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## PHOTOGRAPHIC ALBUM

# PAPUA NEW GUINEA WATER SUPPLY AND SANITATION SECTOR PROFILE

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P.O. Box 11114, 2300 AD The Hague  
Tel. (070) 316371 ext. 141/142

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PHOTOGRAPHIC ALBUM

PAPUA NEW GUINEA WATER SUPPLY AND SANITATION SECTOR PROFILE

ASIAN DEVELOPMENT BANK

September 1987

This Photographic Album of the Sector Profile has been prepared by consultants with the assistance of the staff of the Water Supply and Sanitation Division of the Asian Development Bank and in consultation with the Government of Papua New Guinea.

## INTRODUCTION

During its stay in Papua New Guinea (PNG), the Water Supply and Sanitation Sector Profile Mission made a few field visits. These visits proved to be very informative particularly those to the rural areas. It is the rural areas and conditions prevailing there that are usually not so well documented or described.

Acting on the assumption that pictures speak louder than words, the Mission has prepared this photographic album making use of the photographs taken by the Mission members during the field visits.

Brief descriptions of these photographs draw attention to some specified aspects or provide information which could not be included in the main report. A map is also included to illustrate the location of the various provinces of PNG.

This album is meant to be a supplement to the main Mission report.

S.V.S. JUNEJA  
Director  
Infrastructure Department

Fig. 1. Western Province. Unprotected spring, at the right side of the picture. This spring is located on a shore of a stream. It never dries and is a very important source of drinking water to the whole village. It is a rather typical village water source. Such spring could be protected to prevent contamination with fecal matter normally present in streams. If equipped with a handpump, it will not be contaminated by users. Such protective work could be carried out by self-help. However, villagers would have to be convinced by health education that such work would be beneficial to them particularly to their children.

Fig. 2. Western Province. Rain water is being collected even from thatched roofs of village houses. Storage is inadequate and can be contaminated by users. This is not an ideal solution of the water supply problem. Such system can be improved by construction of larger storage tank, e.g., ferrocement tank, and by metal covered roof.

Fig. 1



Fig. 2



Fig. 3. Morobe Province. Protected well with two handpumps. One of the pumps supplies water to the tank from which it gravitates to the household. Second pump (on the right) is a PNG Blair handpump.

Fig. 4. Morobe Province. Protected well equipped with PNG Blair handpump <sup>1/</sup>. This source is used principally for drinking purposes. This installation has been in operation for about three years. The PNG Blair handpump is very simple and reliable. However, users complain of backache after using the pump. The handpump should be ergonomically investigated and if necessary, improved.

1/ The PNG Blair handpump was developed by the Appropriate Technology Institute of Lae, in collaboration with the Local Government Section of the Department of Works at Madang and the ADB Rural Health Project in Port Moresby, and it was based on the PVC handpump originally developed by the Blair Institute in Zambia. A drawing of this pump is enclosed at the end of this album.

Fig. 3



Fig. 4



Fig. 5. Morobe Province. The stream near the village, same as shown in Figure 4, is used for bathing and for washing clothes. Water in the stream is very likely to be contaminated with fecal coliform.

Fig. 6. Morobe Province. This village has a gravity piped water supply system. Number of standpipes provide easy access for households. However, the source is unprotected and the bacteriological tests indicated presence of fecal coliform. It is imperative that the source of water for this scheme be protected.



Fig. 5



Fig. 6



Fig. 7. Western Province. School building with rain water collection system. This sytem was developed within the Provincial Helth Division Program.

Fig. 8. Western Province. Aid Post serving a few villages. It has a rain water collection system. This Aid Post was unoccupied at the time of the visit.

