TRAINING REPORT ON THE
IIMS QUERY SYSTEM AND LINKAGE TO GIS
FOR MANILA BAY

1.   Introduction

The re-establishment of the Manila Bay IIMS was initiated in February 2010 with the training of staff from the DENR Site Management Offices (SMOs) in Regions 3, 4A and NCR, and ICM sites (Bataan and Cavite) in the Manila Bay area on the establishment of IIMS (IIMS Module 1). Since 2010, the SMOs, Cavite and Bataan have undertaken data encoding and updating of their individual IIMS databases.

In April 2012, an assessment on the status of IIMS databases in the Manila Bay area was undertaken and major outcome of the assessment was the conduct of the integration workshops to consolidate the individual databases of the DENR-SMOs and ICM sites into an integrated IIMS database for the Manila Bay watershed. The 2-stage database integration workshops were conducted in August and September 2012 with staff from the SMOs and ICM sites who are responsible in operating the IIMS in their respective offices. The database integration workshops resolved the duplication of data between the individual databases, as well applied the numbering of IIMS records based on the Philippine Standard Geographic Codes and classification of industries and establishments following the Philippine Standard Industry Classification.

In the past six months, efforts were focused in integrating the individual databases of the SMOs and ICM sites and gathering data from relevant national agencies (e.g., PRRC, MBCO). To date, almost 50% of the applicable data tables for Manila Bay have been populated. A populated and established IIMS and GIS databases are requirements for the conduct of Module 2 training on IIMS Query System and Linkage to GIS.

The IIMS Module 2 training was undertaken for staff responsible in IIMS operations of the SMOs, Bataan and Cavite on February 20-22, 2013 at the PEMSEA Office Bldg. Local government personnel from Guimaras and staff from the DENR-Coastal and Marine Management Office (CMMO) who are involved in IIMS and GIS operations were also invited to expose them to the requirements for the IIMS Module 2 training in view of the similar training to be conducted in Guimaras and for ICRMP sites on March 14-15 and April 3-5, 2013 respectively.

The integrated IIMS database for Manila Bay is being maintained at the PRF until such time that it will be turned over to an appropriate government agency. The re-establishment of the Manila Bay IIMS is part of the continuing assistance of PEMSEA to DENR, local government units and other stakeholders in support of the implementation of the Operational Plan for the Manila Bay Coastal Strategy (OPMBCS).

2.   Objectives

The IIMS Module 2 training aimed to develop the skills of the participants in generating purposeful outputs from the IIMS, for use in awareness building and decision making. It was expected that at the end of the training, the participants should be able to:

a) Generate reports/data from the IIMS/GIS databases for decision making and planning;
b) Link IIMS with available GIS software;
c) Identify applications of IIMS and develop queries for such applications; and
d) Develop an action plan on addressing the problems encountered in operationalizing the IIMS and some insights on IIMS networking.

3.   Results of the training workshop

a.   <u>Opening ceremony</u>

Ms. Daisy Padayao, PEMSEA provided the introduction to the training workshop highlighting the aim of building the full appreciation of the participants on the applications of the IIMS relevant to the implementation of the OPMBCS. Ms. Padayao recalled the series of activities undertaken leading to the conduct of the IIMS Module 2 training and stressed the need to regularly update and sustain the operations of the IIMS in order to maximize its applications in the their coastal management activities.

Ms. Padayao enjoined the participants to actively participate in the discussions and complete the exercises and activities for the 3-day training in order to gain the skills in generating purposeful reports and outputs from the IIMS.

b.   <u>Participants and resource person</u>

The training workshop was successfully conducted with 18 participants from the DENR SMOs, ICM sites in Manila Bay (Bataan and Cavite), Guimaras Province and CMMO. These staff were trained on IIMS Module 1 and are directly involve in IIMS and GIS operations in their respective offices.

During the last day of the training, the Heads of the SMOs and PMOs of the ICM sites were invited to particularly provide inputs on the development of action plans for the operationalization and sustainability of the Manila Bay IIMS, including the process of dissemination of information and outputs generated from the database.

Ms. Bresilda Gervacio, IIMS Consultant, served as the main resource person for the training workshop.

The list of participants and resource person is presented in Annex 1.

c.   <u>Training materials</u>

The materials used during the training included:

1. Manifold GIS software installed in the computers
2. Basemap for Manila Bay, including administrative boundary layers (municipality, province and watershed)
3. Integrated IIMS database for the Manila Bay watershed

4. IIMS user manual and Linkages of IIMS tables (Annex 1 of the Guide to Establishing IIMS)
5. Module 2 Exercises
6. PowerPoint presentations

d. **Programme and topics undertaken**

The 3-day training consisted of lectures, discussions and exercises. The training programme is given in Annex 2. The lectures were augmented with exercises which provided the participants with hands-on learning. The Manila Bay data were used for the exercises.

The topics discussed were as follows:

1. *Review of IIMS structure* – This reminded the participants the need to familiarize with the linkages of the different data tables in the IIMS as a basic requirement in understanding the query system of the IIMS. The Annex 1 of the Guide to Establishing IIMS provides the linkages of the IIMS tables.

