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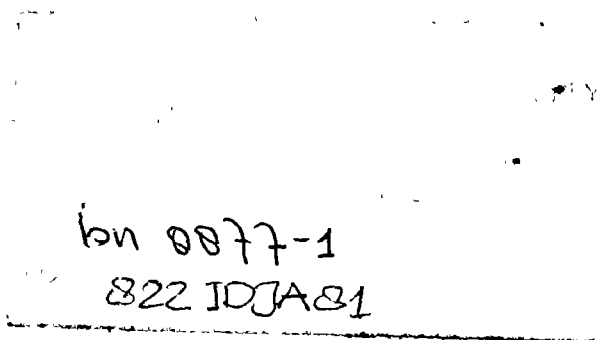


**PERBAIKAN KAMPUNG - KAMPUNG IMPROVEMENT  
BOGOR - TANGERANG - BEKASI - CIREBON**

**CASE STUDY MCK**

**FINAL REPORT**

OCTOBER 1981

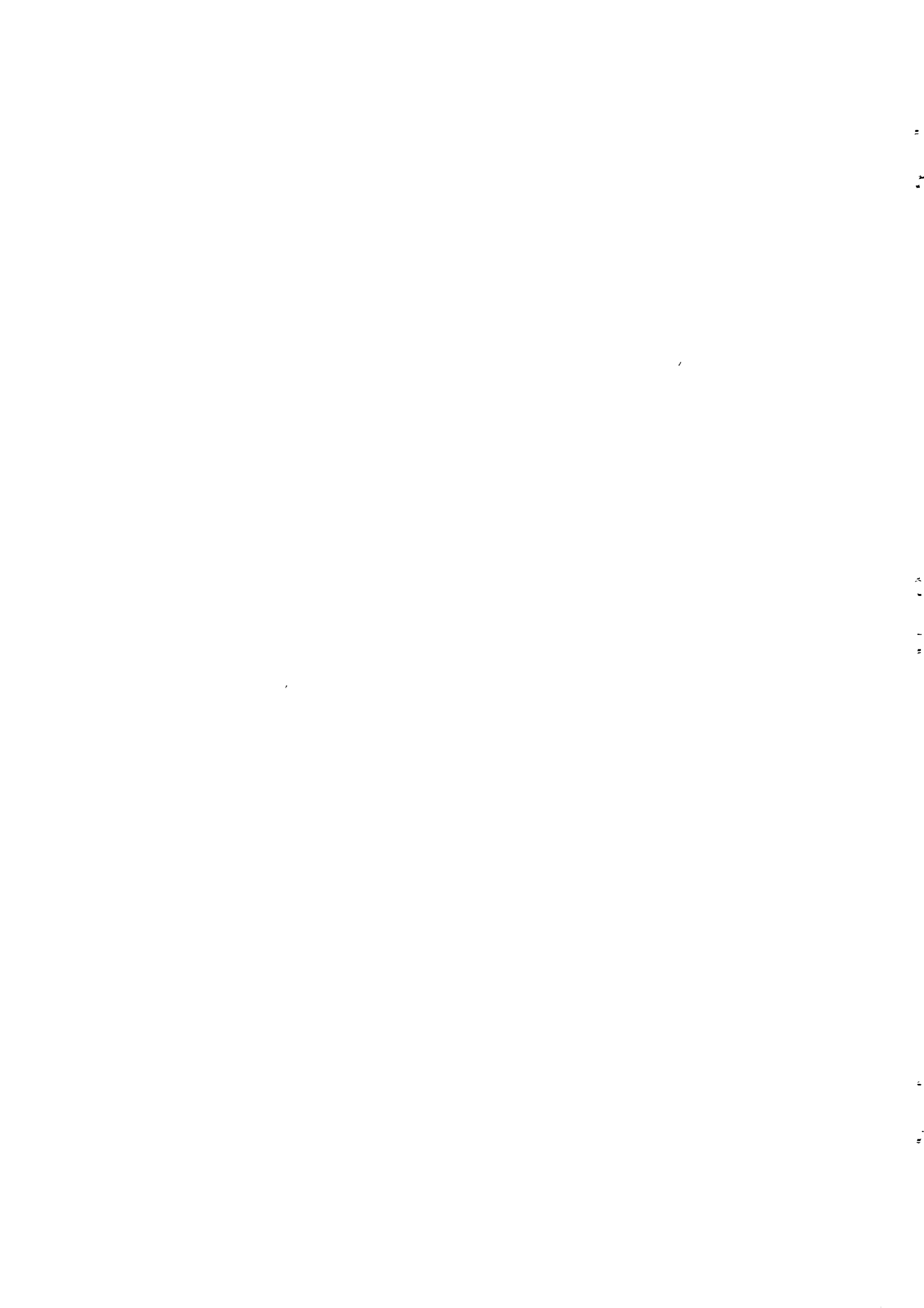


**JUDC**

**CONCARPLAN**

**SANGKURIANG**

JOINT URBAN DEVELOPMENT CONSULTANTS OFFICE : JL MERAK 27 BOGOR



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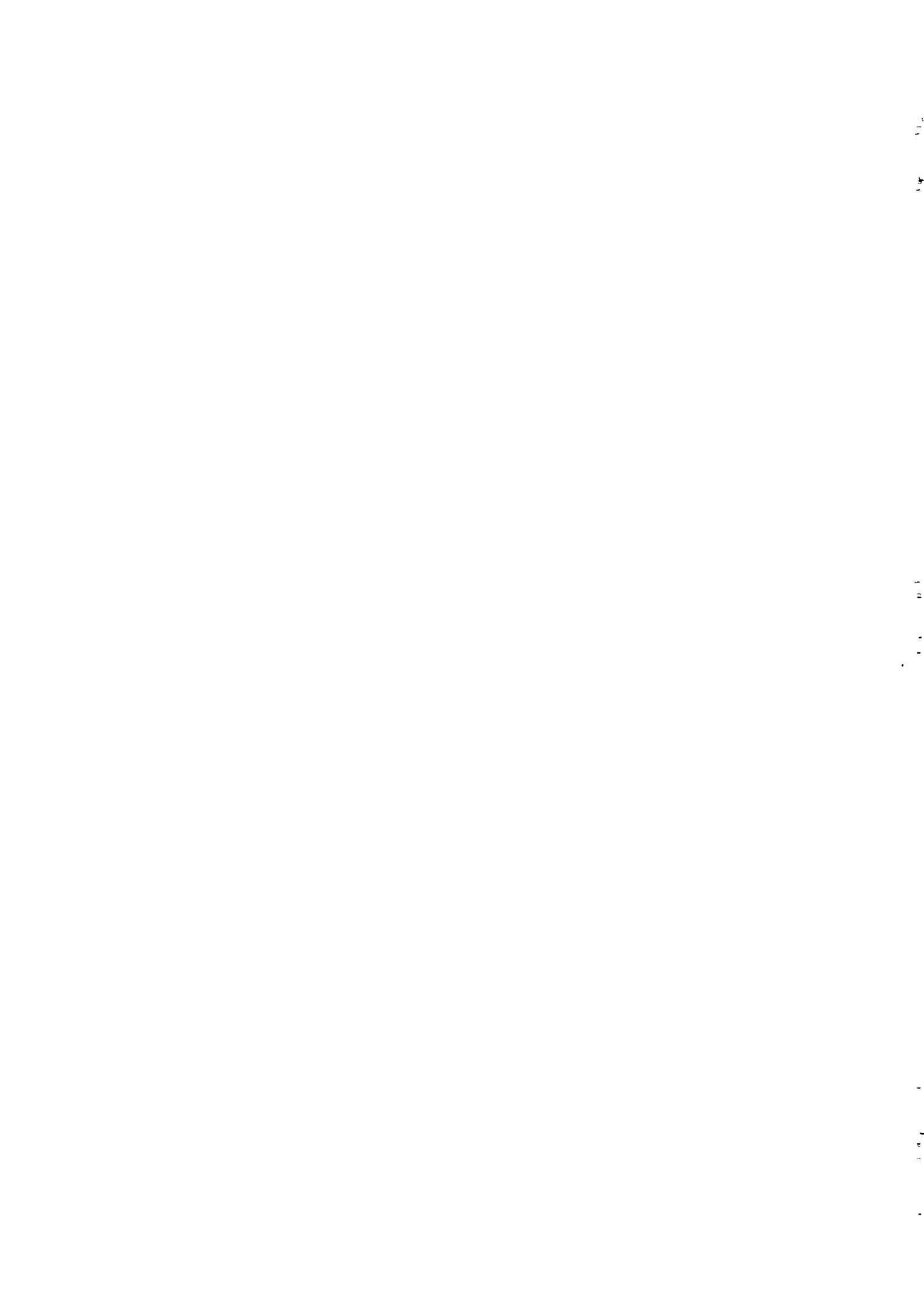
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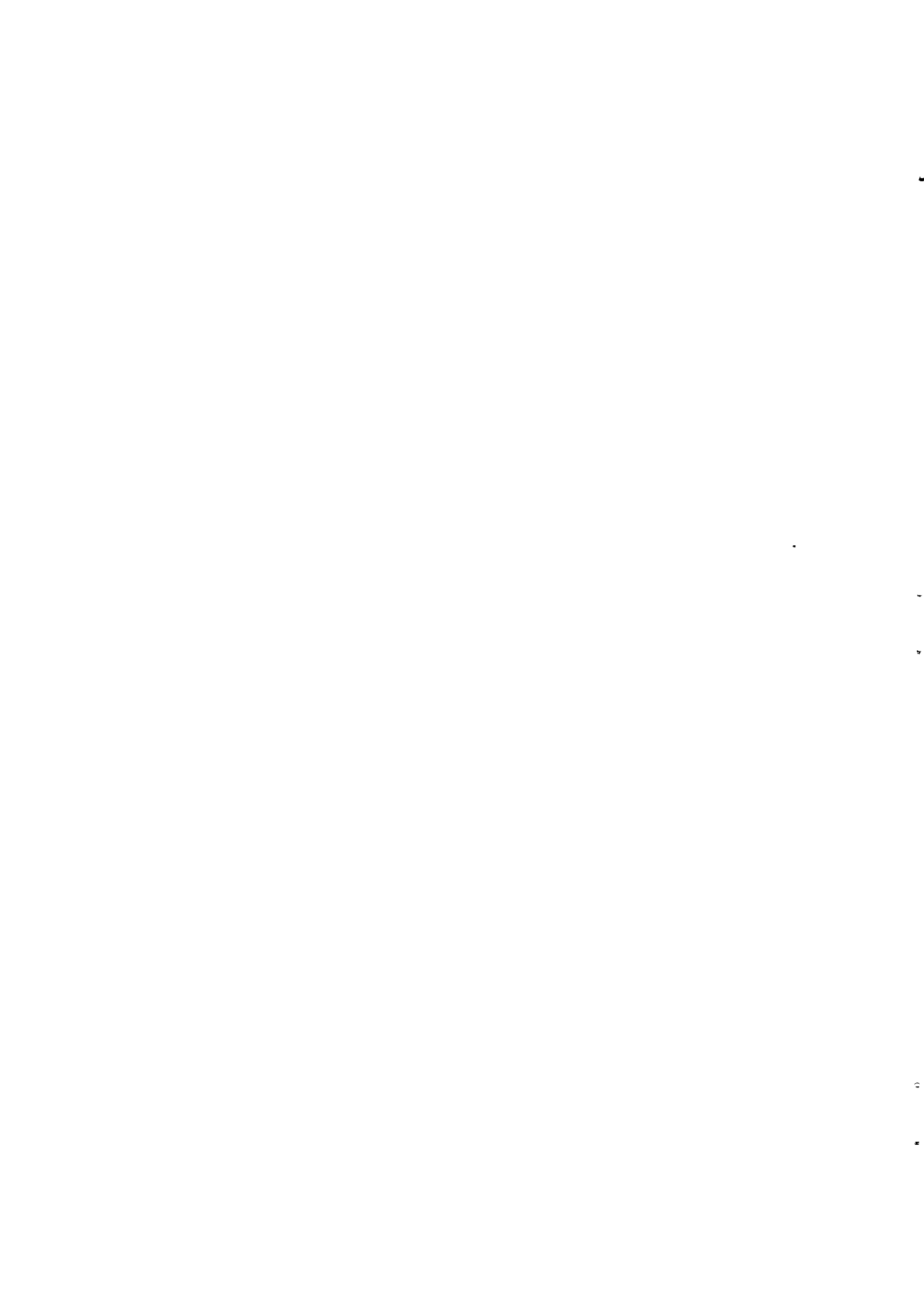
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Foreword.