Fig. 7



Fig. 8

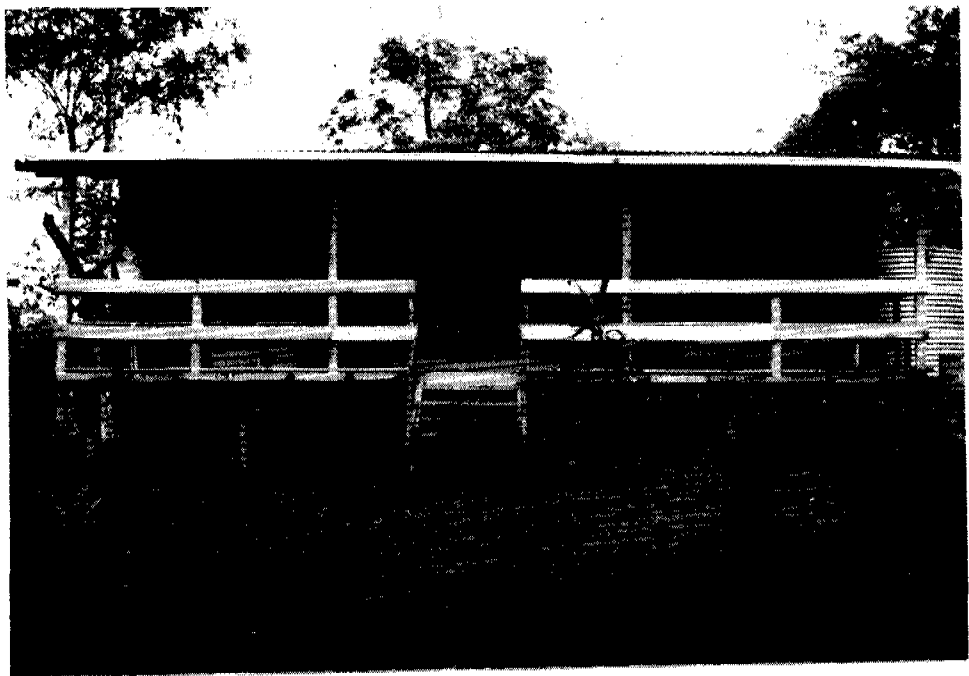


Fig. 9. Chimbu Province. Kundiawa town. A new gravity piped water supply system is being constructed at Kundiawa. It will be supplied by a protected spring. The excavation for construction of protection works for this spring is shown on the photograph.

Fig. 10. Morobe Province. Lae Town. Lae town has a good water supply system based on deep boreholes. Water is chlorinated. It has 4,553 metered connections. This photograph shows one of the public standpipes with inadequate drainage.

Fig. 9



Fig. 10



Fig. 11. Port Moresby in the National Capital District. The impounded reservoir serves as a source of water for the city's water supply system.

Fig. 12. Port Moresby. Mt. Eriama water treatment plant operated by the National Capital District Interim Commission (NCDIC). This photograph shows concrete pressure filters.

