

Results of Field Study on Daily Life  
Water Utilization in the Mekong Delta

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# Results of Field Study on Daily Life Water Utilization in the Mekong Delta

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## 1. Introduction

I had the opportunity to visit the Mekong Delta in August 1995, August 1996 and March 1998 as one member of investigation committee on the agricultural reclamation history of the Mekong Delta.

A significant amount of research has been made on the environment and agriculture of the Mekong Delta (for example: Kaida 1975, Nguyen 1994). However, there has been extremely little research done on the quality of daily life water such as drinking water, which is also a lifeline for the farmers who support the agriculture of this region. In August (during the rainy season) 1996 (Nakamura and Tatsuzawa 1997) and March (dry season) 1998, the author carried out a field study on the "utilization of daily life water in the Mekong Delta and water quality."

In this paper, I will present the results of the "field study result on the utilization of daily life water," which was carried out with the water quality survey in August 1996.

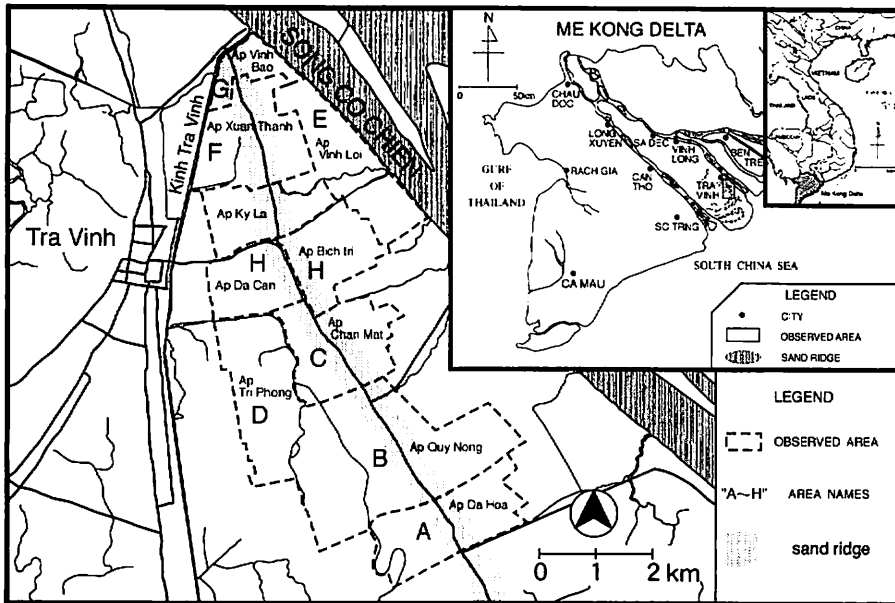
## 2. Outline of the Region of Investigation

The object of investigation is Hoa Thuan village, which runs about 10 km from north to south along the Co Chien river in Chau Thanh Prefecture, Tra Vinh Province, which lies between the Co Chien River and Hau Giang River in the estuary of the Mekong River (Figure 1). The village has an area of 2,710 ha, and a population of 17,180 (as of October 1995). A sand dune column (2-3 m in height, with a width of several hundred meters) runs almost along the center of the village from south-southeast to north-northwest. The colony was formed along this sand dune column. At the periphery, paddy fields using double cropping are widely distributed

The investigation was carried out in the rainy season period, from August 22-30, 1996.

## 3. Research Method and Subjects

At the time of the study, in August 1996, there were 459 shallow wells (3-5m in depth) and 71 deep wells (80-100m in depth) in Hoa Thuan village. We investigated water quality in 15 shallow wells and 16 deep wells (drilled with the assistance of UNICEF, etc.), rain-water in five places, spring water ponds in six places, and river and canals in six places



The inside of the broken line represents Hoa Thuan village, the object of research. The sand dune column runs through the village center from NNW to SSE.

