Accomplishment reports -Review of Monthly monitoring reports -Monthly Ocular inspection/ visitation			

Priority Area 4: Ecological and Environmental Stability – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
		The LGU has a letter request to the DPWH for 1-2 units of dredging equipment to be stationed at Rio Grande and Tamontaka	At least 1 fully functional dredging machine stationed at Rio Grande and Tamontaka (Year 2-3)	-Ocular inspection/site visitation			

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<input type="checkbox"/> Study tour/s to LGUs with good environmental practices		No study tour has been conducted to LGUs with good environmental practices on riverbank protection	1 study tour conducted per year	-Review of After travel reports			
<input type="checkbox"/> Participation to Adopt-A-Estero program of DENR		BLGUs along estero are not participants to the Adopt-A-Estero Program	100% of barangays along estero participated in the Adopt-a-Estero Program (Year 2)	-Review of Accomplishment Reports (from barangays and DENR) -Ocular inspections			



Priority Area 4: Ecological and Environmental Stability – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Coastal rehabilitation program</p> <p><input type="checkbox"/> Artificial reefs to attract fishes; mangrove planting A314-01</p>		<p>Total devastation of coral reef due to illegal fishing</p>	<p>-2 aquatic fisheries assessment reviewed /conducted (Year 2)</p> <p>At least 100 artificial reefs constructed (with community involvement) (Year 3)</p>	<p>Review of assessment reports</p> <p>Review of accomplishment reports</p> <p>Validation thru ocular inspection</p>			
<p>Conduct of dredging activities along coastal areas A314-06</p>		<p>No coastal dredging was undertaken by the LGU</p>	<p>2 coastal dredging conducted within the plan period (Year 3 & Year 5)</p>	<p>Review of Accomplishment Reports</p> <p>Validation thru ocular inspection</p>			

Priority Area 4: Ecological and Environmental Stability – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Regular barangay / city coastal cleanup (including canals and tributaries)</p> <p><input type="checkbox"/> Quarterly cleanup drive in the coastal areas [also thru food for work]</p>		<p>Coastal clean-up has not yet been conducted in the city</p>	<p>4 coastal clean-ups conducted per year</p> <p>37 barangays participated in the quarterly coastal clean-ups per year</p>	<p>Review of Accomplishment reports</p> <p>Validation thru ocular inspection</p>			
<p>Intensification of an integrated riverbank protection program</p> <p><input type="checkbox"/> conduct of dredging activities along riverbanks</p>		<p>Absence of MOA among the Mindanao River Basin (MRB) LGUs for coastal resource and river Basin management</p>	<p>1 MOA forged among MRB-LGUs (Year 2)</p>	<p>Review of document</p>			

PRIORITY AREA 5: GREEN INDUSTRIES AND SERVICES

Priority Area 5: Green Industries and Services – Agricultural Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: _____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Partnerships with DTI in establishing opportunities and developing knowledge in organic agri-food MSMEs</p> <ul style="list-style-type: none"> Information dissemination and knowledge workshop in a number of establishments / associations / universities Access for assistance establishing organic agri-food MSMEs in the locality 		<p>Seminars and IEC materials on organic vegetable growing, organic and halal meat processing (partnership of OCM-TTID and DTI)</p> <p>DTI's P3 program conceptualized and to be launched soon</p> <p>Training on shrimp kropek making (LGU/BFAR/DTI);</p>	<p>1 workshop conducted</p> <p>At least 1 operational MSME established in Cot. City for the 1st 3 years and at least 2 operational MSMEs for the next 3 years</p>				

Priority Area 5: Green Industries and Services – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<p>Promotion and access of locally produced organic agri-products and recycled products in local establishments</p> <ul style="list-style-type: none"> • Meetings with local establishments' representatives in the promotion of locally produced agri-products and recycled products • Crafting and signing of contract agreement between local establishments, LGU and farmers / fisherfolks association 		<p>Training on packaging/labeling of food products like popcorn/peanut brittle (LGU/DTI)</p> <p>Absence of contract agreement between local establishments, LGU, Fas and FPOs</p>	<p>At least 1 meeting conducted</p>				

Priority Area 5: Green Industries and Services – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<ul style="list-style-type: none"> Allotment of supermarkets of space for locally produced agri-products for easy access of local community 		<p>Conduct of business matching by DTI and OCM-Trade & Industry for farmers/fishpond operators with resellers (supermarkets) and restaurants</p>	<p>1 Contract agreement crafted and signed between local supermarkets, LGU and Fas/FPOs for allotment of space in supermarkets for locally produced agri-products</p>				

Priority Area 5: Green Industries and Services – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments

Priority Area 5: Green Industries and Services – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Implementation of policies and legislations that promote green infrastructure and services (in the urban areas) <input type="checkbox"/> Enforcement of Green Building Code of 2016		Absence of orientation conducted on the GBC of 2016 Absence of legislation encouraging business establishment on water efficiency	-All new buildings and constructions compliant to GBC 2016 (Year 2-6) 1 legislation passed -All business establishment monitored are compliant with GBC 2016 (Year 2-6)	-Review of Accomplishment reports -Validation thru ocular inspection -Review of document			

Priority Area 5: Green Industries and Services – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
		Absence of legislation encouraging business establishment on water efficiency	All business establishment monitored are compliant with GBC 2016 (Year 2-6)				
<input type="checkbox"/> Require business establishment / subdivisions to provide green spaces		Absence of ordinance requiring establishments/subdivision to provide green spaces	-1 ordinance formulated requiring establishments / subdivisions to provide green spaces (Year 1)	-Review of document			
Priority Area 5: Green Industries and Services – Urban Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<input type="checkbox"/> Implementation of City Ordinance 4203		Absence of IRR for City Ordinance 4203	-IRR for City Ordinance 4213 formulated, passed and approved (Year 1)	-Review of document			

