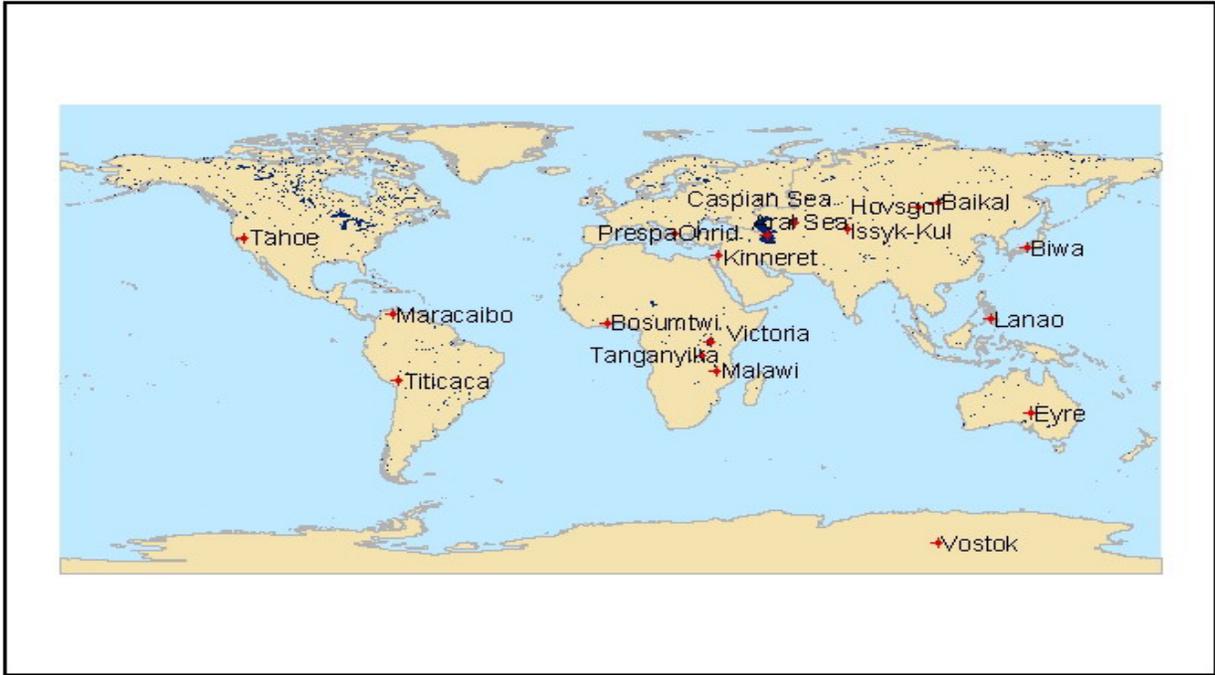


1. Location of Lake Lanao:

# Ancient Lakes of the World



LakeNet Explorer

Sources: Lehner, B. & P. Doll (2002);  
Birkett, C.M. & I.M. Mason (1995)  
Base map: ESRI (2002)