Figure 1 Region of Investigation

used in the village. In addition, at the investigation sites and hearing investigation sites for the agriculture reclamation history, a “Field study of daily life water utilization related to the agriculture reclamation of the Mekong Delta” was carried out. The questionnaire consisted of 28 question items (Single answer: 1, Multiple answers: 16, Quantity answers: 7, Written answers: 4), as shown in Figure 2. The investigation was carried out by way of an interview survey, and 109 samples were recovered (recovery rate: 100%). This data was analyzed using an application program (Hideyoshi for Windows Version 1.1) made by Society Information Service Co., Ltd..

The age of the respondents ranged from 17 to 96, with 77% being in the 30-70 range.

## 4. Results

### 4.1 Number and Composition

There is a range of about 80 years between the time the village was first settled, in about 1912, and when the last settlers came, in about 1992. Of the residents, about 80% were already living in the village in 1975. At the time they had come to the village, the number of family members was a maximum of 17 and an average of 7.8. At present, the maximum number was 13 and the average 6.4. Families with 5-7 members made up 32.0% (Figure 3). When they took up residence, 27.5% of families included a grandfather among their members, and 30.3% a grandmother (Figure 4). The present figures were 2.8% and 8.3%, respectively, showing that the proportion occupied by grandparents is decreasing sharply.

## BẢNG ĐIỀU TRA VỀ THỰC TRẠNG SỬ DỤNG NƯỚC SINH HOẠT TRONG KHAI THÁC NÔNG NGHIỆP Ở ĐỒNG BẰNG SÔNG CỬU LONG

*Bảng điều tra này nhằm tìm hiểu nông dân sử dụng nguồn nước sinh hoạt như thế nào trong khai thác nông nghiệp ở vùng đồng bằng sông Cửu Long.*

*Kính mong nhận được sự cộng tác của Quý vị.*

1. Xin cho biết quý danh và địa chỉ :

Họ Tên :

Tuổi :

Địa chỉ :

2. Nguyên quán của gia đình quý ông (bà), đã sống ở đây từ khi nào ?

Nguyên quán :

Bắt đầu sống ở đây từ năm :

3. Xin cho biết thành phần gia đình lúc đó.

Ông, Bà, Cha, Mẹ, Con cái (Nam ..... người, Nữ .....người)

Người khác : ..... người

4. Thời đó nguồn nước uống được bảo đảm như thế nào ?

- Mùa mưa (giếng nhà, giếng hàng xóm, giếng chung, nước mưa, nước mua, nước kênh rạch, nước ruộng, nguồn khác)

- Mùa khô (giếng nhà, giếng hàng xóm, giếng chung, nước mưa, nước mua, nước kênh rạch, nước ruộng, nguồn khác)

5. Thời đó, tắm giặt bằng nguồn nước như thế nào ?

- Mùa mưa (nước giếng, nước kênh rạch, nước ruộng, nguồn khác)

- Mùa khô (nước giếng, nước kênh rạch, nước ruộng, nguồn khác)

6. Trước khi có giếng nước hiện tại, nguồn nước uống được duy trì ra sao ?

- Mùa mưa (giếng nhà, giếng hàng xóm, giếng chung, nước mưa, nước mua, nước kênh rạch, nước ruộng, nguồn khác)

- Mùa khô (giếng nhà, giếng hàng xóm, giếng chung, nước mưa, nước mua, nước kênh rạch, nước ruộng, nguồn khác)

7. Trước khi có giếng nước hiện tại, lấy nước ở đâu để tắm giặt ?

- Mùa mưa (nước giếng, nước kênh rạch, nước ruộng, nguồn khác)

- Mùa khô (nước giếng, nước kênh rạch, nước ruộng, nguồn khác)

8. Xin cho biết thành phần gia đình hiện tại.

Ông, Bà, Cha, Mẹ, Con cái (Nam ..... người, Nữ .....người)

Người khác : ..... người

(continued on the next page)

9. Giếng nước hiện tại hoàn thành từ lúc nào ?

Ngày ..... tháng ..... năm 19 .....