Priority Area 5: Green Industries and Services – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
			Quarterly monitored all establishments to ensure compliance to the ordinance	-Review of Compliance Report/s -Ocular inspection			
<input type="checkbox"/> Sustain implementation of anti-smoke-belching ordinance of the city		Absence of report/s of violations of the anti-smoke belching ordinance	3-4 signages installed along the main streets of the city	-Ocular inspections			

Priority Area 5: Green Industries and Services – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Promote alternative livelihood options in coastal areas <input type="checkbox"/> Training on how to utilize alternative options for charcoal-making/M314-08 (e.g. coconut as charcoal briquettes, paper charcoals, dried water)		Coastal barangays are trained on charcoal making	-2 alternative livelihood training (ToT and roll-outs) held annually				

Priority Area 5: Green Industries and Services – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
hyacinth)			-2 representatives from 17 FARMC organizations per training (gender disaggregated) -5 coastal barangay representatives trained per training (gender disaggregated)				
Priority Area 5: Green Industries and Services – Coastal Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Encourage use of LED bulbs for households in coastal areas <input type="checkbox"/> Replace incandescent bulbs with LED bulbs (CoLight model)		Absence of data/inventory on the number of coastal households utilizing LED bulbs	-1 inventory of coastal households utilizing LED bulbs conducted (Year 2) 100% of incandescent bulbs in coastal household werereplaced by LED (Year 2 – 50%, Year 3- 50%)	-Review of Accomplishment reports -Ocular inspections			

PRIORITY AREA 6: SUSTAINABLE ENERGY

Priority Area 6: Sustainable Energy – Agricultural Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Development of Sustainable and Renewable energy (Solar power and Biogas)</p> <ul style="list-style-type: none"> Conduct of assessment to identify potential areas for renewable energy Training on biogas and solar energy operation and management 		<p>Absence of assessment to identify potential areas for renewable energy</p> <p>Absence of training on biogas and solar energy operation and management</p>	<p>At least 1 assessment conducted</p> <p>At least 1 barangay (with at least 1 ha of area) identified as suitable for establishment of renewable energy</p> <p>At least 1 training conducted</p>				

Priority Area 6: Sustainable Energy – Agricultural Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
Training on Production of Charcoal Briquettes from Agri waste		Available technology but not transferred to agri. Barangays. IEC on production of charcoal briquettes from agri waste	Successful transfer of technology to at least 3 agri. Barangays per year of project implementation				

Priority Area 6: Sustainable Energy – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Promotion of solar energy program <input type="checkbox"/> Installation of solar energy facilities to vital establishments M614-02 M624-06		Absence of data/inventory on the number of establishments and residential areas utilizing solar energy	# of establishments utilizing solar energy				

Priority Area 6: Sustainable Energy – Urban Areas

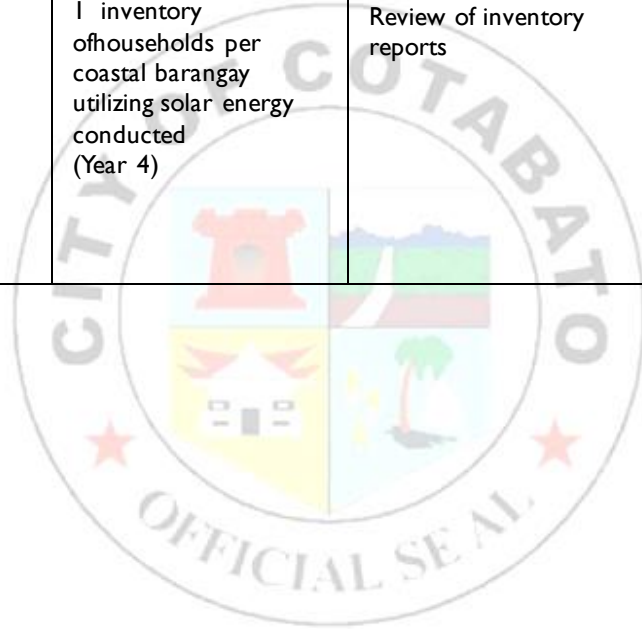
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
<input type="checkbox"/> Utilization of solar energy in residential areas M614-02 M624-06		Absence of IEC conducted on the advantages of solar energy over other sources of power	# of residential areas utilizing solar energy				

Priority Area 6: Sustainable Energy – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Promotion of solar energy program for households in coastal areas <input type="checkbox"/> Conduct feasibility study on possible utilization of solar energy in coastal households (willingness to pay)			1 feasibility studies conducted on utilization of solar energy in coastal households (Year 3)	Review of document			

Priority Area 6: Sustainable Energy – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
& availability of counterpart) M622-02							
<input type="checkbox"/> Identification of households in coastal areas not yet served by Cotabato Light (as initial targets for solar energy program M624-06			1 inventory of households per coastal barangay utilizing solar energy conducted (Year 4)	Review of inventory reports			



PRIORITY AREA 7: KNOWLEDGE AND CAPACITY DEVELOPMENT

Priority Area 7: Knowledge and Capacity Development – Agricultural Areas							
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Awareness Raising Program in Climate Change and Climate Variability</p> <ul style="list-style-type: none"> Develop IEC materials on Climate Change and Climate Variability Information Campaign on climate change and climate variability to public and private HS and colleges 		<p>Absence of developed IEC materials on CC and CV</p> <p>Absence of information campaign on CC and CV to schools</p>	<p>1 set of IEC materials developed with yearly updating</p> <p>Information campaign conducted in 2 schools per month with 2000 copies of IEC materials distributed</p>				
<p>Capacity Building to Climate Change and Climate Variability</p> <ul style="list-style-type: none"> Training on climate change and climate variability Training on weather forecasting Training on climate change 		<p>Absence of trainings on CC, CV, weather forecasting and CC adaptable farming and fishing technologies</p>	<p>1 ToT on CC and CV conducted for LGU personnel</p>				