This case study was planned as the first of a series of sociological studies on Kampung Improvement in Bogor, Tangerang, Bekasi and Cirebon). In 1979/80 a fairly extensive socio-economic survey was carried out by JUDC in a number of kam-pungs in each of the four cities. The survey which mainly collected quantitative information will be used as base line for a similar socio-economic survey which will try to measure the impact of KIP. The case studies try to supplement that quantitative information with a more qualitative insight.

This first case study concentrates on MCKs and other sanitary facilities. It was executed in Bogor, Bekasi and Cirebon.

A second case study (under execution) concentrates on systems of garbage collection.



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## Glossary

- Kampung : Urban village with low level of services
- KIP : Kampung Improvement Programme
- Botabek-Cirebon : Bogor, Tangerang, Bekasi and Cirebon, the four cities where KIP is assisted by the Joint Urban Development Consultant(JUDC)
- P3K : Pilot project on kampung improvement
- MCK : Mandi-Cuci-Kakus, public facility for bathing, washing (clothes etc) and toilet, normally also used for fetching water.  
In this report the term MCK is used in a wide meaning of both public and semi public sanitary facilities with or without toilet.
- MC : "Mandi-Cuci", public facility for bathing and washing, like MCK but without toilet.
- MCK Keluarga : one-unit semi private MCK as now being constructed as part of KIP Botabek Cirebon.
- Kelurahan: or Lingkungan, administrative unit below kecamatan or sub district. One Lingkungan/kelurahan is divided in several RWs or RKs
- RW : Rukun Warga, administrative unit below Lingkungan. Each RW (or RK) is divided in several RTs
- RK : Rukun Kampung, same as RW
- RT : Rukun Tetangga, neighbourhood



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## 1. Introduction

1.1. On the basis of a design prepared in June '81 a small study was carried out in August 1981 on the use of sanitary facilities.

This report will present the data, main conclusions and some recommendations based on the study. Most of the tables and detailed conclusions from the tables are presented in the Annexes.

1.2. Throughout this report the term "MCK" is used in the meaning of a sanitary facility which at least to some extent is public. The term "MCK keluarga" refers to sanitary facilities (including water supply, bathing facility, a place for washing clothes and dishes and a toilet) which are intended for use by a limited number of families (about 4-5 houses or 7 households). The word location indicates the MCK where the data were collected and is often used as synonym for MCK.

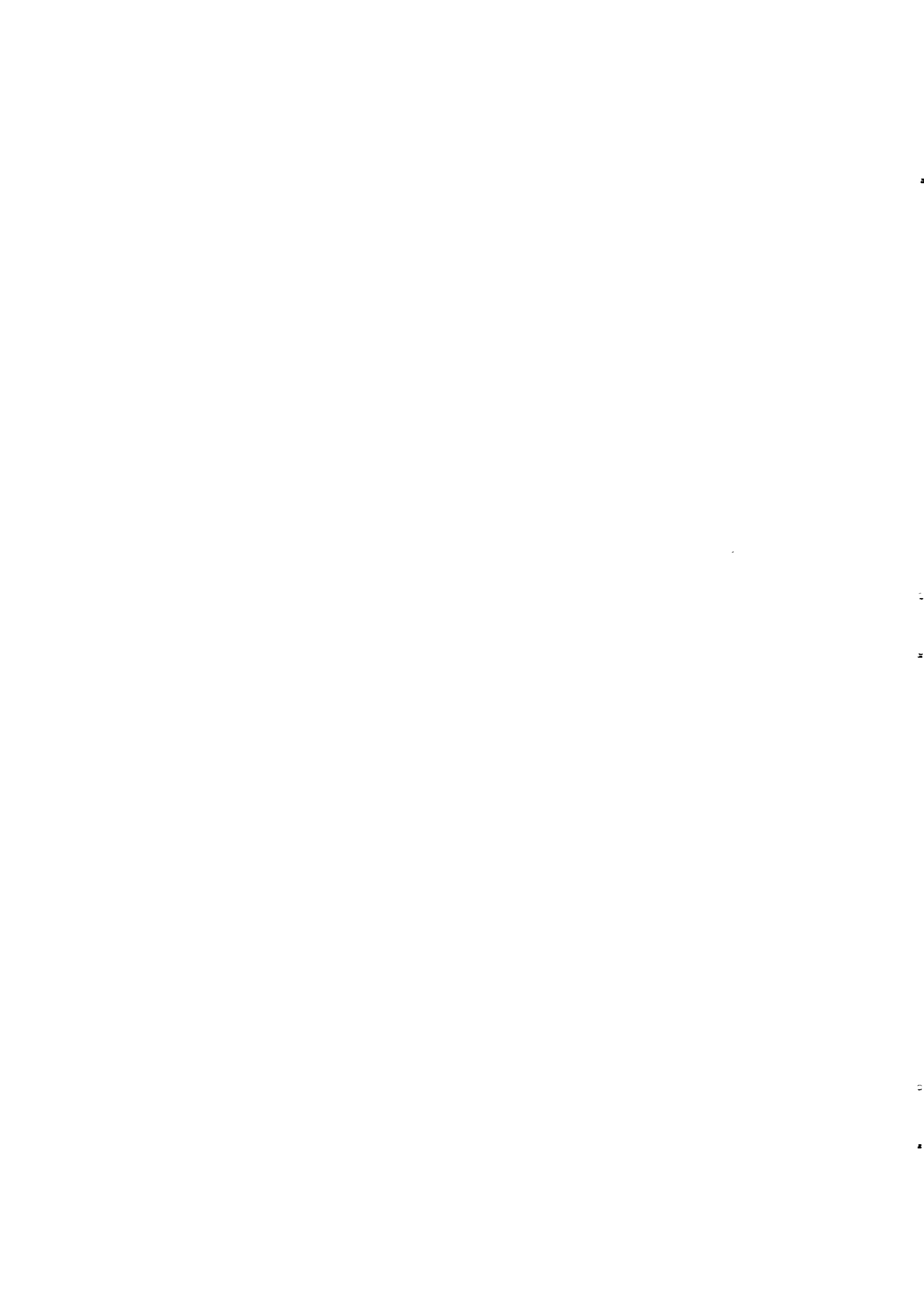
MCKs are not treated as a place of bathing, place of washing and toilet only, but also as a source of water for use (either drinking/ cooking or other) at home. It was confirmed by the out-come of this study that taking home water from the MCK is an important aspect.

1.3. The Case Study was carried out in seven kampungs. The selection criterium used was the absence of either a public or publicly used sanitary facility. Although the sample only included seven kampungs, the researchers are convinced that the conclusions and recommendations are relevant also for many other kampungs, not only in the towns where the case study was executed, but also other towns in

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West Java.