10. Xin được hỏi về việc sử dụng giếng nước hiện nay :

Đàn thể hỗ trợ :

Độ sâu :

*Phương cách sử dụng nước giếng :*

(1) Hình thức sử dụng :

a. Sử dụng riêng

b. Sử dụng chung (số hộ gia đình sử dụng : ..... hộ)

(2) Sử dụng nước giếng :

a. Mùa mưa : (nước uống, tắm giặt, rửa sân, cung cấp nước cho ao nuôi cá, nước uống cho gia súc, việc khác).

b. Mùa khô : (nước uống, tắm giặt, rửa sân, cung cấp nước cho ao nuôi cá, nước uống cho gia súc, việc khác).

11. Hiện nay ngoài nguồn nước giếng còn sử dụng nguồn nước nào khác không ?

(1) Nước uống :

a. Mùa mưa (nước mưa, nước đi mua, nguồn khác).

b. Mùa khô (nước mưa, nước đi mua, nguồn khác).

(2) Nước tắm giặt :

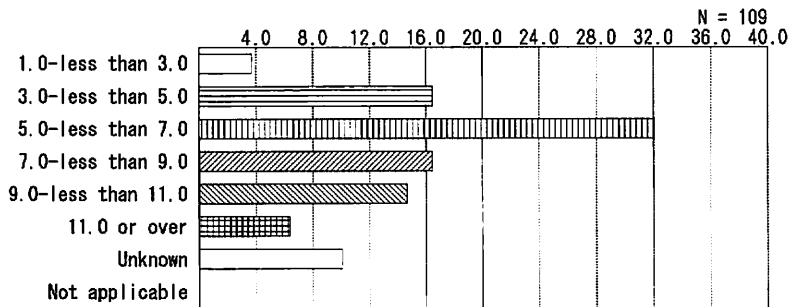
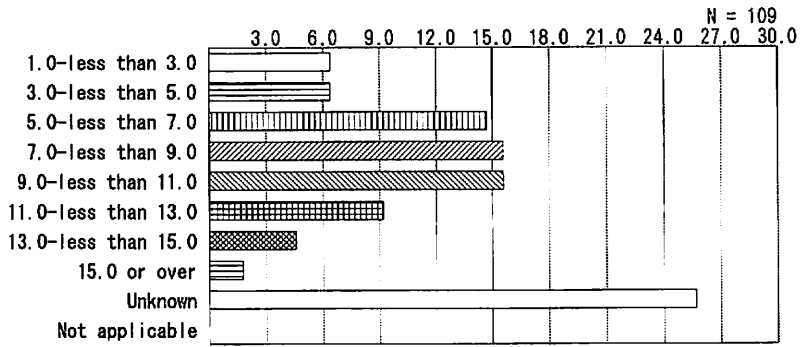
a. Mùa mưa (nước kênh rạch, nước ruộng, nguồn khác).

b. Mùa khô (nước kênh rạch, nước ruộng, nguồn khác).

Nếu có giấy tờ liên quan đến giếng nước của mình, xin ông bà cho xem nhằm kiểm chứng nội dung.

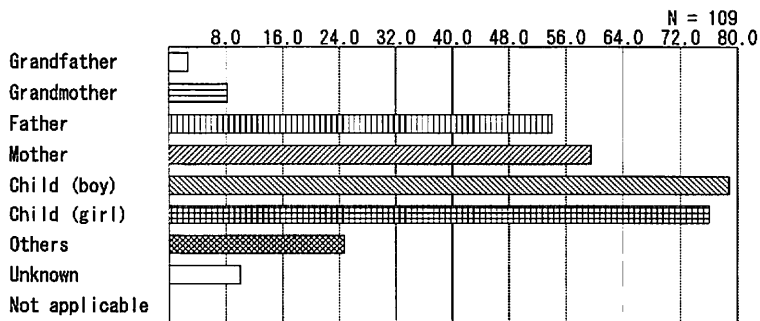
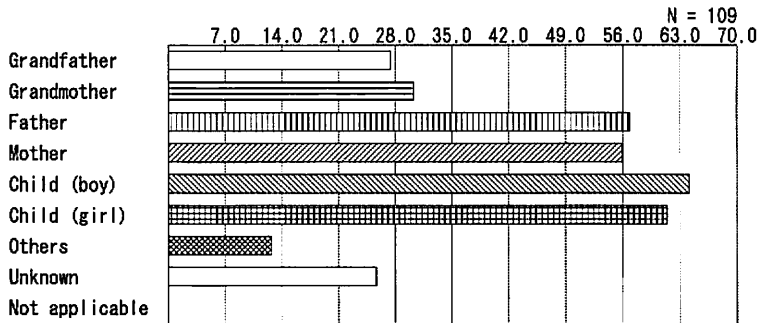
*Xin thành thật cảm ơn sự cộng tác của Quý Ông (Bà).*