Priority Area 7: Knowledge and Capacity Development – Agricultural Areas

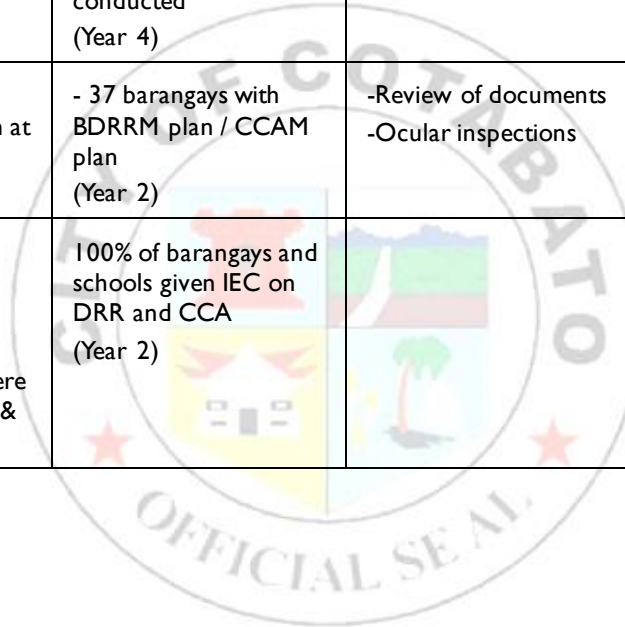
PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
adaptable technology in farming • Training on adaptable technology in aquaculture			1 ToT on weather forecasting conducted for LGU personnel 2 trainings on CC adaptable farming and fishing technologies conducted per year				

Priority Area 7: Knowledge and Capacity Development – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
Increase community involvement on DRRM/CCA/M <input type="checkbox"/> Capacitate the community on DRRM/CCAM (e.g. Standard first aid for community responses, CBDRRM)/		Absence of DRRM/CCAM capacity-building conducted at the urban barangays	26 DRRM/CCAM community –level capacity building conducted (Year 2)	-Review of Accomplishment reports -Interviews with BLGUs			

Priority Area 7: Knowledge and Capacity Development – Urban Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
A713-01 A713-04			26 enhanced DRRM/CCAM community-level conducted (Year 4)				
<input type="checkbox"/> Formulate BDRRM Plan/CCAM		Absence of BDRRM Plan and CCAM Plan at the barangay level	- 37 barangays with BDRRM plan / CCAM plan (Year 2)	-Review of documents -Ocular inspections			
<input type="checkbox"/> IEC on DRR and CCA for schools and barangays		-IEC on DRR were conducted in 4 barangays and 15 schools -No IEC on CCA were conducted in schools & barangays	100% of barangays and schools given IEC on DRR and CCA (Year 2)				



Priority Area 7: Knowledge and Capacity Development – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<p>Capacity-building for coastal barangays on DRRM and CCAM</p> <p><input type="checkbox"/> Conduct of risk assessment and documentation of actual sea level rise cases (and other related impacts of climate change in coastal/marine resources)</p> <p>A713-01 A713-03</p>		<p>Absence of Risk assessment documentation of actual sea level rise cases done</p>	<p>1 Risk assessment / documentation of actual sea level rise cases done (CBDRRM training/roll-out) (Year 2)</p>	<p>-Review of accomplishment reports</p>			

Priority Area 7: Knowledge and Capacity Development – Coastal Areas

PPAs / CCET code	Project cost	Baseline data	Expected outputs and OVI Year: ____	Data collection methods	Actual accomplishments	Actual disbursement / percentage	Justifications and comments
1	2	3	4	5	6	7	8
<ul style="list-style-type: none"> <input type="checkbox"/> Conduct capacity building activities for fisherfolks, barangay officials and residents (to address illegal mangrove cutting & “sudsod”) on fishery law/ A713-04 <input type="checkbox"/> Enforce regulation on different sizes and types of fishnets based on BFAR Standards/ A713-04 		<p>Capacity building activities on the enforcement of fishery laws were initiated by BFAR but were not sustained</p> <p>Legislation on regulation of sizes and types of fishnets was initiated but was not sustained</p>	<p>-2 capacity building activities conducted for fishery laws per year</p> <p>-1 local legislation enforced for regulation of fishnets</p> <p>Monthly monitoring activities for regulation of fishnets</p>	<p>-Review of Accomplishment reports</p> <p>-Review of Accomplishment and monthly monitoring reports</p>			

VI. ANNEXES

A. Attendance Sheets, LCCAP workshop (October 18-21, 2016)

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30. PO2 Ma. Josephine S. Paparon	F	CCPO_PNP	WCPD PNCO	0906 126 4144	
31. Rebecca L Coya	F	CMA			
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37. Thing S. Balad	M	CPDO			
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C. Workshop outputs – Sensitivity and Adaptive Capacity Assessment

Table 17:
Workshop output on *Threat Level and Adaptive Capacity Analysis, Agriculture Ecosystem*