2. *Basic knowledge on query system* – The participants were introduced to basic concepts of structured query language (SQL), including how SQL statements are developed using various conditions.

3. *IIMS query system* – This explained the IIMS query systems including the SQL builder and the predefined query. The SQL builder allows flexibility in generating outputs required while the predefined query are sets of predefined statements and outputs, which are intended for users who are not familiar with the IIMS structure. Among the outputs generated from the Manila Bay IIMS were summary tables and graphs (Annex 3).

4. *Geographic Information System* – To level-off understanding among participants, an introduction on the concepts of GIS was provided. This also provided the essential background needed for linking the IIMS database to the Manifold software.

5. *Linking IIMS and Manifold GIS* – The process of linking the IIMS database to the Manifold software was explained. Hands-on exercises of projecting IIMS data into the Manila Bay basemap were undertaken.

   The exercises done during the training is given in Annex 3.

6. *Action planning on the operationalization of IIMS and use of data from the IIMS* – Issues in relation to the operationalization of IIMS in each of the regions were identified and a process flow of providing data/information from the IIMS was developed with inputs from the SMO and PMO Heads. The issues and process flow are given in Annexes 4 and 5.

   Action plans for the operationalization of IIMS in each of the regions in the Manila Bay area was developed and given in Annex 6. Major activities that are included in the action plans are the continuous population of the

IIMS tables and sustainability of IIMS operations in the Manila Bay regions, strengthening of IIMS personnel at the provincial and regional level, and the submission of updates to PRF for consolidation into the integrated IIMS database for the Manila Bay watershed.

e.   <u>**Observations from the training workshop**</u>

The following summarizes important observations during the training.

1. Most of the participants have practical knowledge/experience on GIS and IIMS operations and background on information technology which facilitated understanding of the lectures and discussions, including the conduct of the exercises.

2. Familiarity of the IIMS system, including its structure and table linkages is important particularly in developing SQL statements and generating specific outputs from the IIMS. On the other hand, the SQL builder feature of the IIMS simplifies the process of developing SQL statements, including generation of required outputs from the IIMS. This feature of the IIMS allows users who are not so familiar with the table linkages to develop SQL statements and generate required outputs.

3. One of the key requirements for Module 2 is the installation of GIS software in computers that will be used for the training. To facilitate understanding of the lectures and exercises, a uniform version of the GIS software should be installed in the computers. For the case of the Manila Bay training, Manifold 6.5 was used.

4. The value of using the actual Manila Bay data in the exercises for the training was the realization in the discrepancies and accuracy of data encoded into the system, including the numbering/coding of record numbers, which could not have been discovered had it not been used in the exercises. The SMOs, Bataan and Cavite were requested to cross-check their data, which are integrated in the MBIIMS against their updated IIMS database in the regions. The numbering system in some categories integrated in the MB-IIMS has to be reviewed since it still reflects the old numbering codes. This also prompts the need for further apply quality control of the data encoded into the system.

   It was also realized that Camiling and O'Donnell watersheds are currently integrated in the MB-IIMS, which should be excluded from the database as these watersheds are not part of the Manila Bay watershed.

5. The exercise in linking the MBIIMS to the Manifold software and projecting the water quality data into the Manila Bay base map showed locations of water quality stations that are not within the bounds of the Manila Bay. The SMOs, Bataan and Cavite were requested to double check their data entries, and provide updates to PRF.

6. The IIMS Module 2 training provided full appreciation on the intended use and applications of the IIMS database and not only data gathering and data encoding. The value of populating the data tables of the IIMS was realized

through the sample outputs that were generated, which can be purposely used in relevant activities.

7. The presence of the SMO Coordinators of Regions 3 and 4-A, Division Chief of the SMO in NCR and the PMO Head of Bataan during the last day of the training provided much need inputs in the development of the process flow for the dissemination of data/information from the IIMS to various users and the development of action plans for the operationalization and sustainability of the MBIIMS.

f. <u>Evaluation</u>

The training workshop was able to accomplish its main objective of providing the necessary skills and knowledge on the IIMS Query System and GIS linkage. All of the 18 participants successfully completed the training workshop.

Constant familiarization, exercise and practice were required from the participants to sustain the skills they gained from the training. Support from their respective offices such as coordination with data sources and provision of necessary facilities are crucial in the application of the skills they gained. The regular updating and continuous integration of IIMS data are necessary to fully operationalize the MB-IIMS.

An evaluation on the usefulness and effectiveness of the training program was done by the participants at the end of the training workshop. The following summarizes the evaluations of the training.

1. Relevance of the training – 82% and 18% of the participants considered the training very valuable and valuable, respectively, in relation to their work.