Figure 2 Questionnaire Paper Used in Hoa Thuan Village



Upper diagram: Number of family members at start of residence  
 Lower diagram: Present number of family members (August 1996).

**Figure 3** Comparison of Number of Family Members at Time of Beginning of Residence and at Present



Upper diagram: Family composition at start of residence.  
 Lower diagram: Present family composition (August 1996).

**Figure 4** Comparison of Family Composition at Time of Beginning of Residence and at Present

### 4.2 Depth and Completion Time of the Well

The depths of the wells used at present are divided between those with a depth of 30m or less and over 70m (Figure 5). Though the former represent 65% of all wells, 94% of them have a depth of 5m or less. In this paper, wells with a depth of 5m or less and those over 70m in depth will be called shallow wells and deep wells, respectively.

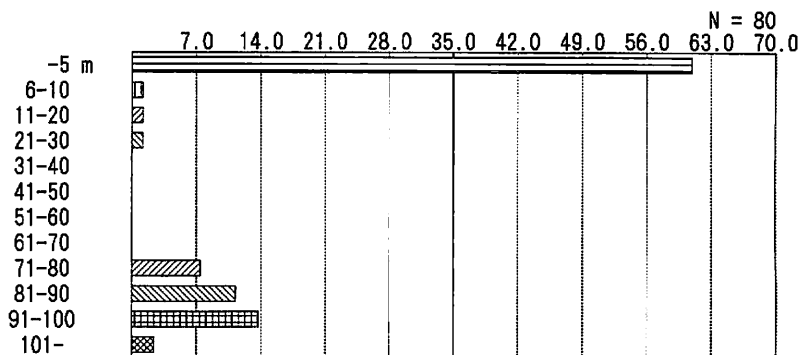
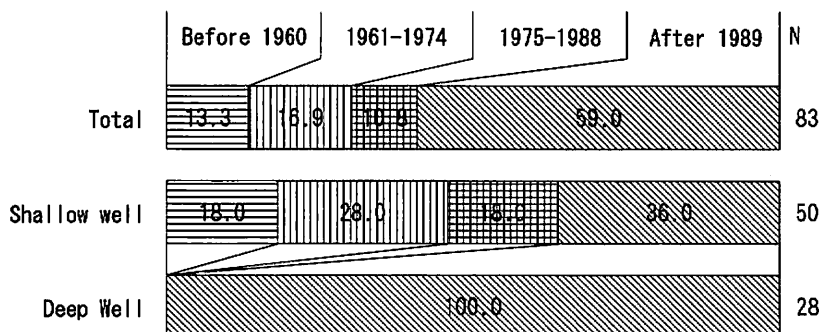


Figure 5 Proportion of Wells in Hoa Thuan Village by Depth

Though all of the deep wells in use at present were completed after 1989, just 36.0% of the shallow wells were completed after that year. And, the shallow well of 18.0% and 28.0% was respectively completed in period from 1975 by 1988 and period from 1961 by 1974. In addition, the well, which was completed before 1960 also, used 18.0% (Figure 6).



Shallow well: Depth of 3-5m.  
 Deep well: Depth over 70m.

Figure 6 Completion Time for Shallow Wells and Deep Wells

### 4.3 Utility Form and Method of the Well

The utility form of present wells can be divided into two main forms: individual utilization and joint use. The proportion is 60.7% joint use versus 39.3% individual utilization, or a ratio of almost 3:2. In the case of joint use, the number of households was five in 38.5% of cases, and 6-10 in 30.8%. In short, in about 70% of joint-use wells are used by 10 households or less (Figure 7).