1 Hazard	Hazard Area/Exposed Features (People, Places, Institutions)			Threat Level Analysis			Adaptive Capacity Analysis		
	2 Location (Where is it located?)	3 Elements-at-Risk (Who and what are/may be affected e.g. people, institutions, facilities? How many, how big?)		4 Trigger/Stressor (Why are they at-risk? What makes them susceptible?)	5 Score	6 Reason for Score (What is the evidence for the score?)	7 Existing Capacities (How do the elements-at-risk, LGUs, and support groups/ institutions cope? What are the characteristics that could help them withstand the impacts of the hazard?)	8 Score	9 Reason for Score (What is the evidence for the score?)
		Population	Facilities	Institutions					
Drought	Kalanganan MB	15,019 Individuals 3003 HH			Social <input type="checkbox"/> Insufficient Potable Water (K1) <input type="checkbox"/> Presence of diseases during drought / dry season	3	Social <input type="checkbox"/> Existing commercial and local vendors of potable water	4	
	Kalanganan 1	5808 individuals; 1161 HH							
	Kalanganan 2	5999 individuals; 1199 HH							
	Tamontaka MB	12027 individuals; 2405 HH			Economic <input type="checkbox"/> No alternative crops used (palay only) <input type="checkbox"/> Non-adaptation of Drought-resistant crops <input type="checkbox"/> Non-practice of Crop Rotation <input type="checkbox"/> Economic development of the city may become a threat to food security due to conversion of agri land to other purposes	4	Economic <input type="checkbox"/> Existence of alternative, non-agri based livelihoods (pedicab plying, catching of mudfish) <input type="checkbox"/> Provision of vegetable seeds and encourage crop rotation	2	
	Tamontaka 1	4423 individuals; 884 HH							
	Tamontaka 2	4184 individuals; 836 HH							
	Tamontaka 3	2730 individuals; 546 HH							
	Tamontaka 4	3741 individuals; 748 HH							
	Tamontaka 5	1177 people; 235 HH			Institutional <input type="checkbox"/> Lack of institutional support for irrigation from the national	4	Institutional <input type="checkbox"/> Assistance for farm inputs and implements from DA-National through	3	
	Poblacion MB	20,734 people; 4146 HH							

⌂	Hazard Area/Exposed Features (People, Places, Institutions)				Threat Level Analysis			Adaptive Capacity Analysis		
F l o o d i n g	Poblacion 1	5677 people; 1135 HH			<p>government due to lack of proposal from the LGU</p> <ul style="list-style-type: none"> <input type="checkbox"/> No funds allocated for irrigation from the Local Government <input type="checkbox"/> CMO- Agri Division lack of technical capacity on proposal making (e.g. request for funding for irrigation) <p>Environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Soil type is tamontaka clay and faraon clay which easily dries up and cracks during dry season <input type="checkbox"/> Salt water seeps into the land when there is drought which raises the ph level of the soil <p>Infrastructure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Absence of Irrigation (the rest of the brgys) <input type="checkbox"/> Damaged Irrigation (Tamontaka areas) 	3	<p>CA</p> <ul style="list-style-type: none"> <input type="checkbox"/> Food-for-work from CSWD <input type="checkbox"/> Supplemental feeding program from CHO <input type="checkbox"/> Technical Assistance – Fish fry and mangroves seedlings for the rivers from BFAR <input type="checkbox"/> IEC – campaign for drought resistant crops (malunggay, coconut) from City Agri <input type="checkbox"/> Funding is available for agricultural support from the National Government (e.g. irrigation, FMR) <p>Environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Soil (clay) is suitable in building fish ponds <input type="checkbox"/> Rivers can be used for eco-tourism <input type="checkbox"/> Rivers can be used for irrigation <p>Infrastructure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Telecommunication is present in agricultural barangays which aids communication for emergency <input type="checkbox"/> Existence of Farm-to-Market Roads <input type="checkbox"/> Available support for construction of post-harvest/ facilities <input type="checkbox"/> Existence of fish processing facilities 	3		
	Poblacion 8	8786 people; 1757 HH								
	Poblacion 9	5998 people; 1199 HH								
	RH 5	5870 people; 1174 HH								
	RH 6	6846 people; 1369 HH								
	RH 8	8524 people; 1704 HH								
	RH 9	7802 people; 1560 HH								
	RH 11	7864 people; 1572 HH								
	Bagua 1	9206 people; 1841 HH								
	Bagua 2	19,720 people; 3944 HH								
F l o o d i n g	Kalanganan MB	15,019 Individuals 3003 HH			<p>Social</p> <ul style="list-style-type: none"> <input type="checkbox"/> Houses made of Light materials <input type="checkbox"/> Clogged rivers due to poor Solid waste practices 	4	<p>Social</p> <ul style="list-style-type: none"> <input type="checkbox"/> food and non-food assistance <input type="checkbox"/> medical assistance <input type="checkbox"/> PSS interventions 	3		
	Kalanganan 1	5808 individuals; 1161 HH								

← H	Hazard Area/Exposed Features (People, Places, Institutions)			Threat Level Analysis			Adaptive Capacity Analysis			
	Kalanganan 2	5999 individuals; 1199 HH			<input type="checkbox"/> Houses built on creeks (reclaimed creeks) <input type="checkbox"/> Dependency to government assistance (4Ps) <input type="checkbox"/> Families focus on their own survival instead of disaster preparedness <input type="checkbox"/> Indifference towards the threats posed by climate change <input type="checkbox"/> Presence of Flood-related diseases Economic <input type="checkbox"/> Families are dependent to farming as main source of income <input type="checkbox"/> Limited alternative sources of livelihood <input type="checkbox"/> Limited opportunity for other source of livelihood (lack of capacity/actual opportunity) <input type="checkbox"/> Sources of livelihood located at risk areas Institutional <input type="checkbox"/> No regular dredging of rivers project/ activity <input type="checkbox"/> Slow pace of implementation of river bank protection projects Environment <input type="checkbox"/> Low lying areas (below sealevel) <input type="checkbox"/> Catch basin of Mindanao					
	Tamontaka MB	12027 individuals; 2405 HH				3				
	Tamontaka 1	4423 individuals; 884 HH								
	Tamontaka 2	4184 individuals; 836 HH								
	Tamontaka 3	2730 individuals; 546 HH								
	Tamontaka 4	3741 individuals; 748 HH								
	Tamontaka 5	1177 people; 235 HH								2
	Poblacion MB	20,734 people; 4146 HH								
	Poblacion 1	5677 people; 1135 HH								
	Poblacion 8	8786 people; 1757 HH								
	Poblacion 9	5998 people; 1199 HH								
	RH 5	5870 people; 1174 HH								3
	RH 6	6846 people; 1369 HH				4				
	RH 8	8524 people; 1704 HH								
	RH 9	7802 people; 1560 HH								
	RH 11	7864 people; 1572 HH			4				2	
	Bagua 1	9206 people; 1841 HH								