Fig. 11

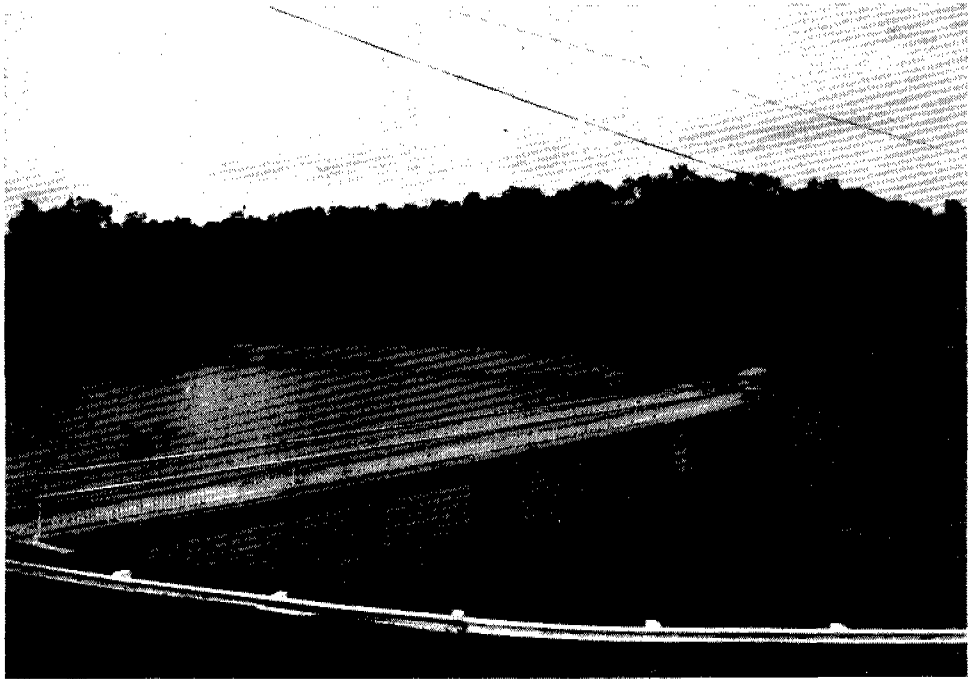


Fig. 12

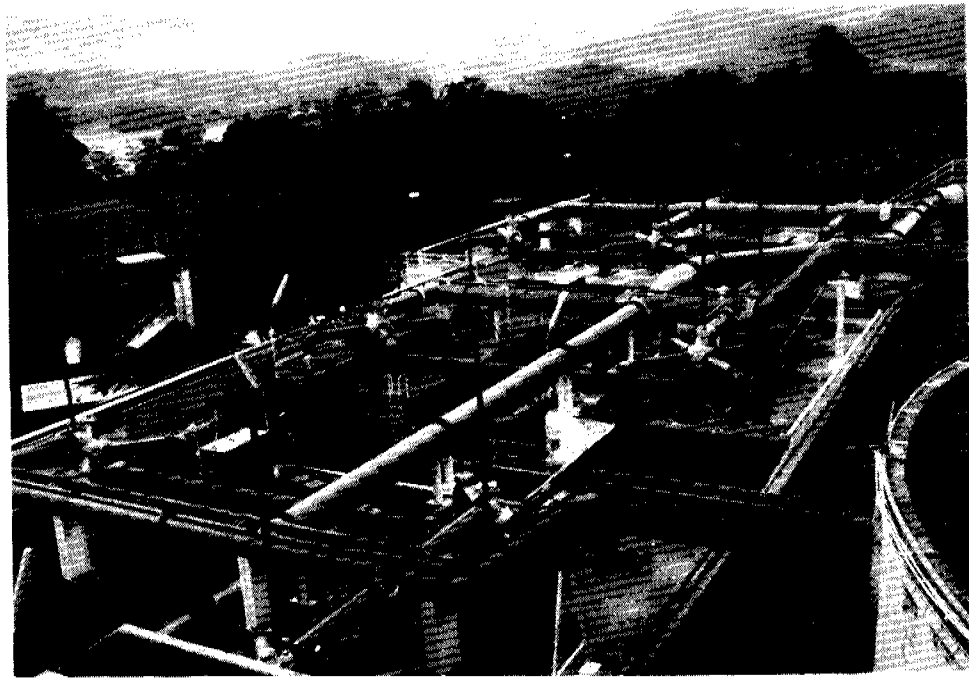


Fig. 13 and 14. Port Moresby. Mt. Eriama water treatment plant operated by the NCDIC. These photographs show one of the clarifiers. Figure 13 illustrates effectiveness of operation of this clarifier. Brown (dark if in B/W) water in the flocculator can be seen to the left of the photograph. The middle portion shows the settled water collecting channel. And finally, settled water collecting pipes can be seen through the clear water of the settling basin, at the right of the photograph.



Fig. 13



Fig. 14



Fig. 15. Morobe Province. Pit latrine in one of the village schools. This latrine was constructed under the Provincial Health Division program. There are no latrines in the surrounding villages.

Fig. 16. Western Province. Pit latrine in one of the village schools. This latrine was constructed with local materials under the Provincial Health Division program. This type of latrine was constructed by many households in the surrounding villages.