First, the utilization of well water was divided (multiple answers, with ambiguous answers eliminated) into individual utilization and joint use. It was also further divided into

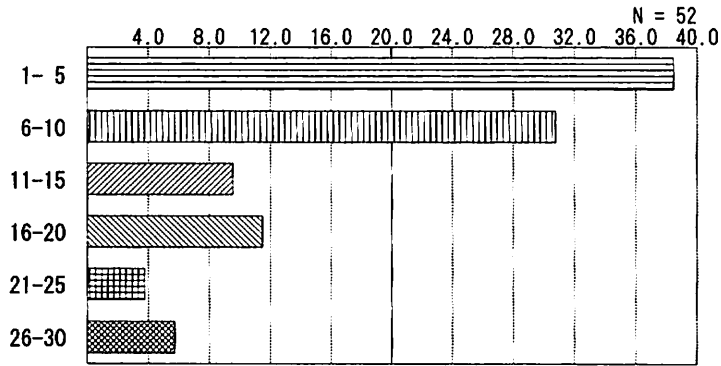


Figure 7 Number of Households Using Wells in Hoa Thuan Village

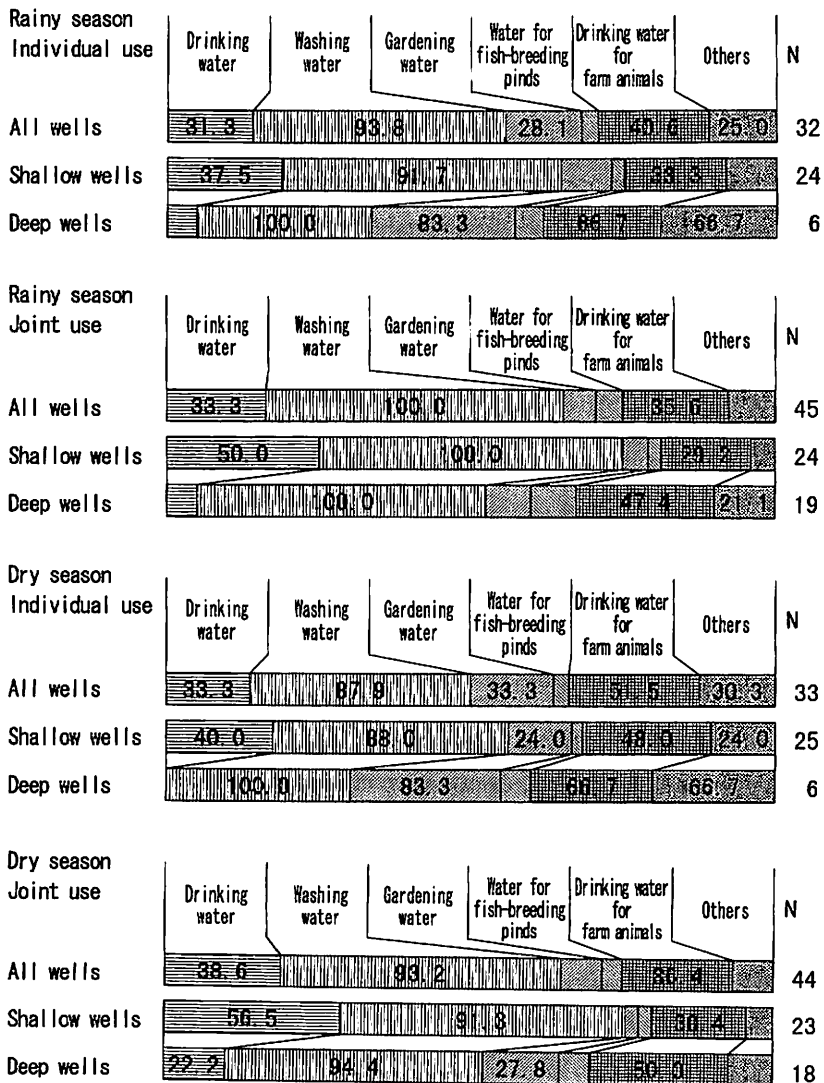


Figure 8 Situation of Utilization of Well Water in Hoa Thuan Village



rainy season and dry season, and shallow wells were compared with deep wells in terms of the utilization of well water (Figure 8). For individual utilization, it was found that 37.5% of shallow wells and 16.7% of deep wells were utilized as drinking water in the rainy season. In addition, 50.0% of shallow wells and 10.5% of deep wells that were being jointly used were utilized for drinking water. In terms of use as washing water, there was hardly any difference between the various cases; the utilization rate was 100% for all situations except shallow wells used individually, for which the figure was 91.7%. The utilization rate for uses such as "watering the garden" and "drinking water for domestic animals" was higher for deep wells than shallow wells.

In general, the utilization factor of well water in the dry season was similar to that in the rainy season. However, for drinking water, the utilization factor was 0% for deep wells being individually utilized; with the exception of deep wells, the utilization factor increased further in the dry season than in the rainy season. In the meantime, the utilization rate for washing water decreased during the dry season, with the exception of deep wells being individually utilized.