↖ Ⅱ	Hazard Area/Exposed Features (People, Places, Institutions)			Threat Level Analysis			Adaptive Capacity Analysis				
	Tamontaka 3	2730 individuals; 546 HH			ENVIRONMENT			ENVIRONMENT			
Tamontaka 4	3741 individuals; 748 HH										
Tamontaka 5	1177 people; 235 HH										
Poblacion MB	20,734 people; 4146 HH										
Poblacion 1	5677 people; 1135 HH										
Poblacion 8	8786 people; 1757 HH										
Poblacion 9	5998 people; 1199 HH			INFRASTRUCTURE					INFRASTRUCTURE		
RH 5	5870 people; 1174 HH										
RH 6	6846 people; 1369 HH										
RH 8	8524 people; 1704 HH										
RH 9	7802 people; 1560 HH										
RH 11	7864 people; 1572 HH										
Bagua 1	9206 people; 1841 HH										
Bagua 2	19,720 people; 3944 HH										

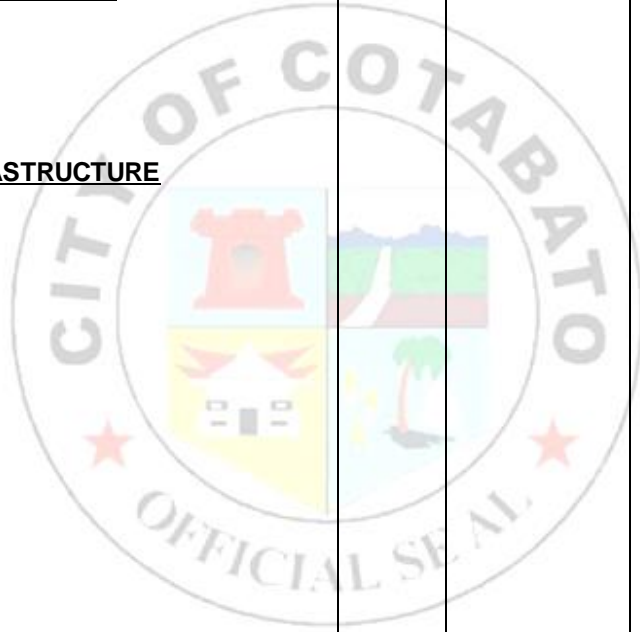


Table 18:
Workshop output on *Threat Level and Adaptive Capacity Analysis*, Coastal Ecosystem

1 Hazard	Hazard Area/Exposed Features (People, Places, Institutions)		Threat Level Analysis			Adaptive Capacity Analysis		
	2 Location (Where is it located?)	3 Elements-at-Risk (Who and what are/may be affected e.g. people, institutions, facilities? How many, how big?)	4 Trigger/Stressor (Why are they at-risk? What makes them susceptible?)	5 Score	6 Reason for Score (What is the evidence for the score?)	7 Existing Capacities (How do the elements-at-risk, LGUs, and support groups/ institutions cope? What are the characteristics that could help them withstand the impacts of the hazard?)	8 Score	9 Reason for Score (What is the evidence for the score?)
			*Triggers / Stressors and Adaptive Capacities are almost similar across the three barangays					
Sea level rise (is it sea level rise or increase in temperature?)	Kalanganan 1 (portions; Purok Kidupo)	Population (brgy total): 5,808 (as of 2015) 1,162 (HH)	Social <input type="checkbox"/> Existence of informal settlers along coasts <input type="checkbox"/> Houses made of light materials <input type="checkbox"/> Poverty <input type="checkbox"/> Incidences of water-borne diseases during rainy season (*not yet reported to OHS) <input type="checkbox"/> No orientation yet on Sea level rise <input type="checkbox"/> "rido" Economic <input type="checkbox"/> Illegal fishing (as identified by BFAR) [dynamite fishing] <input type="checkbox"/> Damaged dike systems (fishponds); fishponds located in high risk areas which leads to loss of aquamarine products <input type="checkbox"/> Livelihood largely dependent on fishing (inland and coastal)	4	Location Struggle to meet services Severe damages and danger of continuing damage on infrastructure & environment	Social <input type="checkbox"/> Existence of trained disaster responders (barangay-level) <input type="checkbox"/> Presence of schools which can be tapped for information and dissemination <input type="checkbox"/> Barangay has vehicles for emergency purposes (1) <input type="checkbox"/> Presence of barangay volunteers Economic <input type="checkbox"/> Fishing remains main source of income, but population are employed in other services <input type="checkbox"/> (35 people) Ongoing training on Bantay-Dagat <input type="checkbox"/> Presence of fisherfolk organizations; organized fishpond operators <input type="checkbox"/> Fishpond owners able to do repairs in damaged dikes	2.86	Availability of DRRM trainings for the barangay Current mitigation efforts of city LGU
		Facilities / institutions (in Purok Kidupo): Mosque – 1 (HR) Day care – 1 (HR) Fish ponds – 2 Hand pumps - _____		3.57			3.14	