Fig. 15

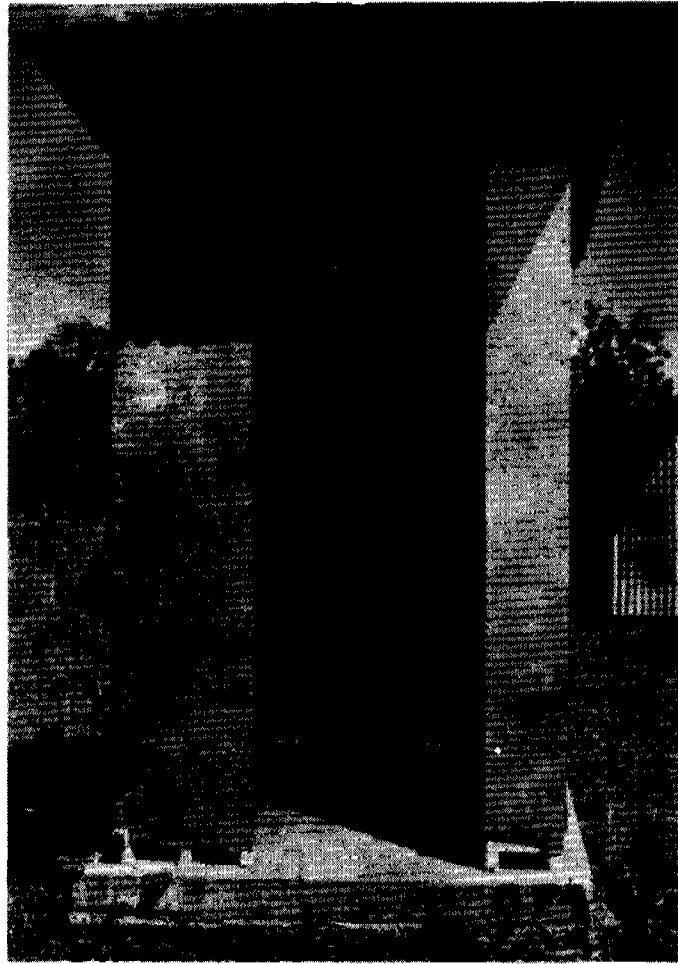


Fig. 16



Fig. 17  
and 18. Western Province. Kiunga town sewage treatment plant  
operated by a mining company. This plant serves about 200  
households. Figure 18 shows effectiveness of the treatment.

Fig. 17



Fig. 18



Fig. 19  
and 20. Port Moresby in National Capital District. Waigani lagoons  
treat sewage from a large part of the city. Figure 19 shows  
inlet works and Figure 20, the inlet to the first lagoon.

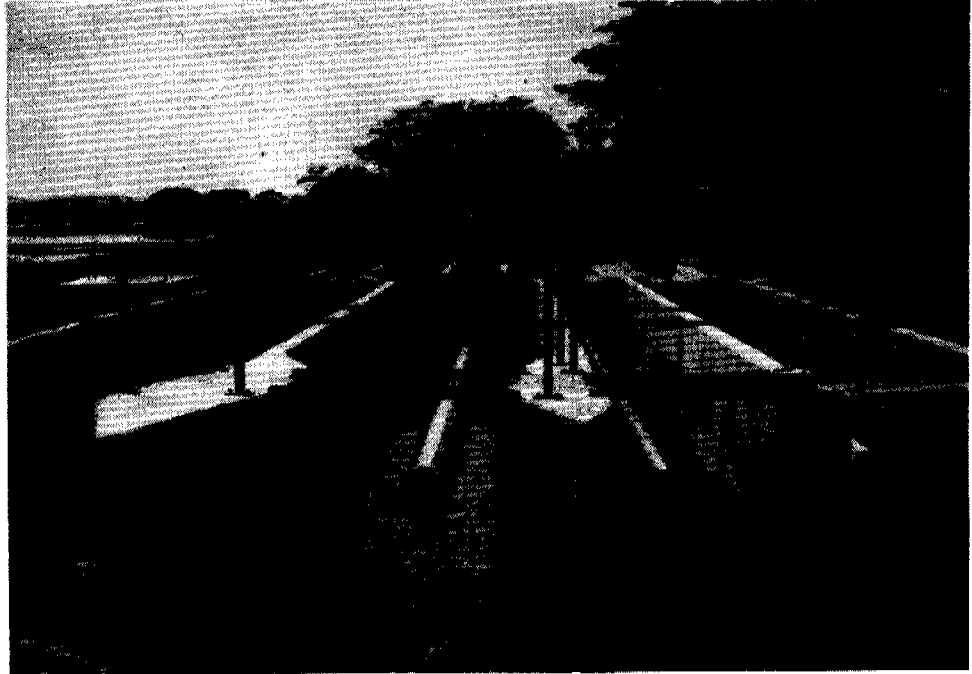


Fig. 19



Fig. 20

Fig. 21  
and 22.

Port Moresby in National Capital District. Fish are present in the second lagoon. This indicates effective treatment. Figure 22 shows outlet from the second lagoon into Waigani swamp.