## Lakes of the Philippines

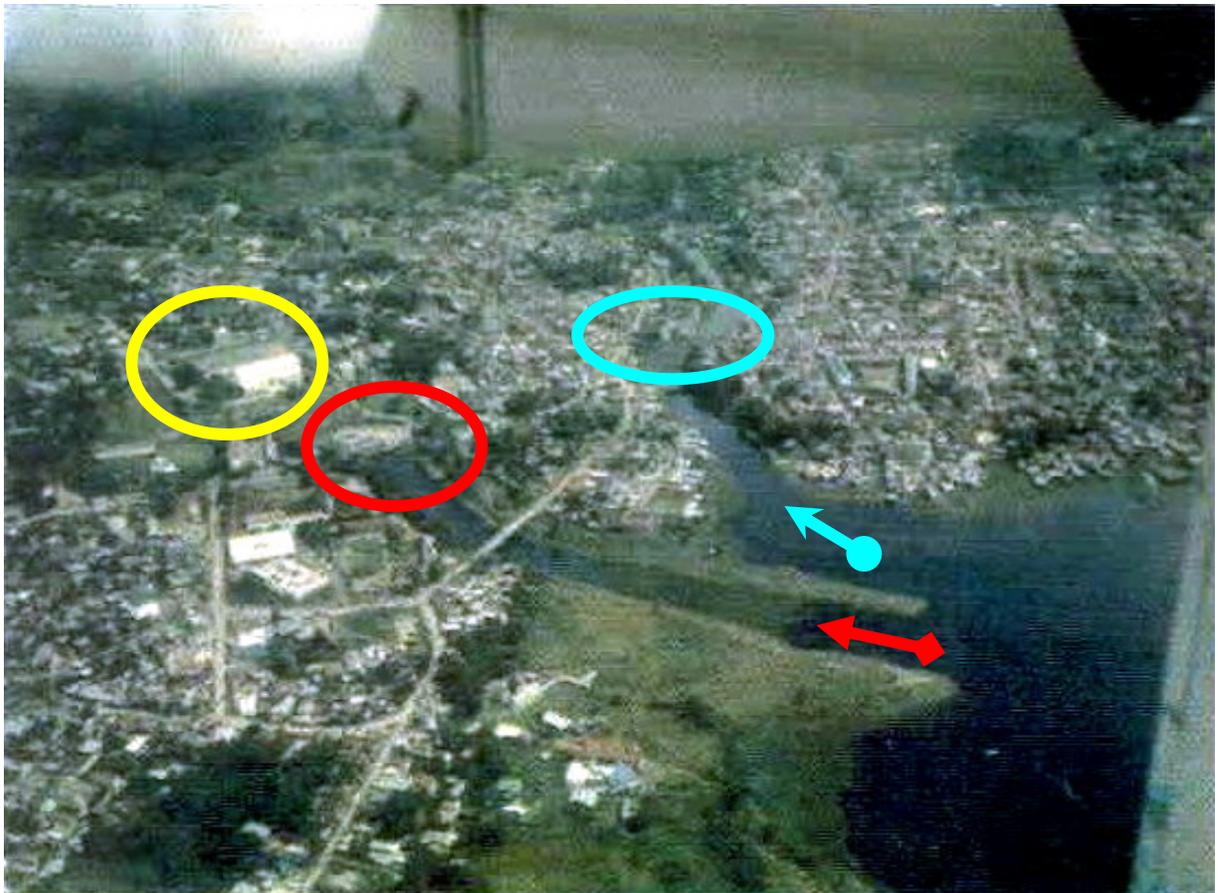


LakeNet Explorer

Lehner, B. & P. Doll (2002); Birkett, C.M. & I.M. Mason (1995);  
Ong, P.S., L.E. Akung, & R.G. Rosell-Ambal (2002)  
Base map: ESRI (2002)



Source: PPDO Lanao del Sur



Aerial view of Marawi City. (Source: CPDO Marawi City)

- Blue arrow : Inlet of Agus River going downstream to Iligan Bay (37 Km.)
- Blue circle : Regulatory Dam
- Red arrow : Inlet to the Agus 1 hydro electric power plant channel
- Red circle : Screened gate of the penstock
- Yellow circle : Power House (2 - 40MW turbines, metering system and generators)



The Regulatory Dam (see map with blue circle). <photo: [www.maranao.com](http://www.maranao.com)>



Photo taken from the campus of the Mindanao State University. Lake Lanao at the middle. Background is the 'Sleeping Lady' mountain. (photo: [www.maranao.com](http://www.maranao.com))



Aside from fishing, the Lake is used extensively to transport farm products and people. (photo: [www.maranao.com](http://www.maranao.com))

## 2. Profile of Lake Lanao

Facts about Lake Lanao	
Description	Located in Lanao del Sur, Philippines, Lake Lanao is one of the original fifteen (15) ancient lakes on earth. It is estimated to be over two million years old.
Latitude	7° 50' 0" (7.8333)
Longitude	124° 20' 0" (124.3333)
Surface Area	354.60 km <sup>2</sup>
Mean Depth	60.00 meters
Maximum Depth	112.00 meters
Pondage Volume	21.28 km <sup>3</sup>
Flushing Period	7.33 years
Watershed Area	1,678.30 km <sup>2</sup>
Age	2 – 20 million years old
Origin	Volcanic
Threats	Several native species are already extinct due to the radical fluctuation of the lake water level caused by the National Power Corporation and the introduction of invasive fish species. (Examples are the endemic species: <i>Puntius lindug</i> , <i>P. baoulan</i> , and <i>P. tumba</i> ).
Biodiversity Conservation	Lake Lanao is home to a highly unusual group of fish known as a "species flock". All 18 species are thought to have evolved from one specie, the spotted barb. This ecoregion is also home to 41 endemic freshwater crab species.

Sources: LakeNet, Global 200, DENR (Phil), and A. Santos-Borja (Study of Philippine Lakes)

## 3. Background

Lake Lanao is the second largest freshwater lake in the Philippines. It is located in the Province of Lanao del Sur, in the heart of Mindanao at 701.35 meters above sea level. It has an area of 354.60 square kilometers and a mean depth of 60 meters, with the deepest part at 112 meters. It used to be home to 18 endemic fish species that cannot be found anywhere else. They are now gone.