- 1.4. The case study is a sociological study. Therefore the accent of the study has been on the functional aspects of the MCKs. However on the basis of the data on functioning of MCKs, including opinion of MCK-users and leaders on physical aspects of the MCKs, also recommendations have been formulated which are directly relevant for the construction of MCKs such as the issue of the land and the size of the MCK.





2. Objectives and problems\*

- 2.1 The case study has three different groups of objectives.
- 2.1.1 On a general level it tries to increase the understanding of how public and semi-public sanitary facilities are built, how they are used, how they are maintained etc.
- 2.1.2 Specifically it tries to compare the "MCK Keluarga" with other (semi) public sanitary facilities and to evaluate the MCK keluarga. On the basis of the data recommendations should be formulated especially related to the construction of sanitary facilities as part of KIP.
- 2.1.3 Because the case study is the first of a series of case studies on various aspects and elements of kampung improvement it provides an opportunity to develop an approach for and to gain experience with studying KIP.

\*Identical to objectives and problems stated in design of case study. See Annex 4.



	References*
2.2* <u>General problems</u>	
2.2.1 In KIP projects it is often difficult to obtain land.	8.1
2.2.2 No satisfactory solution has been developed to ensure proper maintenance of the sanitary facilities.	8.2
2.2.3 It is not yet known whether the "MCK Ke luarga" will be easier erected and better maintained than other types of MCKs.	8.3, 8.5.3
2.3 <u>Specific problems</u>	
2.3.1 How and by whom are MCKs used ?	8.4
2.3.2 What type of MC(K) is preferred by the community ?	8.3, 8.5.4
2.3.3 What factors contribute to the proper construction of MCKs?	8.3, 8.5
2.3.4 What factors facilitate or influence the freeing of land (Pembebasan tanah, prijs geving) for the purpose of constructing MCKs ?	8.1, 8.5.3
2.3.5 What factors facilitate/influence the daily use of MCKs ?	8.2, 8.4 8.5.1, 8.5.2
2.3.6 What factors facilitate/influence a good system of maintenance ?	8.5.3 8.2, 8.5.3

\* Under references the conclusions are quoted which refer to the respective problems.

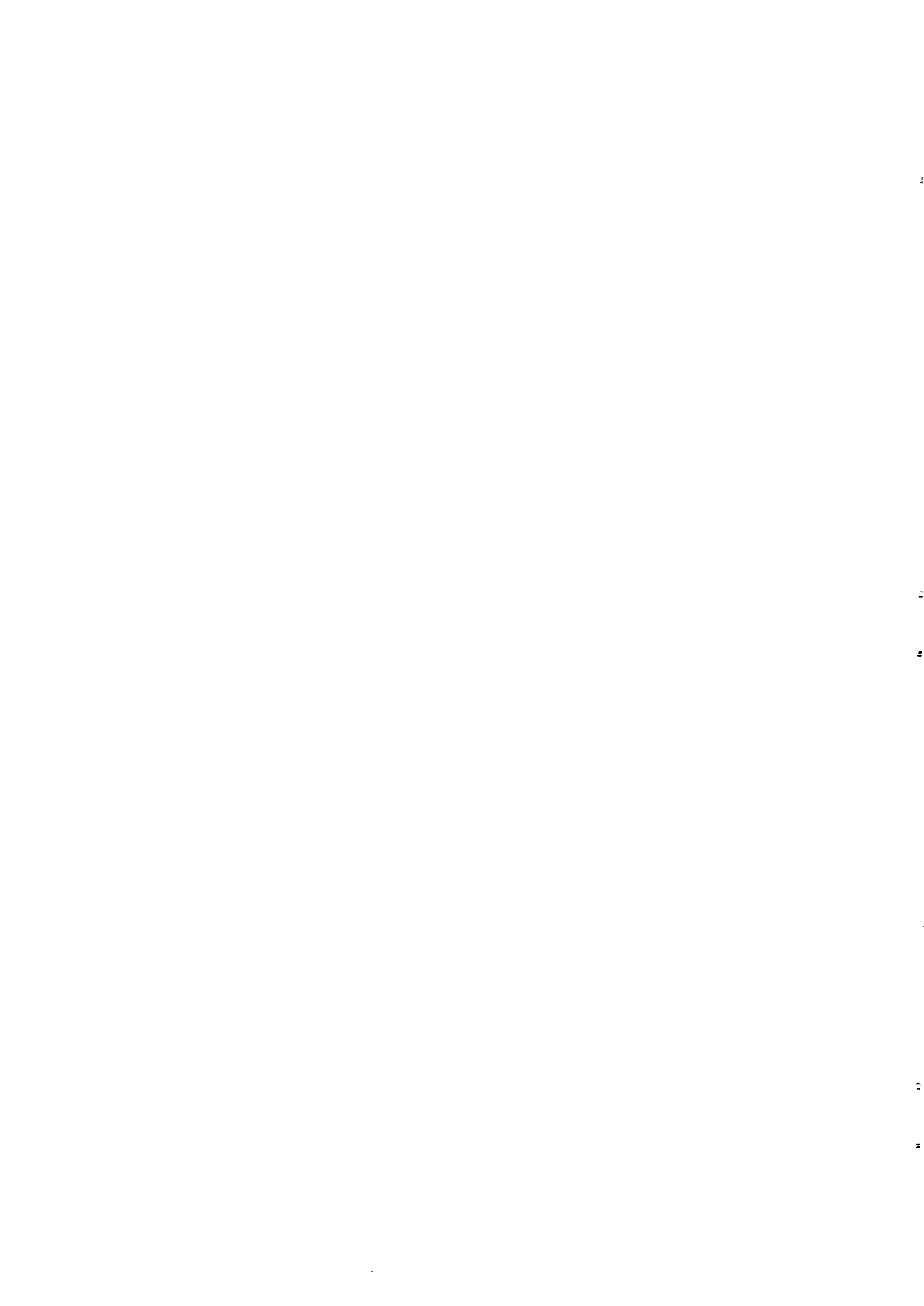


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### 3. Approach

3.1 In order to find a balance between the requirements of reliability, applicability and time, a combination of approaches was applied in a limited number of locations. Seven sanitary facilities were chosen. This assured a fairly large variation in aspects such as extend to which the facility was public/semi public, type of construction, type of environment and type of use.

The data collection followed the study design. However some minor changes were made in the instruments on the basis of a short but careful try-out. The data from the observations and from the interviews with local leaders were tabulated manually. The data from the interviews with the users of the MCKs were tabulated with the use of "prepunched code cards", which allowed for the calculation of correlations between variables.



#### 4. Description of Locations of Study

##### 4.1 Location I

place : Bekasi, kampung Bekasi Kaum, RW01/  
RTO3A (now RT 1) on land of Head  
of RT, near railway line  
type : MCK Keluarga (single unit)

Location. I



source of: shallow well 8 m deep. In dry sea  
water son well sometimes dry, even if  
used by one family only

bathroom : one walled room without door and  
without roof newly built bak man  
di fairly large (120 x 80 x 50 cm)

washing  
place : cement floor near shallow well.

toilet : in bathroom; connected to septic  
tank plus filter drainage to  
earthen drain.





responsibility: original owner of land and well  
 (Head of RT) is still responsible  
 for the operation and maintenance  
 extend of use: Since construction of MCK Keluarga,  
 five families use this location but only as toilet and bathing place, because water supply is very limited (in dry season).