No.	Hazard Area/Exposed Features (People, Places, Institutions)	Threat Level Analysis			Adaptive Capacity Analysis		
		<p>Environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cutting of mangroves <input type="checkbox"/> Geographical location (open-sea, drain area of the Mindanao Riverbasin) <input type="checkbox"/> Low-lying area <p>Infrastructure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Presence of privately owned boats in risk areas <input type="checkbox"/> Evacuation areas available but inadequate <p>Institutional</p> <ul style="list-style-type: none"> <input type="checkbox"/> Need for (risk) assessment / documentation of actual sea level rise cases 	4.14	3.71	<p>Environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Planting of mangroves <input type="checkbox"/> Dredging (CLGU & DPWH) <p>Infrastructure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hand pumps not in high risk areas <input type="checkbox"/> Presence of privately owned boats <input type="checkbox"/> Presence of evacuation centers (in town – Central ES); additional (1) to be constructed next year <input type="checkbox"/> Presence of available lands in the city for resettlement (for worst case incidence of sea level rise) {*for acquisition} <input type="checkbox"/> Availability of strong communication facilities from barangay LGUs to city LGU (“White House” base); fast response <input type="checkbox"/> Access roads as well as distance (~5 km) from the city center allows for fast response <input type="checkbox"/> DPWH has 4 river gauging stations (where data on SLR may be sourced from) <p>Institutional</p> <ul style="list-style-type: none"> <input type="checkbox"/> City LGU has trainers (for DRRM-CCAM) which could provide orientation on SLR 	3	2.57

← H	Hazard Area/Exposed Features (People, Places, Institutions)	Threat Level Analysis			Adaptive Capacity Analysis		
	<p>Kalanganan 2</p> <p><u>Population (brgy total):</u> 5,999 (as of 2015) 1,200 (HH)</p> <p><u>Facilities / institutions:</u> Ice plant – 1 (HR, riverine area) Fish landing – 1 Grand mosque – 1 Orphanage (non-functional) – 1 HS – 2 [Buaya-Buaya NS, Bubong](2 HR) ES – 2 (1 HR) Bridge to Timako – 1 (HR) Barangay hall – 1 Day care center - 2 SF detachment (9th company) – 1 Fish ponds – _____ Hand pumps - _____</p>				<p>Environment</p> <p><input type="checkbox"/> Presence of elevated (protected) area (Timako hill)</p>		
	<p>Kalanganan Mother Barangay</p> <p><u>Population (total):</u> 15,019 (as of 2015) 3,004 (HHs) [/5 for average HH]</p> <p><u>Facilities / institutions:</u> Health center – 1 Day care center – 2 High school – 1(high risk/HR) Elementary school – 2 (1 is HR: Datu Ayunan ES) Barangay hall – 1</p>	<p><input type="checkbox"/></p>			<p>Social</p> <p><input type="checkbox"/> Presence of 5 cooperatives</p> <p>Economic</p> <p><input type="checkbox"/> FARMC</p> <p>Infrastructure</p> <p><input type="checkbox"/> Ongoing riverbank protection (steel sheet piles / road dike) by DPWH</p>		

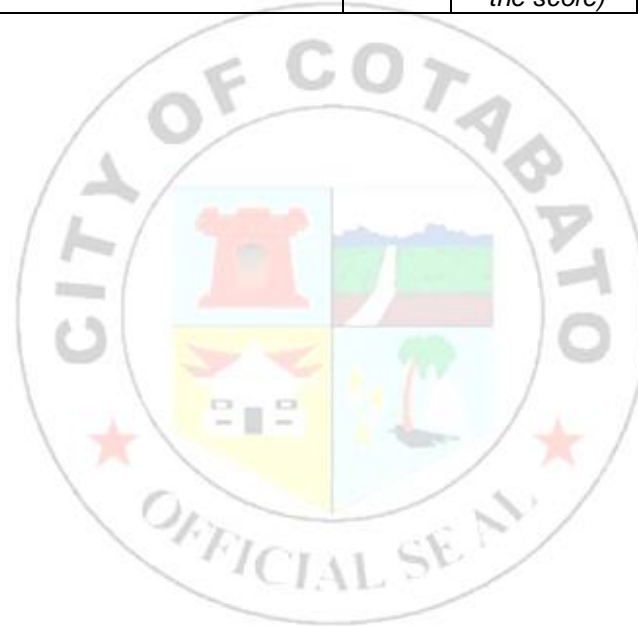
1 Hazard	Hazard Area/Exposed Features <i>(People, Places, Institutions)</i>		Threat Level Analysis			Adaptive Capacity Analysis		
			Chapels – 3 (RC), 1 (Pentecostal) (*chapel in Purok 2 is HR) Mosques – 8 (*mosques in Purok 3,4,5,6 HR) Fish landing / Maritime Police – 1 (in purok 1 HR) Police station – 1 (HR) Special Forces (SF) Detachment – 1 Smoked fish building – 1 Fish ponds – _____ Hand pumps - _____					

Table 19:
Workshop output on *Threat Level and Adaptive Capacity Analysis*, Urban Ecosystem