Lake Lanao has only one outlet to the sea, the Agus River. Before 1978, the National Power Corporation (NPC) has been operating five (Agus-2,

Agus-4, Agus-5, Agus-6, Agus-7) power plants along the Agus River since 1953, with a combined generating capacity of 639 MW. In all these times, there was no opposition to the operation of NPC because the five power plants are only using the high-energy stream of the Agus River.

#### 4. The Problem

In 1978, the fate of Lake Lanao has changed for the worse. A regulatory dam constructed near the mouth of the river (see photo above) began operation. The people residing along the shorelines of the lake immediately felt the effect, in the form of flooding and drying of the shorelines. It used to be that when there is more rain, the more water outflows to the river; less rain, less outflow. The result is an unstable lake and a stable river, something against the laws of nature.

In 1979, construction of Agus-1, the sixth of the seven (construction of Agus-3 started in early 1990's) power plants planned for the Agus grid began. Agus-1 has changed the situation in a potentially disastrous direction along environmental and social dislocations.

- For one thing, its being assigned a project name to denote that it is the first of the facilities along the river is a misnomer. It is not sited along the river course but at some distance from its mouth (see map), along the shoreline of the lake and right at the heart of Marawi City.
- For another, Agus-1 will not make use of the natural outflow of water through the river but will draw its needs directly from the lake.
- Agus-1, in effect, is a new, artificial, and vastly larger outlet designed to replace the natural outlet, the Agus River.
- Human operators, dictated by the systems requirement of Agus-1 and all the other facilities downstream, will control the volume and rate of water that Agus-1 will draw directly from the lake.

**The replacement of the natural outlet of the lake by the Agus-1 is an ecological nightmare with alarming consequences to man and the environment. It is a classic instance of tinkering with nature that is fraught with grave and irreparable results.**

## 5. What We Did

This unhappy development has prompted the emergence of opposition to this particular project. It was in October 1990, spearheaded by a new group, the Save Lake Lanao Movement (SALAM), that the general participation of all sectors of the community was mobilized to prevent the National Power Corporation from the commissioning of Agus-1. The public outcry against this particular project had reached the highest levels of government.

- On one level, the Senate through its Committee on Mindanao Affairs under the chairmanship of Senator Aquilino Q. Pimentel Jr., created the Task Force on Agus-1 to look into the various aspects of the problem.
- On the other hand, President Corazon C. Aquino directed the temporary suspension of the project commissioning until such time that the people were clarified on their complaint and misgiving and the same time creating the Lake Lanao Watershed Protection and Development Council (LLWPDC).

The five-man Task Force had prominent engineers as members where both NAPOCOR and SALAM had each nominated a representative. Both NAPOCOR and SALAM agreed to abide by the findings and recommendations of the Task Force.

The installation of a permanent barrier to establish a definite level of minimum water elevation is so far the only viable solution to the problem introduced by the operation of Agus-1. This has been the unanimous recommendation of the 1991 Senate Committee Task Force, adopted by the Senate, and embodied in its recommendation for implementation by the government. NAPOCOR has not complied with this particular recommendation.

The Mindanao State University in a separate investigation, Policy Study on Lake Lanao, also came out with recommendations to preserve the lake. One recommendation is the creation of a Lake Lanao Development Authority that will be tasked to oversee the protection, conservation, and development of Lake Lanao and its watershed.

## 6. What Happened

None of the agreed solutions were complied by NPC.

## 7. Our Position

The development of the natural water resources for electric power generation shall be tempered by a genuine concern for the protection and conservation of these resources. There is no quarrel about the necessity of producing energy power to run the machineries of progress but problem is bound to arise if this is pursued without careful consideration of the need to preserve the natural wealth. This wealth is as much God-given to the present generation as to the future.

## 8. What Others Say

The attachment of the Meranao to the lake is ingrained in his psyche: his identity and ethnicity are both derived from the same word for ***the lake***.

Perhaps a more concise description of this relationship between a people and their watering place is this provided by Lindy Washburn, an American writer: "...To the lake, they have bound their identity: in their own eyes and in the eyes of the outsiders they are Meranaos, the People of the Lake. On its shores, they established their villages and towns and built their mosques, with its water, they purify themselves for prayer, in its wetlands, they cultivate their rice, from its depths, they gather fish, across its spans, they transport goods and people, from it they take water for drinking and cleaning. Each boulder and island in the lake, each hill and valley in the land surrounding it is woven into the legends and epics of the people. And each Meranao can willingly trace his ancestry to the original ***pat-a-pangampong*** – four encampments on the lake, their mythical founders. Thus, it is with some justification and no little pride that the Meranaos consider the Lake Lanao "Our Lake".

## 8. What We Want

Lake Lanao is one of the ancient lakes of the world and it must be protected, conserved, and developed at all cost.

»» What can you do to help us?

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