Location. II



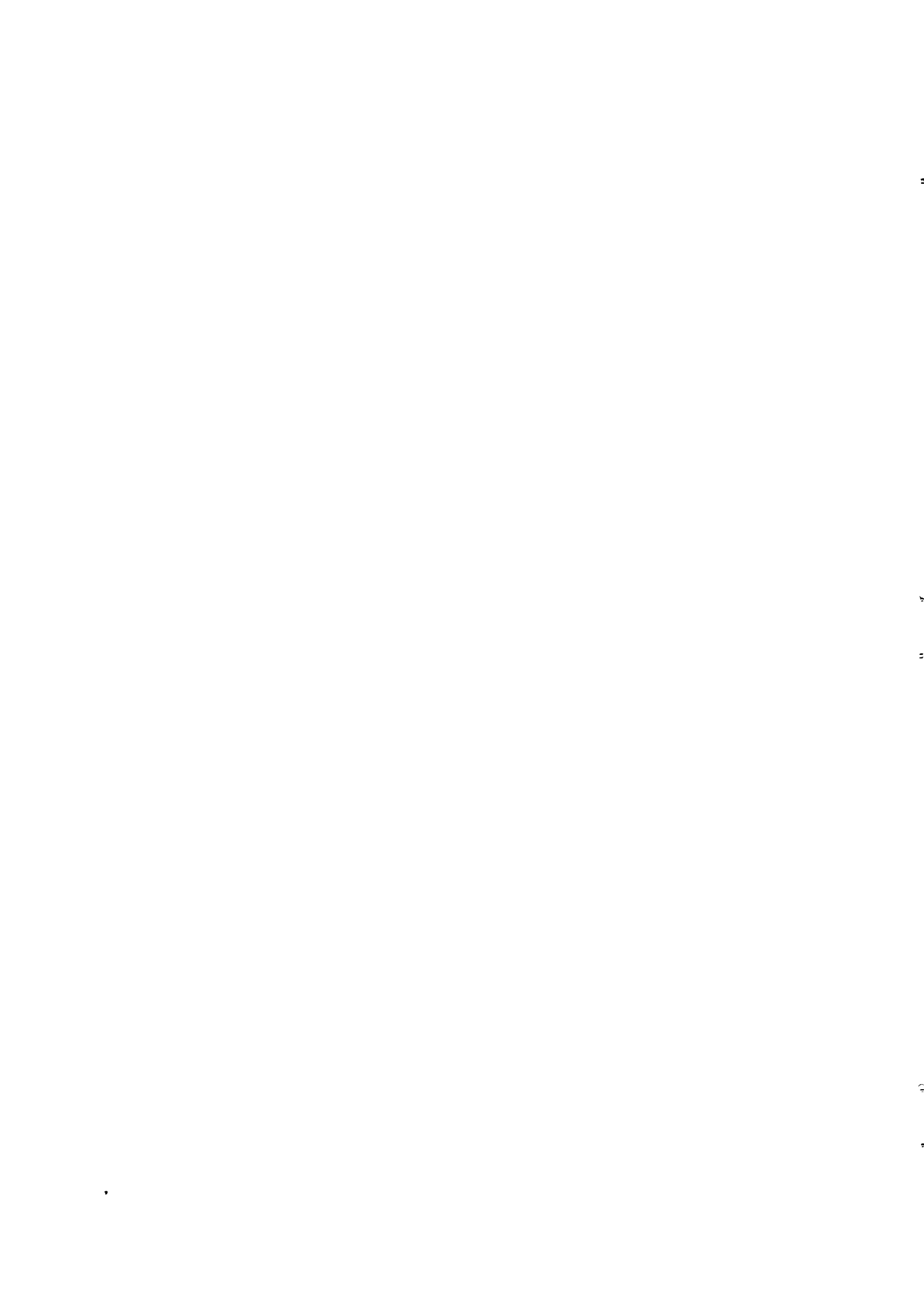
4.2

Location II

place : Bekasi, Kp. Bekasi Kaum, RW01/RT03  
 (presently RT02)  
 situated in between several houses

type : MCK Keluarga (single unit)

source of water : private well (8 m deep)  
 In dry season water from the well is insufficient



- bathing : one walled room without roof or door; newly built
- washing place : cement floor outside bathroom, newly built
- toilet : in bathroom, connected to septic tank.
- responsibility : original owner of well and land still takes care of operation and maintenance.
- extend of use : As before improvement neighbours of owner use this location, in total about 40 people. In addition some other people, especially men and children use its toilet and bath here.

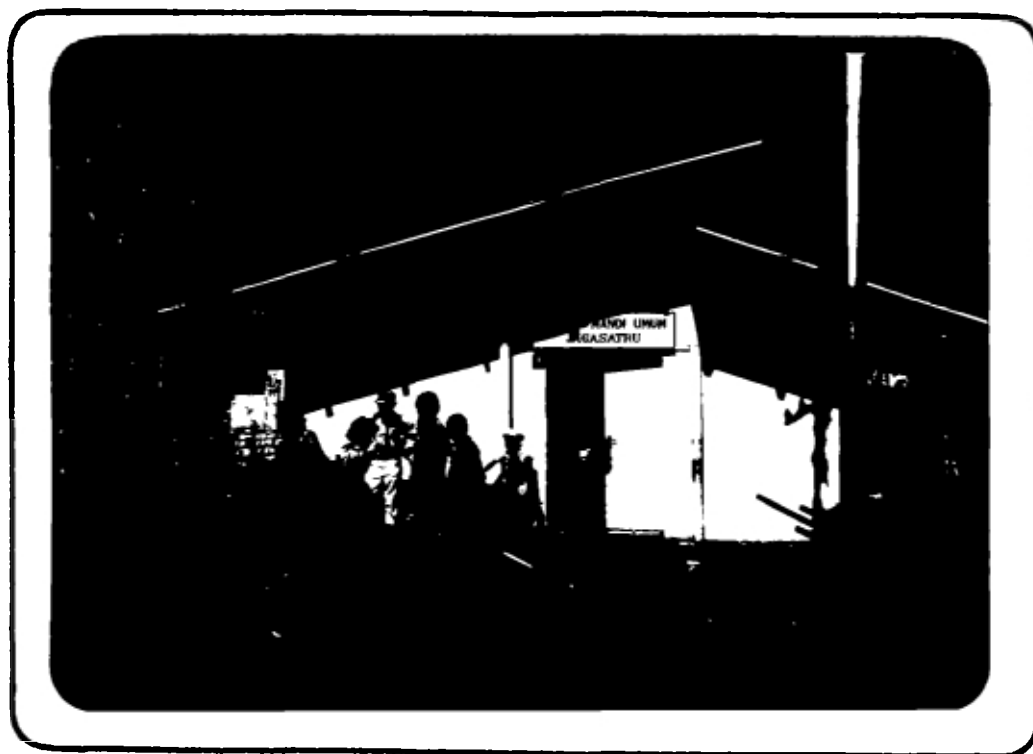
#### 4.3 Location IV

- place : Cirebon Kp. Jagasatru RK XIV/RTO1 along city road, near a market.
- type : multiple unit MCK. ( $\pm$  7 x 12 m)
- source of water : Taps with electric pump connected to main inlet. In case of cut in power supply no water is available. Most of the water is sold to water sellers.
- bathing place : ten bathrooms under one roof, each with one door and tap. fee Rp 30 each time used.
- washing place : wide area, several meters long with three taps but not used. To some extent bathrooms are used for washing clothes.
- toilet : 10 toilets, one in each bathroom connected to some large septic tanks. Three of the toilets are not functioning. Fee Rp 20 per use.



respon- : The MCK is built by PAM. Operati  
sibility on and maintenance is in the  
hands of the LKMD (village coun  
cil) who have appointed a careta  
ker. His children assist him in  
his task of guarding the place  
and collecting the fees.

Location. IV



extend of: small traders at nearby market  
use but also people living nearby  
and people passing by use this  
MCK, mainly for bathing and for  
toilet. The water is sold to wa  
ter sellers and partly also di  
rectly to people living nearby.



4.4 Location V

place : Cirebon, Kp.Jagasatru, RKIX/RT04  
on the land of owner of the well

type : privately owned well, bathroom  
and washing place (one unit)

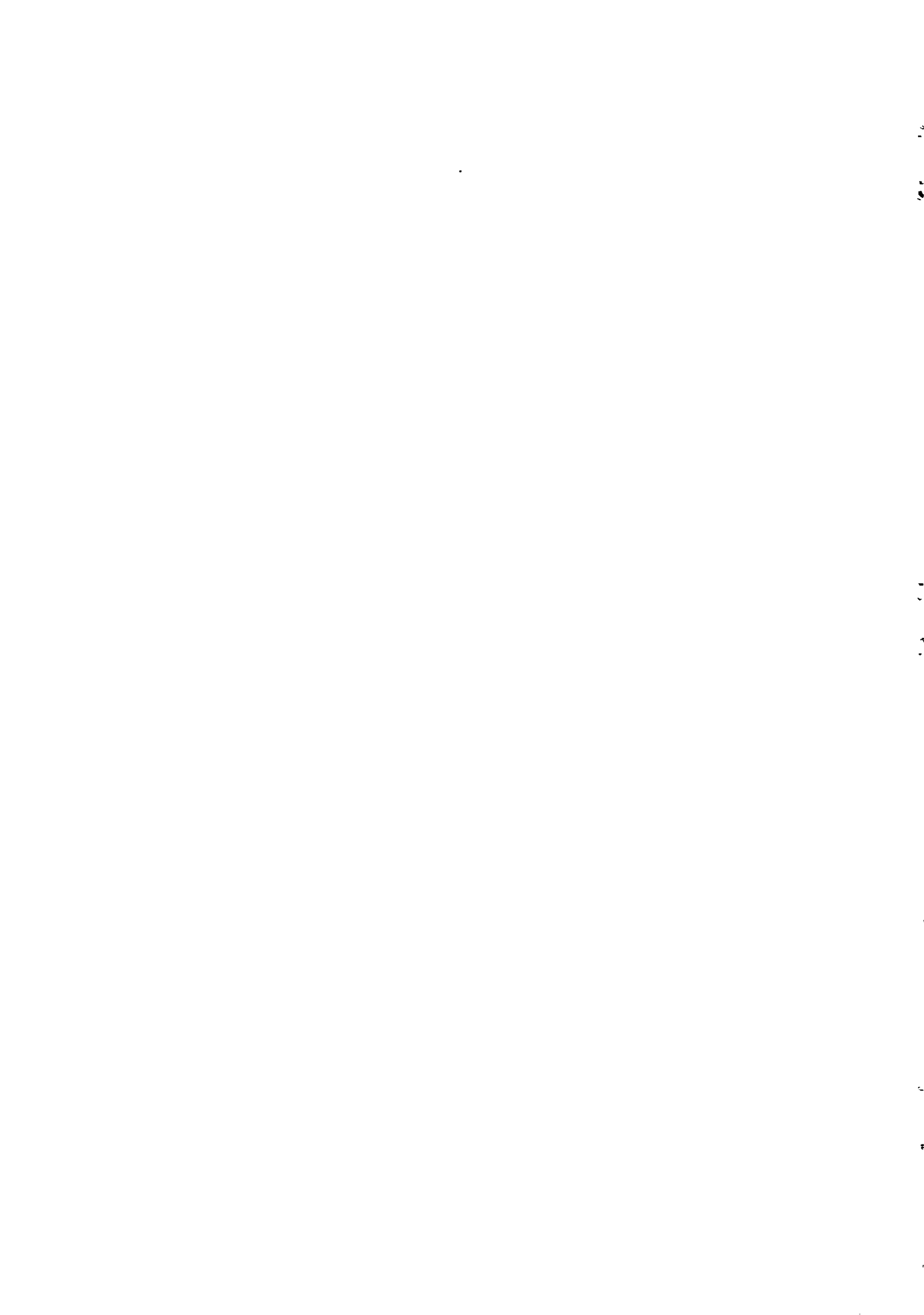
source of: A fairly old well ( 25 years  
water old) Its water is clear, not  
salty and in abundant supply

Location. V



whereas almost all other wells  
in the area have salty yellow  
water and run dry in the dry sea  
son

In March 1981 a pump was con-  
structed from KIP funds, however  
not used because the pump doesn't  
work properly.