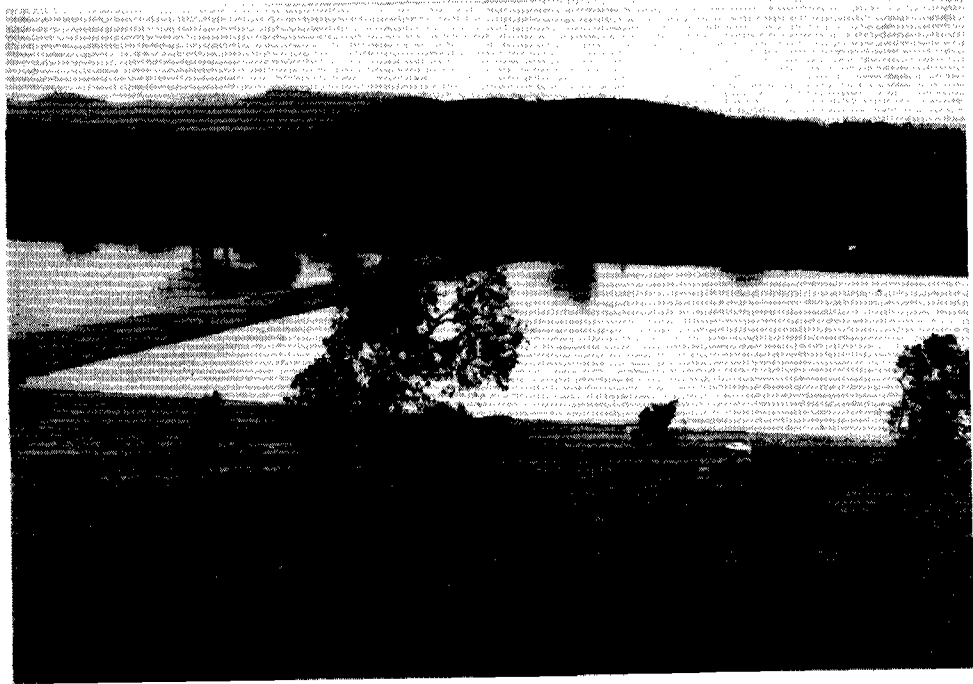


Fig. 21



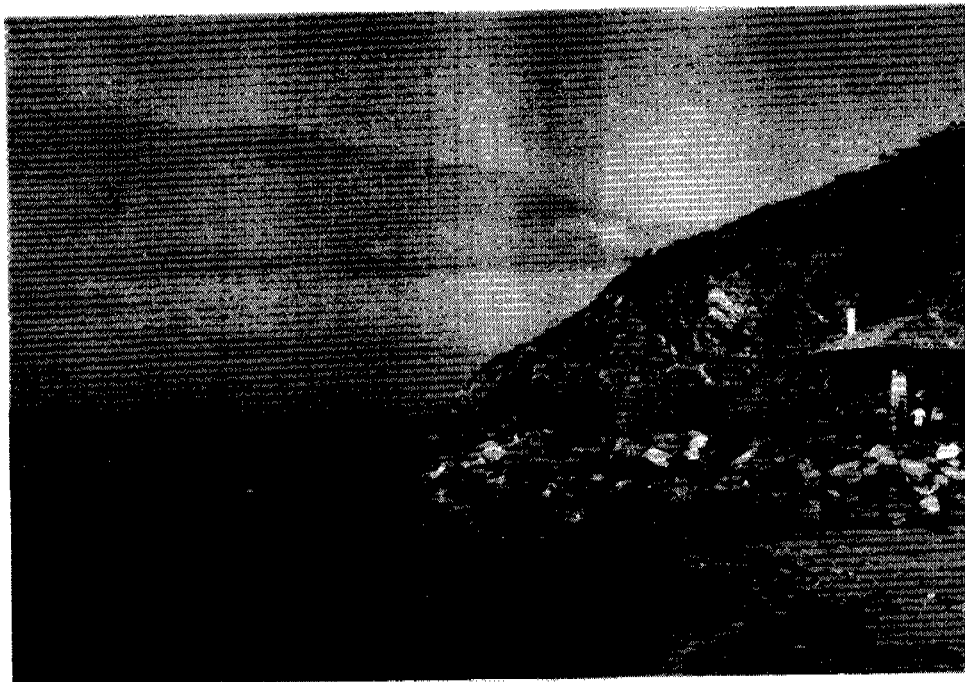
Fig. 22

Fig. 23  
and 24. Port Moresby in National Capital District. Part of the city is served by a sea outfall at Paga Point. Figure 23 shows a screen and a mechanical disintegrator at the Paga Point pumphouse.