2. Important learning from the training were identified as follows:

   a. Use of SQL to produce a specific data requirement
   b. Use of the query system to generate reports/presentations
   c. Significance of table linkages in a relational database
   d. Analyzing data fields through the IIMS query builder
   e. Linking IIMS database to GIS
   f. Installation and basic operation of Manifold software
   g. Manipulation of the predefined query
   h. Generation of chart from the SQL, including the graphical capability of the IIMS.
   i. Different rules and conditions in developing query statement and syntax
   j. Easier way of building SQL statements through the IIMS SQL builder
   k. IIMS as a decision support system for the development of SOC and OSCP
   l. Understanding the relevance of the validity and accuracy of the encoded and integrated data
   m. Using the skills and knowledge from Module 1 in understanding the lectures in Module 2

n. Operations of the IIMS require constant practice.
o. Maps generated from the linkage of IIMS to GIS can be used as tool for decision making and policy planning
p. There is a need for permanent personnel to focus on operating and handling the IIMS.
q. Results of the GIS mapping from the IIMS database reflects the errors in the encoded longitude and latitude coordinates, which can be validated and adjusted
r. Gained appreciation of the effort to encode data on the IIMS and realized it is not just about data collection and encoding.
s. IIMS can be used as a tool for data management
t. The need for better equipment (e.g., computer hardware) for IIMS operations to facilitate the generation of outputs.
u. The need for regular updating and population of the IIMS data tables to generate relevant outputs for management.
v. The linking of the IIMS to GIS (Manifold for the case of Manila Bay and Arc GIS 10 for Guimaras) allows more analysis in GIS using the data from the IIMS which supplements the limited data available in the GIS.
w. Able to visualize the usefulness of data encoded in the IIMS database.
x. The usefulness of the IIMS in integrating the various sectoral data and databases.

3. Seven (7) of the participants regarded the lectures very useful while four (4) considered it as generally useful.

4. The exercises were regarded by seven (7) participants as very useful while four (4) considered it as generally useful. Suggestions for improving the conduct of exercises are as follows.

   a. Some exercises were answered after a series of trial and error during the discussion, which lowered the momentum of the discussion and consumed time.
   b. The exercises should be discussed step-by-step so that the participants would be able to identify their mistakes or if there are any missed procedure.
   c. There should be a transition in the difficulty of the exercises, from basic to advance.
   d. Questions should be presented clearly and understandably.

5. The evaluations of the participants for the resource person are as follows:

Bresilda Gervacio

	Excellent	Very Good	Average	Below Average	Poor
Knowledge of the topic	55%	45%			
Clarity of presentation	27%	73%			

Use of visual aids	36%	64%			
Enthusiasm	45%	55%			

6. Seven (7) participants regarded the venue and facilities for the training as very good; four (4) as generally good. One suggested the conduct of an out-of-town training instead of conducting it at the PEMSEA Office.

7. The following expectations of the participants were met during the training.

    a. Learn the various ways to execute predefined queries
    b. Linking the IIMS database to GIS
    c. Learn the query system to extract specific data
    d. Understand the importance of IIMS for the implementation of OPMBCS
    e. Enhance skills and knowledge with the use of IIMS software

8. The participants identified the following on how they are going to apply the knowledge and skills learned from the training course.

    a. Use of IIMS as tool in updating the SOC report and OSCP
    b. Continuous updating of the IIMS database
    c. Coordinate with other regions for data sharing and updating
    d. Practice on the query system and SQL in their respective offices
    e. Integrate existing IIMS data with GIS to generate maps for reports and as a tool for decision making and planning
    f. Present produced maps and reports to reveal the current status of the Manila Bay Region.
    g. Provide users/public with accurate and reliable data
    h. Being able to submit reports on time.
    i. Use of the generated reports for field validation
    j. The need to upgrade equipment and software for better performance

4.   **Issues, actions required and recommendations**

The participants identified the following issues and concerns in terms of operationalizing the integrated Manila Bay IIMS.

a.   Specific issues/errors on IIMS tables

    Annex 4 lists the specific issues/errors encountered in IIMS operations in the Manila Bay regions. PEMSEA will endeavor to validate the errors identified and resolve the errors encountered.

b.   Data accuracy and validity

    Using the MB data in the training exercises revealed the discrepancies in the data that are integrated in the MBIIMS. PEMSEA will endeavor to further apply quality control in the MBIIMS database, while the SMOs and ICM sites will check the accuracy of their respective data and provide updates to PEMSEA.

The watersheds which are integrated in the MBIIMS should exclude Camiling and O'Donnel watersheds, which are not within the bounds of the Manila Bay watershed.

c.   Data and information sharing

It was raised that data access among different government agencies is still a concern in Manila Bay (e.g., access to water quality data). It is important that ways to promote cooperation among data providers be explored in order to facilitate data access and tap their necessary support to the establishment of an integrated database.

d.   Accessibility and use of information generated from the IIMS

There is a need to consider how information generated from the IIMS can be disseminated to a wider audience. The putting up of a website for IIMS can be explored to allow better access of information of different data users. To facilitate the generation of regularly submitted reports, a template reports based on specific requirement can be considered as one of the outputs that can be generated from the IIMS. It is also important to develop a clear protocol describing the process of data sharing for public and inter-agency/office use to ensure the integrity and authenticity of data being released.

e.   Sustainability of the IIMS team

One of the main constraints in implementing the IIMS is the lack of man-power/ staff to focus on IIMS operations. In some cases, contractual staffs that were trained to handle IIMS resigned from their office and failed to turn-over the responsibilities. Ideally, to sustain the operation of the IIMS in different regions, there should be enough personnel to do the data gathering, encoding, and validation. The responsibilities among IIMS staff should also be clearly delineated (e.g., data gathering, encoding, screening, etc).