1 Hazard	Hazard Area/Exposed Features <i>(People, Places, Institutions)</i>		Threat Level Analysis			Adaptive Capacity Analysis		
	2 Location <i>(Where is it located?)</i>	3 Elements-at-Risk <i>(Who and what are/may be affected e.g. people, institutions, facilities? How many, how big?)</i>	4 Trigger/Stressor <i>(Why are they at-risk? What makes them susceptible?)</i>	5 Score	6 Reason for score <i>(What is the evidence for the score)</i>	7 Existing Capacities <i>(How do the elements-at-risk, LGUs, and support groups/ institutions cope? What are the characteristics that could help them withstand the impacts of the hazard?)</i>	8 Score	9 Reason for score <i>(What is the evidence for the score)</i>

FLOOD	<p>Area</p> <p>Brgy Poblacion MB Brgy Poblacion 1 Brgy Poblacion 2 Brgy Poblacion 3 Brgy Poblacion 4 Brgy Poblacion 5 Brgy Poblacion 6 Brgy Poblacion 7 Brgy. Bagua MB Brgy. Bagua 1 Brgy. Bagua 2 Brgy. Bagua 3 RH MB RH 2 RH 3 RH 4 RH 5 R H 6 RH 7 RH 8 RH 9 RH 10 RH 11 RH 12 RH 13 Tamontaka MB</p>	<p>Family(Current):</p> <p>1, 754 1, 418 863 440 116 No data 266 2,803 1,114 1500 1585 533 No data 797 3098 No data 501 750 1,222 1,894 1,019 254 No data 442 No data 900</p> <p><u>Facilities/Institutions</u> Brgy. Health Stations - 29 Day Care Centers - 32 Elem/High Schools- 52 Informal Structures -</p>	<p>Infrastructure</p> <p><input type="checkbox"/> Clogged drainage (Santos St. Brgy. Bagua, RH 12-13, RH 6, RH 8, Poblacion 6, RH 2, RH 4, Pob 4, Pob 5)</p> <p><input type="checkbox"/> Inappropriate drainage system</p> <p><input type="checkbox"/> Weak housing materials (informal settlement areas in all low-lying areas)</p> <p>Economic</p> <p><input type="checkbox"/> High dependency ratio</p> <p><input type="checkbox"/> Fast growth in business activities</p> <p>Institutional</p> <p><input type="checkbox"/> No local policy on restraint and limits to informal settlements in riverside areas (only RA 7279)</p> <p><input type="checkbox"/> No Early Warning System/ Evacuation Plan</p> <p><input type="checkbox"/> Lax in the implementation of policies</p> <p>Environmental</p> <p><input type="checkbox"/> Heavy river siltation/accretion</p> <p><input type="checkbox"/> Criss-crossing of river and creeks</p> <p><input type="checkbox"/> Catch-basin (Cotabato is situated at the lowest part of the downstream)</p> <p><input type="checkbox"/> Improper sanitation practices</p>	<p>3</p> <p>2</p> <p>3</p> <p>5</p>	<p>Infrastructure</p> <p><input type="checkbox"/> On-going rehabilitation of drainage system by the City</p> <p><input type="checkbox"/> Dredging river and creeks</p> <p><input type="checkbox"/> Declogging of drainages</p> <p><input type="checkbox"/> Resettlement sites are identified</p> <p><input type="checkbox"/></p> <p>Economic</p> <p>Livelihood assistance program</p> <p>Compliance of the building code in business establishments</p> <p>Institutional</p> <p><input type="checkbox"/> LGU with funds for resettlement</p> <p><input type="checkbox"/> Policies in place</p> <p><input type="checkbox"/> Partnership with NGO's, INGO's, CSO's, NGA's</p> <p><input type="checkbox"/> Ordinances on use of non-biodegradable materials</p> <p><input type="checkbox"/> Material Recovery Facilities in the barangays</p> <p><input type="checkbox"/> Procurement of Equipments</p> <p><input type="checkbox"/> National grants for bottom-up budgeting</p> <p>Environmental</p> <p>Ordinances on use of non-biodegradable materials</p> <p>Solid Waste Management policies are implemented</p> <p>Initial coordination</p> <p><input type="checkbox"/> Initial coordination of inter-provinces and agencies</p> <p><input type="checkbox"/> Implementation of Solid Waste Management code</p> <p><input type="checkbox"/> Septage Management program implementation</p> <p><input type="checkbox"/> Mangrove Rehabilitation</p>	<p>3</p> <p>2</p> <p>2</p> <p>2</p>
	Page 188					

1 Hazard	Hazard Area/Exposed Features <i>(People, Places, Institutions)</i>		Threat Level Analysis			Adaptive Capacity Analysis		
	2 Location <i>(Where is it located?)</i>	3 Elements-at-Risk <i>(Who and what are/may be affected e.g. people, institutions, facilities? How many, how big?)</i>	4 Trigger/Stressor <i>(Why are they at-risk? What makes them susceptible?)</i>	5 Score	6 Reason for score <i>(What is the evidence for the score)</i>	7 Existing Capacities <i>(How do the elements-at-risk, LGUs, and support groups/ institutions cope? What are the characteristics that could help them withstand the impacts of the hazard?)</i>	8 Score	9 Reason for score <i>(What is the evidence for the score)</i>