#### **4.4 The Drinking Water except for Well Water**

In addition to well water, as mentioned above, rainwater and purchased water are also used as other sources of drinking water. In the rainy season, there is no difference between individual and joint use wells, with 100% being used as rainwater (multiple answers). However, in the dry season, individual-use deep wells alone have a usage of 100% for drinking water; the figures are 52.6% for individual-utilization shallow wells, 37.5% for joint-use shallow wells and 31.3% for joint-use deep wells (Figure 9). The shortage of water is covered by purchased water, and joint users of deep wells depended on purchased water for 62.5% of their drinking water. Individual users of deep wells tend to live in large house, as they are comparatively affluent. They utilize rainwater, storing it in a number of large bottles for use throughout the year, and thus do not have to use well water during the dry season.

#### **4.5 Assistance Organizations**

Out of 31 shallow wells with a depth of 5m or less, 25 (80.6%) were dug at the users' own expense, and these wells were being used in practically the same way whether they were being used individually or jointly.

Only 5 out of 26 deep wells (19.2%) were dug at the users' own expense, without receiving any assistance funds (Table 1). In other words, roughly 80% of deep wells were dug using relief funds. The largest donor was UNICEF, which financed nine wells. In addition, one well each received funds from the EC, programs for the protection of minority, and village subsidy funds, respectively, and nine wells were funded by other sources. Four out of five wells dug at the users' expense were for individual use. One of the remaining well is used jointly by five households.

In the meantime, only one well dug using relief funds was being used individually. Other wells were all shared by 2-30 households.