f.   Provision of necessary facilities and administrative support

Necessary facilities and administrative support should be provided to the team in order to fully operationalize the system. Computer hardware and software should be updated to fully utilize the capacity of the IIMS and the GIS.

g.   Implementation of action plans

Each of the regions developed their action plans highlighting the activities relevant to the continuous updating of the MBIIMS. To facilitate data gathering, it is important to identify specific data sources to avoid duplication and overlapping of data. Regular monitoring of the implementation of the action plans should be undertaken. However, the implementation of some activities and commitments are also dependent on the capacity of other government agencies to comply with the requirements of the regions specifically on data requests.

h.   On the IIMS software

The map of the Philippines which is reflected in the IIMS should be updated to replace the South China Sea into West Philippine Sea, and to update the ICM sites, which currently reflects only Manila Bay and Batangas Bay.

Annex 1. List of Participants

Participants

Bataan
1. Karen June A. Balbuena
Technical Assistant, BICMP-PMO

2. Miguela Ramirez
Bataan – PENRO

3. Engr. Alexander Baluyot
Head, Bataan ICM PMO

Region 3
4. Apollo L. Cerrudo
Computer Programmer II

5. Roy Alvin P. Escultor
Forester I

6. Ms. Cynde Pagador
Coordinator, DENR R3 MB-SMO

NCR
7. Enielbert E. Estafanio
Administrative Aide VI

8. Reina C. Cueto
Application Data Specialist

9. Ms. Teresa S. Salanguit
Division Chief, DENR-NCR MB-SMO

Region IV-A
10. O'Soniel Moises G. Tuddao
Science Research Assistant

11. Amelia C. Abecina
GIS and Database Specialist

12. Dr. Domingo Bravo
Coordinator, DENR R4A MB-SMO

Cavite
13. Maricris R. Rodeo
Administrative Aide I, PG-ENRO

14. Raziel C. Pereña
Administrative Aide I, PG-ENRO

Guimaras Province
15. Leonard S. Pasiderio
EMS 1/ ICM Guimaras PMO Staff

16. Clifford Sales
IT Staff

CMMO
17. Imee S. Hacla
Project Evaluation Officer II

18. Joel C. Catain
IT Specialist

PEMSEA
19. Daisy Padayao
Technical Assistant

20. Carizon Espenesin
IIMS Assistant

Resource Person

1. Bresilda Gervacio
IIMS Specialist

Annex 2.

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**TRAINING PROGRAM ON
INTEGRATED INFORMATION MANAGEMENT SYSTEM**

**MODULE 2: IIMS QUERY SYSTEM AND
IIMS AND GIS LINKAGE**

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Introduction
Module 1 (Establishing the IIMS) of the IIMS training program provided the participants the necessary knowledge and skills in establishing a functioning IIMS. The training workshop covered data collection, screening, conversion and encoding. With these knowledge and skills, the participants are expected to be capable of initiating the development of an IIMS database at their respective sites. With experience in the establishment of an IIMS database, the participants are expected to become more familiar with the linkages among and between encoding tables and forms.

Module 2 (IIMS Query System and IIMS and GIS Linkage) provides the knowledge and skills in transforming data into information using the query system of IIMS. The module further capacitates participants to link IIMS databases with GIS software in order to strengthen spatial analysis of available data.

The IIMS was developed to provide users ways to generate information through its query system. Querying the IIMS can be done in two ways, namely the *predefined query* and the *structured query language (SQL) builder*. The predefined query is interactive and limited to what is pre-programmed in the system. It is designed for users who do not have knowledge on the structure of the database. The SQL builder is more flexible. Users can set the data or information that he/she wants to generate. However, it requires familiarity with the database structure and tables, as well as linkages among tables. The query system of IIMS not only provides information but also performs preliminary analysis of data and presentation of information in a desired format.

Using the query system to provide information can be improved by linking IIMS with GIS and other external software. With this linkage, spatial and temporal analysis can be undertaken. At present, IIMS is linked with ArcView 3.x, Manifold GIS and some predictive/pollution fate models, including a predictive oil spill trajectory model in Manila Bay.

Since different users require different formats and levels of data aggregation, it is important that IIMS team members are familiar with proper procedures for generating information from the database. Module 2 deals with various ways of report generation and presentation, and linking IIMS with external application software in order to facilitate the provision of information to multi-sector users.

Objectives
At the end of the training workshop the participants should be able to:

1. Generate reports/data from the IIMS/GIS databases for decision-making and planning;
2. Link IIMS with available GIS software;
3. Identify applications of IIMS and develop queries for such applications;

3.   Develop an action plan on addressing the problems encountered in operationalizing the IIMS and some insights on IIMS networking.

Participants

The participants of this training workshop are:

1.   Participants of the IIMS Module 1 and those who have been involved in IIMS and GIS operation;
2.   The participants are expected to have a working knowledge on IIMS and GIS.

Duration

This training module will be conducted in three days or a total of 24 hours.

Facilities/equipment/data required

1.   Computers capable of running both IIMS and GIS; one computer for at most two participants
2.   LCD projector and computer
3.   Printer
4.   White board and white board marker
5.   GIS software installed in the computers
6.   GIS database (at least with data on site boundary, administrative boundary (provinces, municipalities/cities and communities or barangays, road network and water bodies)
7.   IIMS database with reasonable data
8.   IIMS user manual and Annex 1 of the Guide to Establishing IIMS.