D. Workshop outputs – Impact Chain Analysis

Table 20:
Workshop output on impact chain analysis, Agriculture Ecosystem

Climate Change Stimulus	Climate-related Hazard	Development Sectors	Primary Impact	Secondary Impact	Tertiary Impact	Hazard Area		
						Barangay Affected	Exposure Elements	
Decrease in rain fall and increase of temperature	Drought	Social	Increased rate of heat stroke, dehydration, hypertension, skin disease	Increase of demands for health services and medicines	Shortage of supplies and medicines Increased rate of morbidity and mortality	To validate and update Agricultural areas	<i>(agreed to be part of data needs)</i>	
		Economic	Low-to-zero yield of crop production	Decreased/low income for farmers	Indebtedness Hunger Increased crime rate	Tamontaka 2, 3, 4, 5		
			Low survival of livestock (Poultry)	Escalation of prices of agriculture Decreased in alternative source of income	Malnutrition Increased rate of morbidity Less attendance in schools Inability to send children to schools	Poblacion 8, 9 Kalanganan 1 and 2		
		Environment	Crop damage	Low-to-zero yield of crop production	Decreased/low income for farmers, shortage of food supply			
			Intrusion of more salt water	Soil becomes acidic	Crop damage, soil becomes non-arable			
	Infrastructure							
	Flooding	Institutional	Increased financing for food subsidy	Realignment of funds	Other services will be depleted/affected			
		Social				Tamontaka 2, 3, 4, 5; Poblacion 8, 9; Tamontaka 1 and 2		
		Economic	Damage to marine resources (inland fish ponds)	Low-to-zero yield of fish, crabs and prawn production				
		Environment	Crop damage	Low-to-zero yield of crop production	Decreased/low income for farmers, shortage of food supply			Crop damage, soil becomes non-arable
			Intrusion of more salt water	Soil becomes acidic				
		Infrastructure	Non-passable Farm to Market Road due to immersion to flood water	Products cannot be brought to the City center	Spoilage of agricultural products Low income for farmers			
Institutional	Increased financing for food subsidy	Realignment of funds	Other services will be depleted/affected					

Table 21:
Workshop output on impact chain analysis, Coastal Ecosystem

Climate Change Stimulus	Climate -related Hazard	Development Sectors	Primary Impact	Secondary Impact	Tertiary Impact	Hazard Area	
						Barangay Affected	Exposure Elements
Increasing rainfall	Sea-Level Rise	Social	Increase incidence of diseases Increase in crime rates	Increase expenses in health services Public disturbance	Low Self-esteem	Coastal Brgys (KAL 1,2, MB)	<i>(agreed to be part of data needs)</i>
		Economic	Low income (fisher folks sector) High expenses	High indebtedness	Resorting to other source of income (Charcoal making)		
		Environment	Heavy siltation/erosion Flow of waste materials towards coastal areas Increase of freshwater in fishpond area	Flooding at upstream areas Water pollution Low aquamarine production	Damage to properties Health problems Low income		
		Infrastructure	Damage to dike system	The need to repair dike system	Additional financial burden to fishpond operators		

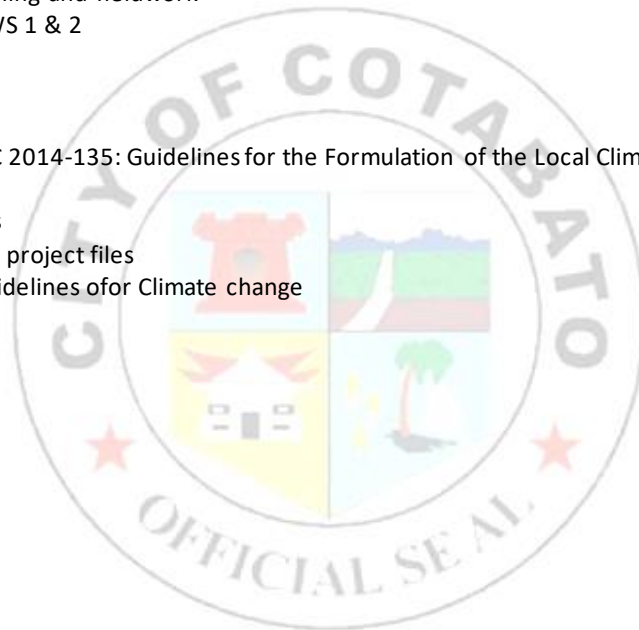
Table __:
Workshop output on impact chain analysis, Urban Ecosystem

Climate Change Stimulus	Climate -related Hazard	Development Sectors	Primary Impact	Secondary Impact	Tertiary Impact	Hazard Area	
						Barangay Affected	Exposed Elements
Seasonal increase temperature, decrease rainfall	Flood	Social	Education: Suspension of classes Social Services: Temporary disruption of delivery of services	Education: Incomplete # of school days Health: Clustering and outbreaks, Increase flood related diseases	Health: Increase in malnourished children, Increase in mortality and morbidity, Imbalance in equilibrium of the psychosocial aspect Security: Increase in crime rate	RH 1-30 Poblacion 1-7 Bagua 1-3 TMB RHMB All MBs except KMB	<i>(agreed to be part of data needs)</i>
		Economic	Temporary disruption of operations/trade and commerce	Decrease in revenue, hoarding of supplies	Increase of prices of all commodities		
		Environment	Increase load of uncollected garbage, Increase improper waste disposal Liquefaction	Air pollution Unstable soil pollution	Increase health related disease due to uncollected garbage/waste Inability to establish infra projects		
		Infrastructure	Destruction of basic infrastructure, roads, bridges and water facilities	Disruption of lifelines and services	Disruption of lifelines and services		

Climate	Climate	Development	Primary Impact	Secondary Impact	Tertiary Impact	Hazard Area	
			(residential, commercial)				
		Institutional	Refocusing of human and capital resources	Disturbance of Governance	Poor performance		

E. List of References

- Existing LGU plans
 - CLUP 2010-2020 addendum
 - LDRRMP 2017-2022
 - LCCAP 2014-2016
 - CDP
- Be Secure Activities
 - PVA training and fieldwork
 - LCCAP WS 1 & 2
 - LDRRMP
- Memos, Policies
 - DILG MC 2014-135: Guidelines for the Formulation of the Local Climate Change Action Plan
- Other references
 - ENGAGE project files
 - DILG Guidelines ofor Climate change



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