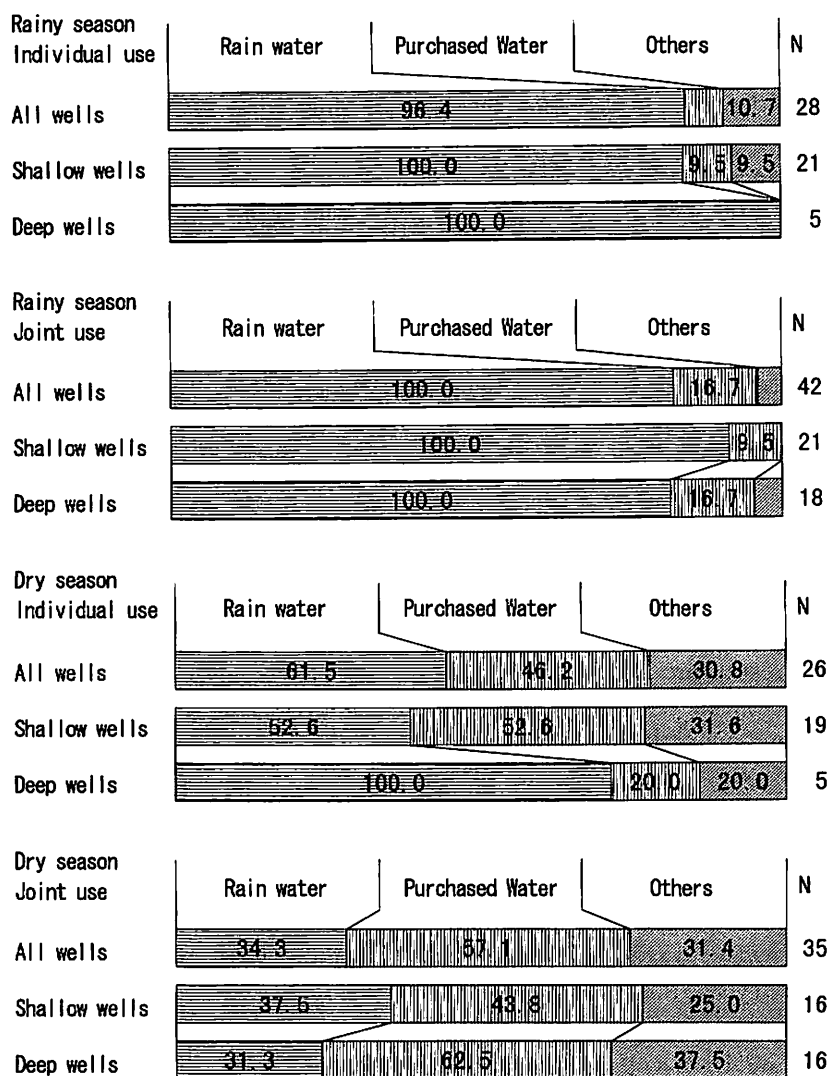


Figure 9 Situation of Sources of Drinking Water Other Than Well Water in Hoa Thuan Village

Table 1 Relief Funds for Deep Well Digging in Hoa Thuan Village (August 1996)

Type of assistance funds	Number of wells (%)	Form of use	
		Individual	Joint
UNICEF assistance funds	9 ( 34.6)		9
EC assistance funds	1 ( 3.8)		1
Funds for protection of minorities	1 ( 3.8)		1
Village assistance funds	1 ( 3.8)		1
Other assistance funds	9 ( 34.6)	1	8
Self-funded	5 ( 19.2)	4	1
<b>Total</b>	<b>26 (100.0)</b>	<b>5</b>	<b>21</b>

## 5. Consideration

Since 1989, deep wells have been dug using funds from UNICEF, etc. However, the water quality of deep wells was worse than shallow ones, and thus they were not often used as drinking water (Nakamura and Tatsuzawa 1997). There were also cases in which a well became unusable several years after its completion. The valve, which is made of rubber deteriorates from daily use, and there is intense abrasion of the shaft of the hand-driving pump. At present, as a result of this, most of the broken pumps have been abandoned and not repaired. The following issues are important in considering the digging of deep wells with assistance funds.

1. A water quality survey before digging the well.
2. The construction of a maintenance and management system after completing the well.

## 6. Conclusion

The field study on the utilization of daily life water of Mekong Delta was carried out in August 1996.

The main results are as follows.

1. The depth of wells used at present can be divided into shallow wells, of 5m or less, and deep well over 70m. The deep wells were all completed after 1989.
2. About 60% of wells are jointly utilized. Of those jointly utilized, 38.5% were used by five or fewer households, and 30.8% by 6-10 households.
3. The utilization rate of shallow wells for drinking water was higher than that for deep wells in both the rainy season and dry season.
4. Though among sources of drinking water other than well water, the dependence on rainwater was high in the rainy season, the ratio of purchased water increased in the dry season.
5. Approximately 80% of shallow wells were dug at the users' own expense, whereas about 80% of deep wells were dug using funds from UNICEF, etc. Most of the wells that received such funds were used jointly.
6. Since the water quality was bad, the utilization factor as drinking water of deep wells completed with funding was lower than that for shallow wells.

A summary of this study was presented at the Association of Japanese Geographers spring convention, on March 29th, 1997.

For this study, Ministry of Education grant-in-aids for Scientific Research, international scientific research, were used. Research representative: Takada Yoko "History of Agriculture in the Mekong Delta" problem number of 07041031 of 1995, 1996, 1997, fiscal year.

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