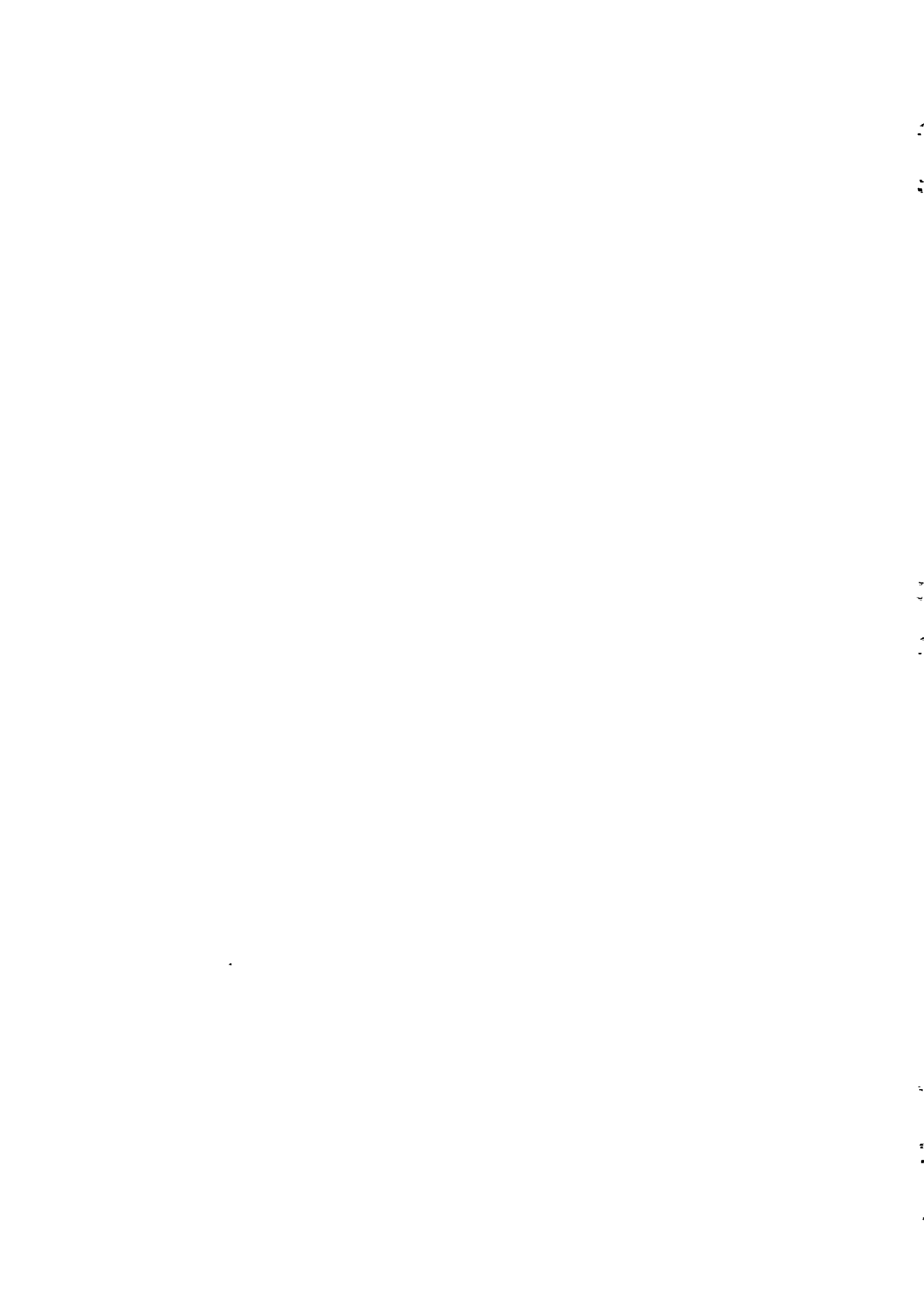




- bathing : cement floor, walls of woven bam  
place boo, no roof, wooden door. General  
condition: bad and small.
- toilet : There is a (very simple) toilet  
close to the well but it is used  
only by the owner of the land.  
The neighbours may not use it be  
cause they don't clean it after  
using it.
- washing : Made of concrete, but already bro  
place ken. The washing floor is intensi  
vely used by neighbours to wash  
dishes etc, clothes and to wash  
rice.
- responsi: the "MCK" is privately owned. The  
bility owner and his family also take ca  
re of its cleaning and mainten-  
ance, without contribution from the  
other users.
- extend : Except the owner and his family  
of use many neighbours use this location  
for bathing, washing and fetching  
water.

#### 4.5 Location VI

- place : Cirebon, Kp. Kesambi, RKI/RTO4, on  
privately owned land in between  
houses.
- type : privately owned well, bathroom /  
toilet and washing place (one unit)
- source : well. Originally water from the  
of water well was very clear but at the mo  
ment not so clear any more.
- bathing : cement floor, bamboo matting walls  
place no doors, no roof. Two bak mandi,  
one for the owner and one for the

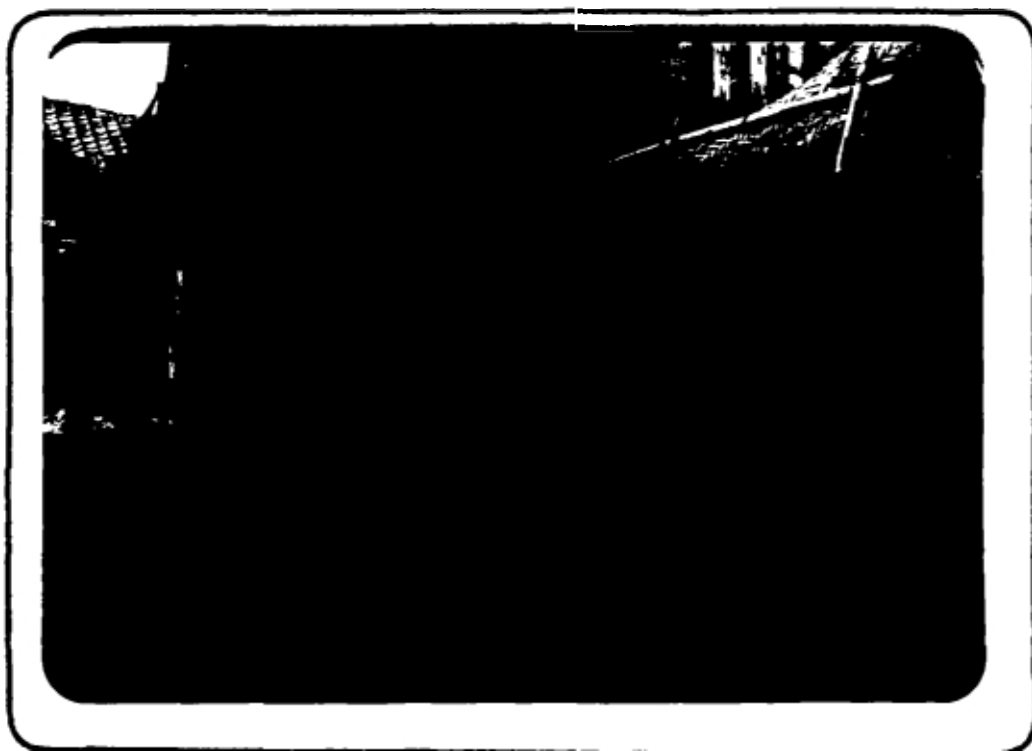


other users. Not very neat. Some people bath outside the bathing place.

Washing : cement floor, repaired by neighbours after it was cracked. Intensively used.