Topics

This training module will entail lectures, discussions and exercises. The exercises are intended to augment the lectures and provide participants actual exercise on the process under consideration. In the exercises, actual data from the sites will be used. The site should ensure that the IIMS database have reasonable data and is accessible during the conduct of this training module.

The following will be the topics to be undertaken:

1. Review of IIMS structure - A review on IIMS structure will be undertaken to remind the participants on the various tables and their linkages with one another. This will be the basic knowledge needed in understanding the query system. Participants who are not familiar with these linkages are advised to study Annex 1 of the Guide and have hands on experience with the IIMS software.

2. Basic knowledge on query system – A general lecture on the basic concepts of structured query system will be provided. This will cover rules in developing SQL statement using various conditions. Exercises on how to make SQL statement will be undertaken.

3. IIMS query system - The SQL builder and the predefined query will be introduced. Participants are required apply the basic concepts as provided in item 2. Exercises will be provided using the IIMS database of the sites**.**

4. Geographic information system – For the benefit of those who are not familiar with GIS, a lecture on GIS basic concepts that are needed in linking IIMS and GIS will be provided. This will prepare the participants for the session on linking IIMS and GIS.

5. Linking IIMS and GIS – The process of projecting IIMS data/information into a GIS map will be undertaken. Exercises will be done.

6. Identifying applications and corresponding queries - The participants will be asked to identify the possible applications of IIMS and develop sample queries and report presentation (in tables, graphs or maps).

7. Action planning – As a culminating activity of this module, the participants are required to developed an action plan. A process flow of providing data to users will also be developed.

IIMS Training Schedule

Day/Time	Topics	Lecturer/Facilitator
Day 1		
12:00-1:00	Registration	PEMSEA
1:00-13:30	Opening	PEMSEA and DENR
13:30-14:00	Introduction to the training module Leveling-off of expectations	Ms. Daisy Padayao
	Query System	Ms. B. Gervacio
14:00-14:45	Review of IIMS structure	
14:45-16:00	Basic concepts of structured query language: lecture and exercise	
16:00-16:15	Break	
16:15-19:00	Basic concepts of structured query language: lecture and exercise (continued)	
Day 2		
8:00-8:30	Process check-quiz	
8:30-10:30	Basic concepts of structured query language: lecture and exercise (continued)	
10:30-10:45	Break	
10:45-12:00	IIMS query system -SQL builder	
12:00-13:00	Lunch	
13:00-14:00	IIMS query system -SQL builder (continued)	
14:00-15:30	IIMS query system –Pre-defined query	
15:30-15:45	Break	
15:45-16:00	Wrap-up: Query system	
	IIMS linkage with GIS	Ms. B. Gervacio
16:00-17:30	Basic GIS concepts	
17:30-19:00	Linking IIMS and GIS: ArcView 3x	
Day 3		
8:00-8:30	Process check- quiz	
8:30-10:00	Linking IIMS and GIS: Manifold GIS	
10:00-10:15	Break	
10:15-12:00	Linking IIMS and GIS linkage: Exercise	
12:00-13:00	Lunch	
13:00-14:30	Identifying applications of IIMS and GIS and developing sample queries Developing process flow of providing information to users	
14:30-15:00	Wrap-up on the linking IIMS and GIS	
	Action planning	DENR and PEMSEA
15:00-16:30	Action planning and presentation of outputs	
16:30-17:00	Overall wrap-up and course evaluation	Ms. B. Gervacio
17:00-17:30	Closing	DENR and PEMSEA

Annex 3. Exercises for the IIMS Module 2 training.

SQL statements

Write the SQL statements of the following:

1. List all barangays per municipality per province in the site.
2. List all the water quality stations and their description
3. List manufacturing establishments which were established in 2000; and
4. List the values of production per type of manufacturing establishment which are less than 20 million (local currency).
5. List the barangays per subwatershed.
6. Show the various types of solid waste generated by all sectors in 20

IIMS SQL Builder

Generate the following using the SQL builder of IIMS (graph and table)

1. Show the distribution of population by province in 2007.
2. Show annual number of fishers and production of one province in 3 years
3. Number of fishers and production per fisher
4. Composition of household waste
5. List the water quality stations, geographic coordinates, observation dates, sample depth, pH, dissolved oxygen, total coliform and fecal coliform. Compare total and fecal coliforms observations with Class SB criteria. Use SITES to connect stations and criteria.Water quality stations: Wawa, Mattel, V. Carmen

IIMS and GIS linkage: Exercise

1. Link the following table with mba.map.

   Geosegs
   Geopoints
   BWETLSV

   Join these tables and project it in the mba.map

2. Connect the following:

   Geosegs
   Geopoints
   BWETLSV

   Geosegs - Sitio Pulo Tanza, Navotas and Long Island
   Select Segment name, longitude, latitude, survey date, method of survey, area and length of coastline.