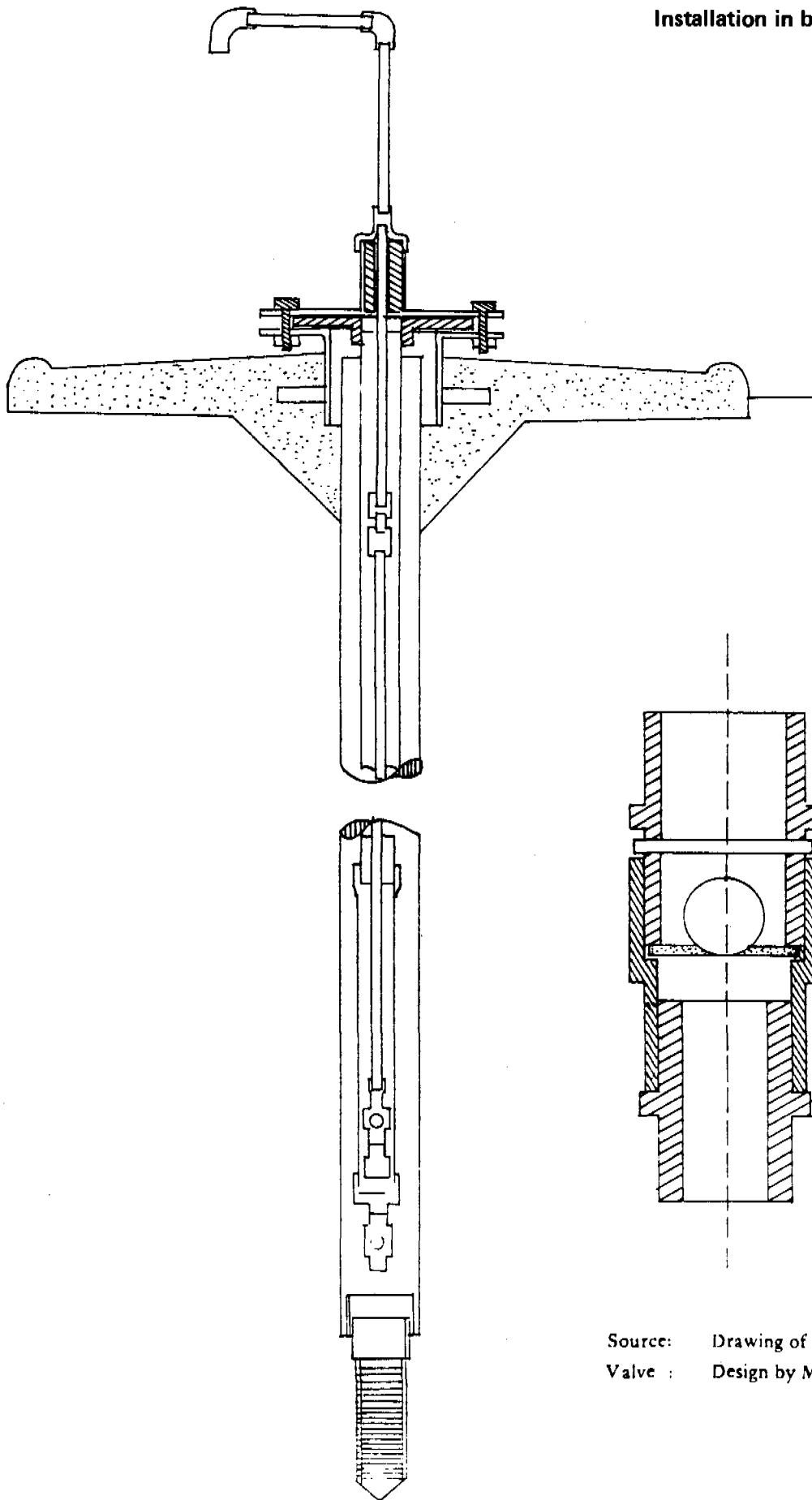
Fig. 23



Fig. 24



**P.N.G. BLAIR HANDPUMP**  
Installation in bore with strainer



Source: Drawing of Mr. G. F. Seidel  
Valve : Design by Mr. G. F. Seidel