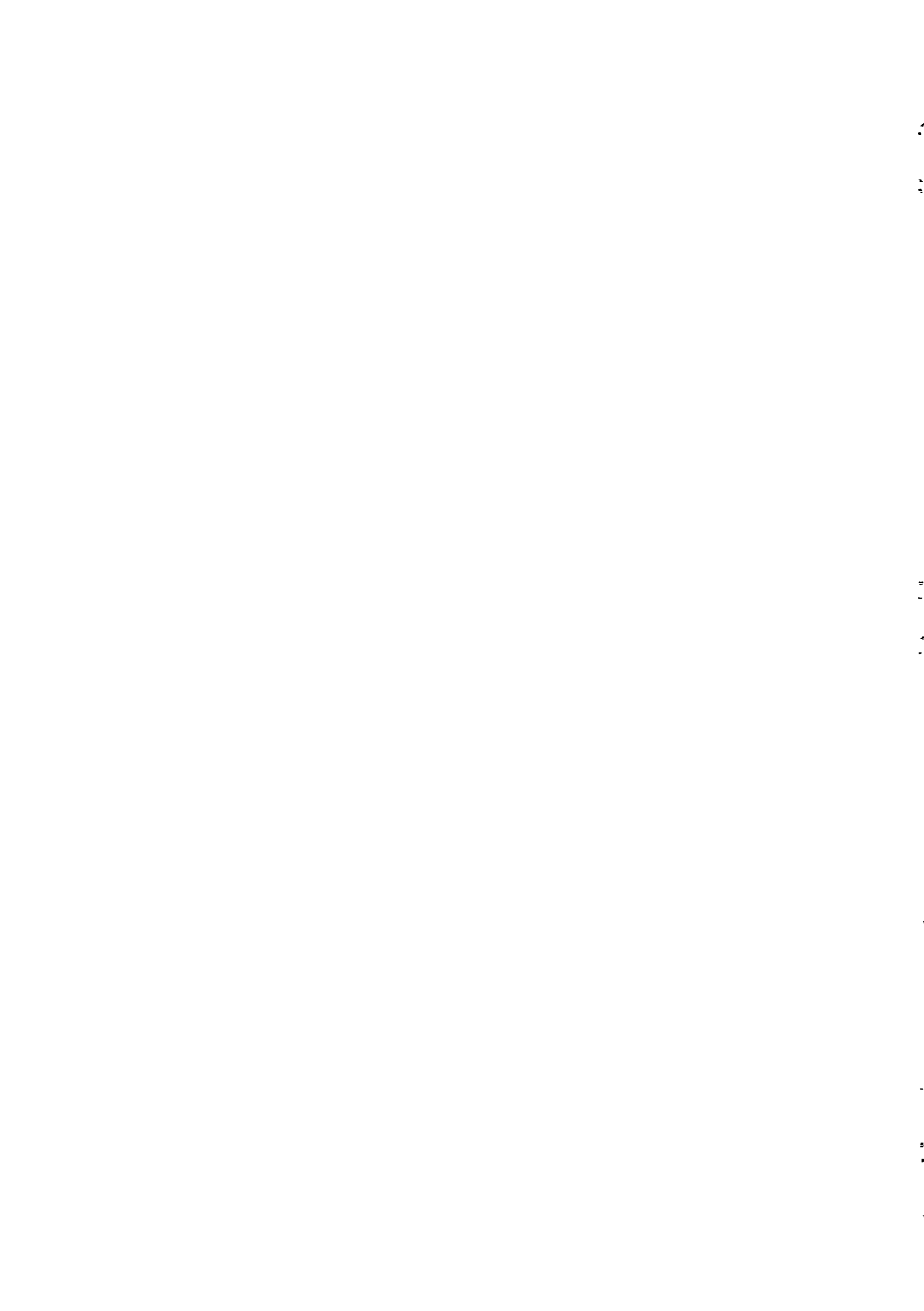
toilet : Mostly used by family of owner only, because neighbours don't keep the place clean. No septic tank.

Location. VI



respinsi: the location is privately owned  
bibility The owner family also takes care of maintenance

extend : The toilet is mainly used by the  
of use owner family only. Many neighbours and sometimes their guests use the location intensively for washing and bathing. Close to the MCK tap-water is sold.



#### 4.6 Location VII

- place : Bogor Kelurahan Gudang, Kp.Cincau  
RW02/RT06
- type : large public washing bathing place  
(8 x 2.5 meter) without roof, with  
out door.
- source : spring well with large supply of  
of water water throughtout the year, partly  
also used by water sellers.

Location. VII



- bathroom/  
washing place : the whole area of the MC is used  
as washing place and bathing place  
without partitions.
- toilet : no public toilet is present at or  
near the MC most people go to the  
river about 100 meters from the  
MC.



responsibility: this MC was originally privately owned was donated by the owner to the people. Additional land for extension of the MC was given by the Head of the RT. Presently Head of RT takes responsibility for its operation and maintenance while water sellers using this place help also in cleaning the MC. Funds for repairs and improvements came from public lotteries (undian) and from contributions from local citizens.

extend of use : Almost all families of RT06 use the location for bathing, washing and fetching water. In addition water from the well is sold to vendors and traders at nearby market.

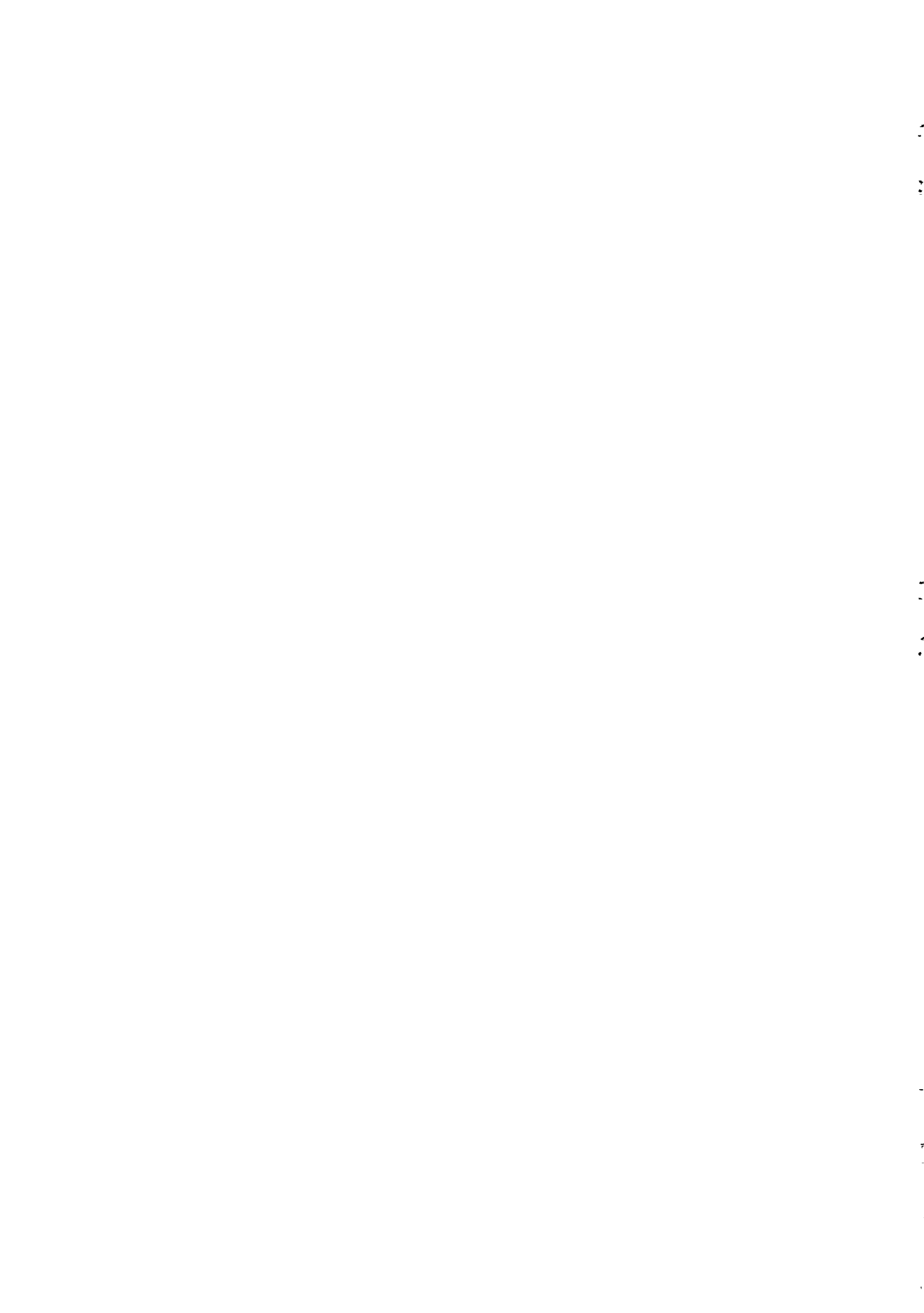
#### 4.7 Location VIII

place : Bogor Kelurahan Gudang, RW03/RT03  
close to river

type : one unit public place for bathing  
and washing (1 x 2,5 m)

source of water : Natural spring

bathroom: walled but without roof or door.  
cement floor, the bak mandi leaks because of small crabs (ketam).  
A second bak mandi only irregularly used because the amount of water is insufficient.





washing : both inside and outside the bath  
place room people wash regularly clothes and dishes.