2. List the water quality stations, geographic coordinates, observation dates, sample depth, pH, dissolved oxygen, total coliform and fecal coliform. Compare total and fecal coliforms observations with Class SB criteria. Use SITES to connect stations and criteria.
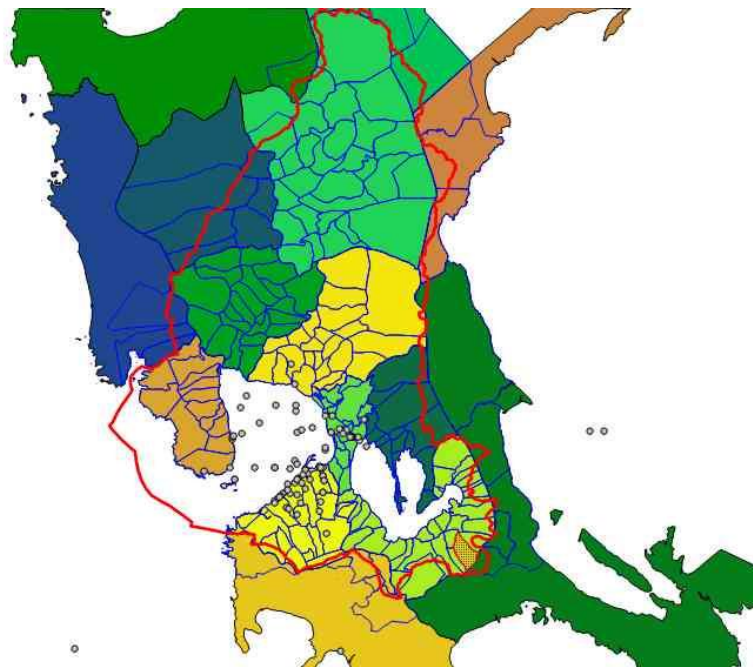
Water quality stations: Wawa, Mattel, V. Carmen

Export the result to Excel and project it on a GIS map.

Sample outputs from the training
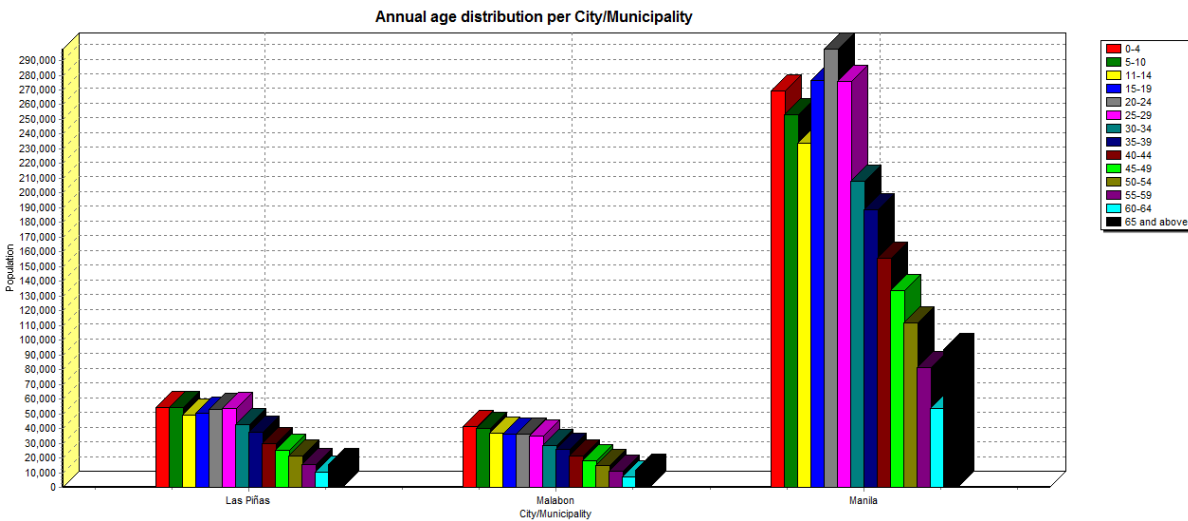
Water quality monitoring stations in Manila Bay

Annex 4. Issues identified by the SMOs and ICM sites

DENR-NCR

IIMS Tables	Problems
BFLORSV	The Flora_Species_No must be an integer
SEIND	The manufacturing type needs to be reclassified based on the new dropdown menu given last August 23-24, 2012 training.
BWETLSV	The Loc_Seg_No like data from Region 3 is not based on the numbering from the record numbers of GEOSEGS Table.