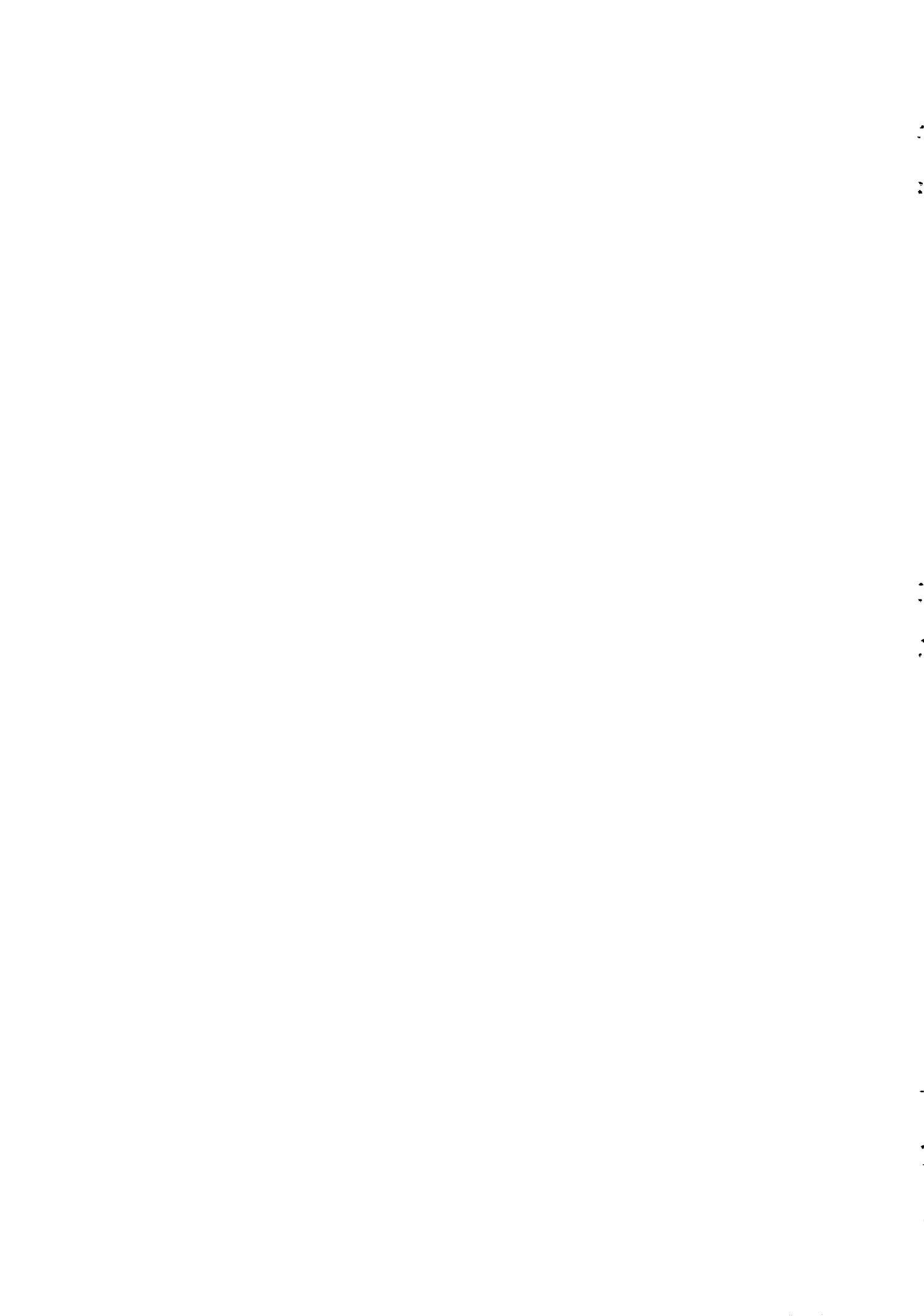
toilet : In the past a toilet was built near the MC, but it was washed away during a flood. Before that it was regularly used, although on the riverside.

Location. VIII



responsibility : Originally privately owned but donated (wakaf) in 1969 by the owner to the local community. His grandson, the present head of RW03 coordinates its operation and maintenance

extend of use : Inhabitants from RT03 and RT06, especially women use this MC regularly, whereas another similar bathing place is mostly used by men.



5. Results from observation

References\*

5.1 In general it was observed that the MCKs are more often used by women than by men. This was also confirmed by the interviews. The multiple-unit MCK in Cirebon (location IV) was an exception. There most of the users were men.

The above applies especially for fetching water, for washing clothes and dishes, but also for bathing. See table 5.1

1.1  
1.2  
1.3  
1.4

Table 5.1 : Total number of users M.C.K. by age, sex and location  
(4 hours observation at each location; all functions)

Location	Type of users				Average per hour
	Adult men	Adult women	Children	Total	
I	10	17	6	33	8.25
II	5	27	24	56	14.0
IV	108	40	7	155	38.75
V	13	23	12	48	12.0
VI	4	22	8	34	8.5
VII	40	148	64	252	63.0
VIII	1	29	11	41	10.25
Total	181	306	132	629	
(percentage)	(29.2)	(49.4)	(21.3)	(100)	

\*The tables referred to are presented in the annexes (Annex 1 and 2)



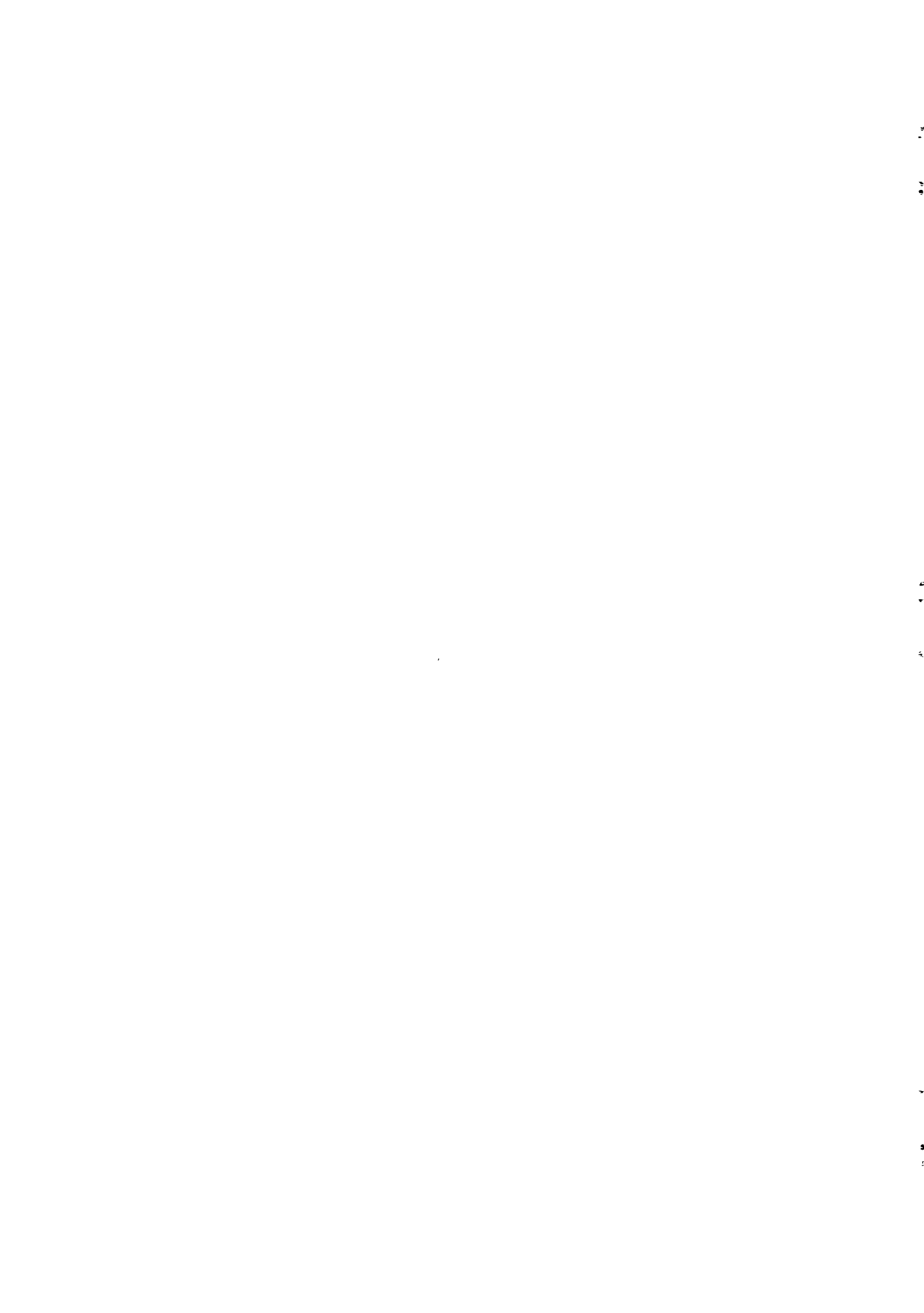
5.2 The total number of users differed considerably between the 7 cases observed. Location VII, which has a large supply of well-water but has no toilet facility is used most intensively (total of 63 users per hour), followed by the multiple unit MCK, location IV, with almost 40 users per hour. In all the other locations (single unit, fairly small places) the total number of users varied from 8 to 14 people per hour. These figures are averages for the 4 hours of observation for all uses, including fetching water. At the peak hours the total number of users was higher than these figures. The average for locations I,II,V,VI and VII at the peak hour ranged from 13 to 25 (average 18,2 people per hour). See table 5.2

Reference

1.5

Table 5.2 : Total number of users by type of use and locations (4 hours observation )

Location	Function of M.C.K.					
	Bathing	Washing	Toilet	Fetching water	Total	Average per hour
I	15	4	13	1	33	8.25
II	27	13	8	8	56	14.0
IV	60	2	47	46	155	38.75
V	24	11	1	12	48	12.0
VI	7	21	-	6	34	8.5
VII	122	59	-	71	252	63.0
VIII	9	22	-	10	41	10.25
Total	264	132	69	154	619	
(percent-age)	(42.6)	(21.3)	(11.1)	(24.9)	(100)	



5.3 The peak hours in general are early in the morning and late in the afternoon for bathing, early in the morning for fetching water, later in the morning and around noon for use of toilet and a fairly even distribution in time for washing. Reference 1.6

5.4 Especially noteworthy and significant is that very few children under 15 make use of the toilet facilities at the observed locations. We may assume that near the locations (as else where) about half the population is younger than 15. However only about 5% of the users of the MCKs (with toilet) were children. This deserves special attention because children are the main carriers and victims of intestinal diseases and other diseases related with sanitation and personal hygiene. See table 5.3