ISSUES:
1. Consistency of input data. (e.g. format.).
2. Lack of technical staff and GIS specialist for screening/verifying the data collected for encoding.
3. The interface of the database which is South China Sea must be change to West Philippine Sea.
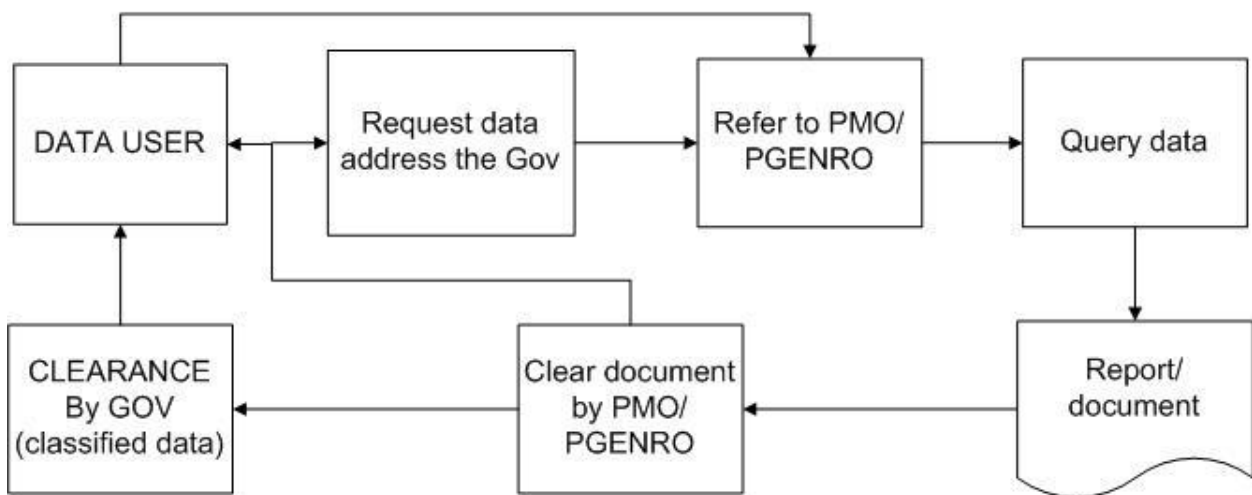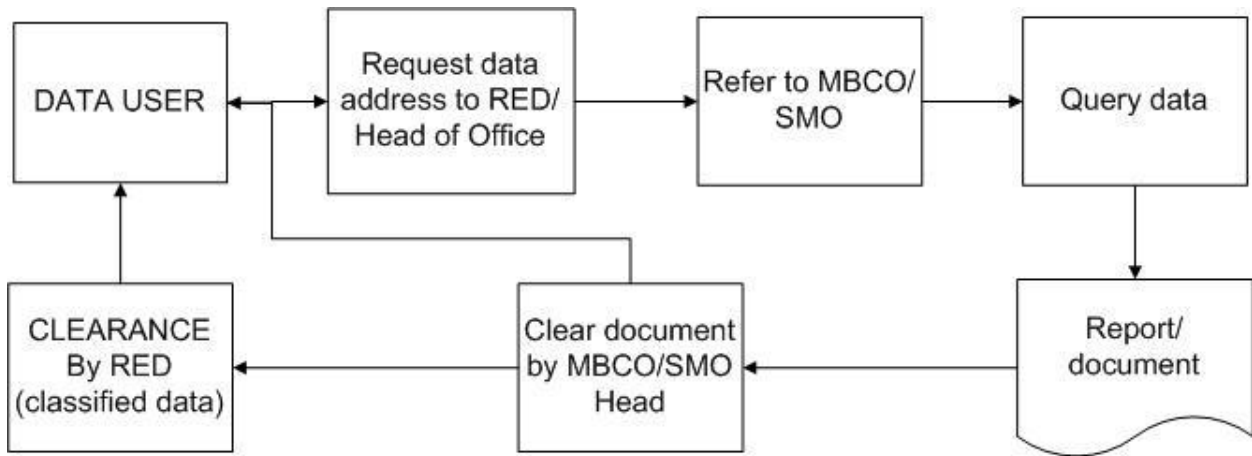4. Availability of other data needed in IIMS database.

DENR-Region 4A

Difficulties encountered in IIMS

1. Retrieval of data from downloaded email
2. Browsing/selection (e.g. Manufacturing type)
3. Renumbering (records is limited to 10 digits only)
4. Importing and exporting functions is case sensitive
5. Data shuffles when exported to excel

IIMS Tables	Problems/Issues	Suggestions
Socioeconomic Data	Renumbering	
- inventory of industries/ commercial/institutional	- classification	- classification must come from primary data source
	- floating point division by zero message "prompts"	
	- data shuffles when exported to excel	
Pollution Sources Data	renumbering	
- poliprof	- limited to 10 digits	
Environmental Quality Data		
- station ID	- is limited to 10 characters	
Demographic Data	- floating point division by zero message "prompts"	
	- duplication of data pop-ups but still accepts	

Annex 5. Process flow of providing data to users

Flowchart (top):
DATA USER → Request data address to RED/ Head of Office → Refer to MBCO/ SMO → Query data → Report/ document → Clear document by MBCO/SMO Head → CLEARANCE By RED (classified data) → DATA USER

Flowchart (bottom):
DATA USER → Request data address the Gov → Refer to PMO/ PGENRO → Query data → Report/ document → Clear document by PMO/ PGENRO → CLEARANCE By GOV (classified data) → DATA USER

Annex 6. Action plans for the operationalization of the MB-IIMS.

DENR Region 3, Bataan ICM, Bataan PENRO				
Activity	**Timetable**	**Resources Needed**	**Responsible Unit**	**Limitations**
1. Re-echo of IIMS Module 2	March 6-8, 2013	Human resources Equipment Transportation Supplies	MBCO-SMO3 DENR-PENRO Bataan PMO Bataan	
2. Data collection -Pollution sources Land Based sources -Industry -Hazardous wastes -Municipal wastewater -sludge treatment & disposal style -solid waste -animal waste -disposal sites Water-based sources	March 11, 2013 to April 30, 2013	Human resources Equipment Transportation Supplies	MBCO-SMO3 DENR-PENRO Bataan PMO Bataan PG ENRO Bataan	Constraints to access EMB data
Natural and Human Made Hazards -Physiographic Data -Governance Data -Demographic Data (poverty, income, employment, waterborne diseases, vital health, malnutrition, education)	March 11, 2013 to April 30, 2013	Human resources Equipment Transportation Supplies	MBCO-SMO3 DENR-PENRO Bataan PMO Bataan PG ENRO	
3. Data screening/ classification/ verification	March 11, 2013 to April 30, 2013	Human resources Equipment Transportation Supplies	MBCO-SMO3 DENR-PENRO Bataan PMO Bataan PG ENRO	
4. Data encoding	March 11, 2013	Human resources	MBCO-SMO3	

		to May 31, 2013	Equipment	DENR-PENRO Bataan PMO Bataan	
5.	Submission of Encoded Data to PEMSEA	June 2013	Human resources Transportation	MBCO-SMO3	
6.	Application of IIMS to SOC and OSCP	March 15, 2013 to July 15, 2013	Human resources Equipment	MBCO-SMO3 DENR-PENRO Bataan PMO Bataan	

SMO-NCR			
ACTIVITIES	TIMETABLE	RESOURCES NEEDED	RESPONSIBLE UNIT
1. Continuous Classification of Data	March- April	Personnel	SMO-NCR
2. Data Collection/Screening	April- December	Personnel	SMO-NCR
3. Submission of Updated Data	June	Personnel	SMO-NCR, PEMSEA
4. Upgrading of Computer Hardwares (On-going procurement)	March - June		SMO-NCR
5. Capacity Building on GIS/IIMS for DENR – NCR personnel	April- May	Funds	SMO-NCR
5. Capacity Building for LGUs on IIMS per River System (MANATUTI, PARLAZPISAP, PAMARISAN).	April- September	Funds Resource Persons	SMO-NCR PEMSEA
6. IIMS Application on Area- Based Management Planning per River System	May - December	Funds	SMO-NCR

Cavite

Activities	Time table (2013)	Resources Needed	Responsible units
STAFF			
Hiring of additional Staff (2 Technical Staff)	July		
Training of Staff (Re-echo to other employees)	July	Budget: ICM	ICM
EQUIPMENT			
Upgrading of Equipment (2 Units)	March		
Integration of IIMS database			
Inventory of data available/ collected/ screened and encoded	April	Respective offices	PG-ENRO, CMMD/PENRO
Encoding of data	May	PEMSEA, respective offices	Respective offices
Integration of DENR and LGUs database	June (Monthly)	Respective offices	CMMD, PG-ENRO, PENRO, PEMSEA
Institutionalization of IIMS			
Coordination with municipalities/cities and PENRO, and CMMD-membership with the IIMS Team of R4a	April - Dec		
Regular meeting of IIMS Team	Quarterly	CMMD	CMMD, respective members
Module 2 training	TBD	PEMSEA	All PENROs, EMB, focal persons/sector, planning, PEMSEA
Support to the Cavite Initiatives			
Application of SOC Data to IIMS			
Adoption of CLUZP Data to IIMS			
Monitoring of activities	May-Dec	Respective offices	Respective offices, CMMD, PEMSEA, planning, LGUs

DENR-Region 4A

Activities	Time table (2013)	Resources Needed	Responsible units
STAFF			
Hiring of additional Staff (2 Technical Staff)	July		
Recruitment/assignment of staff – Rizal, EMB-4A, Batangas, Laguna, Cavite, Quezon (1 per Office)	July	Budget from respective offices	Respective offices
Training of Staff (Re-echo to other employees)	July	Venue and Food/Training Kit /Resource Persons	PEMSEA/CMMD
Retraining/training of staff (EMB, Rizal)	July	Venue and foods: EMB Training Kit: CMMD	
Integration of IIMS database			
Inventory of data available/ collected/ screened and encoded	April	Personnel	CMMD/MBCO, PENROs, EMB, focal person per sector
Updating of IIMS Data	May onwards	Personnel	Respective offices
Strengthening of IIMS in Rizal, Laguna, Quezon, Batangas, Cavite and EMB-4A	May	Software	Respective offices, CMMD
Integration of database from LGUs and other offices	June	Equipment/Personnel	Batangas, Cavite, CMMD and MBCO respective PENROs
Submission of Updated database to PEMSEA	July (Monthly)		CMMD-Region 3,4A and NCR, PEMSEA
Institutionalization of IIMS			
Updating/reconstituting the Region 4A IIMS Team	ASAP		CMMD
Regular meeting of IIMS Team	Quarterly	Personnel/IIMS Team	CMMD, respective members
Module 2 training	July	Venue and Food/Training Kit /Resource Persons	All PENROs, EMB, focal persons/sector, planning, PEMSEA
Monitoring of activities	May onwards (Monthly)	Personnel/Respective offices	Respective offices, CMMD, PEMSEA, planning, LGUs