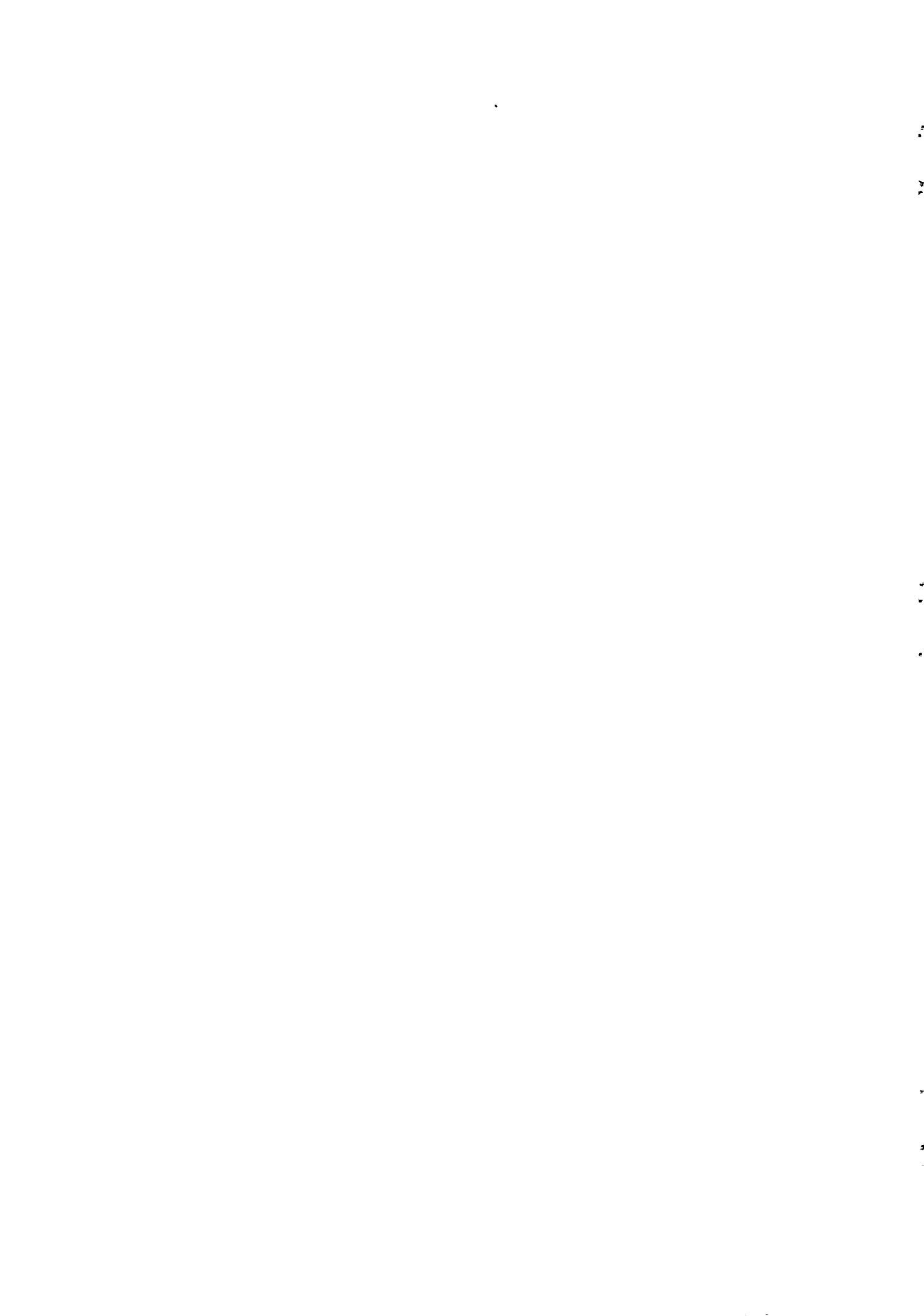
Table 5.3 : Total number of users, all 7 locations by age sex and functions.  
(4 hours observation)

Function	Type of users				
	Adult men	Adult women	Children	Total	(percentage)
Bathing	82	104	78	264	(42.6)
Washing	10	93	29	132	(21.3)
Toilet	38	28	3	69	(11.1)
Fetching water	51	81	22	154	(24.9)
Total	181	306	132	619	(100)
(percentage)	(29.2)	(49.4)	(21.3)	(100)	





- 5.5 Besides the number of users and peak hours there are several other variables which have widely different values for the several locations. These can be related to the size of the facility, the availability of (publicly used) toilet(s), the amount and quality of water available in the MCKs observed and nearby these MCKs and the number of other sanitary facilities, both public and private, (=local need for MCK) near the observed location. Reference
- 5.6 Location IV (multiple unit MCK) in many aspects is different from the other locations, because of its size, the local need for a sanitary facility, especially the need for drinking water, its nearness to a market and the fact that the users have to pay for the use of the facility. Its washing facility is not used, maybe because the attendant cannot control its use easily, or because the local need for a washing place is not high enough to induce people to pay for it. 1.7
- Its use differs from the other locations in the following ways. It is mainly used by men, people also come from further distances, no children use it (except attendant's children). Washing clothes is done only on a very small scale (to avoid payment). It is used intensively by water sellers who fill their carts there from early morning till fairly late in the day.



## Reference

The total number of users also is higher than the other locations except location VII. However compared to its size we could consider the location somewhat underused. Although the number of bathing rooms/toilets is 10, the number of people bathing was only 3.7 times the single unit MCKs (locations I, II, V, VI, VIII).

Use of toilet was 5.6 times as many as in locations I, II and VI (the other locations had no toilet for public use) fetching water is less comparable because no distinction was made in the case study between water for drinking and cooking and water for other household uses and because at location IV water partly was sold by the cartfull (one cart = 6 pikuls = 12 tins = ± 240 liter).

The reported daily use was about 10 m<sup>3</sup>, most of it to fill the water carts).

We may conclude that the water supply at the multiple-unit MCK was used up to its full capacity but its bathing capacity was somewhat underused, while its washing facility clearly underused.

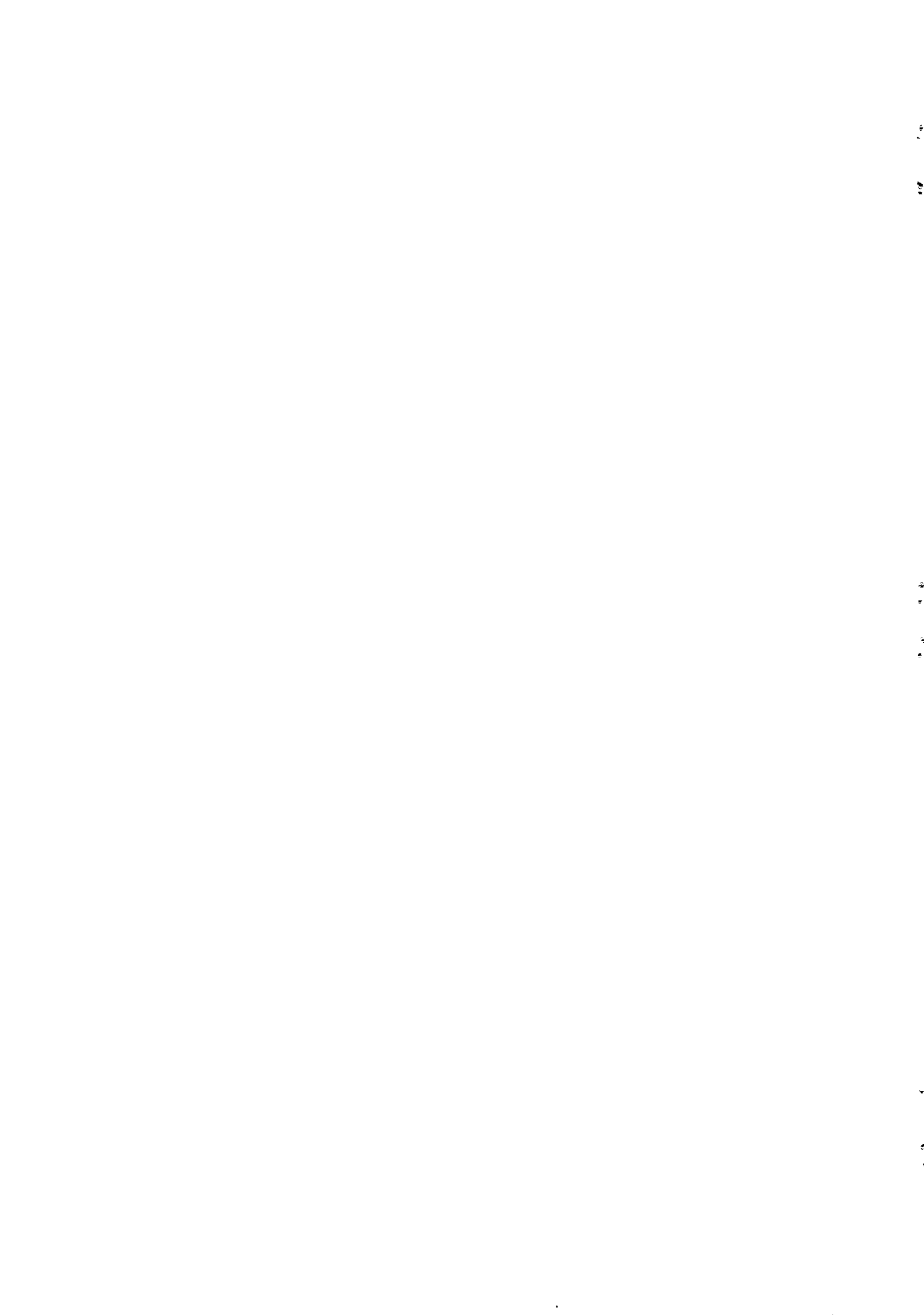
- 5.7 Location VII also is in several ways clearly different from the other locations. It has an abundant supply of well water and it is big enough for 10 to 15 people to use it at the same time, but it has no toilet facility. The majority of its users are women (57, 73 and 51 percent of number of people bathing, washing and fetching water respectively), follow

1.8

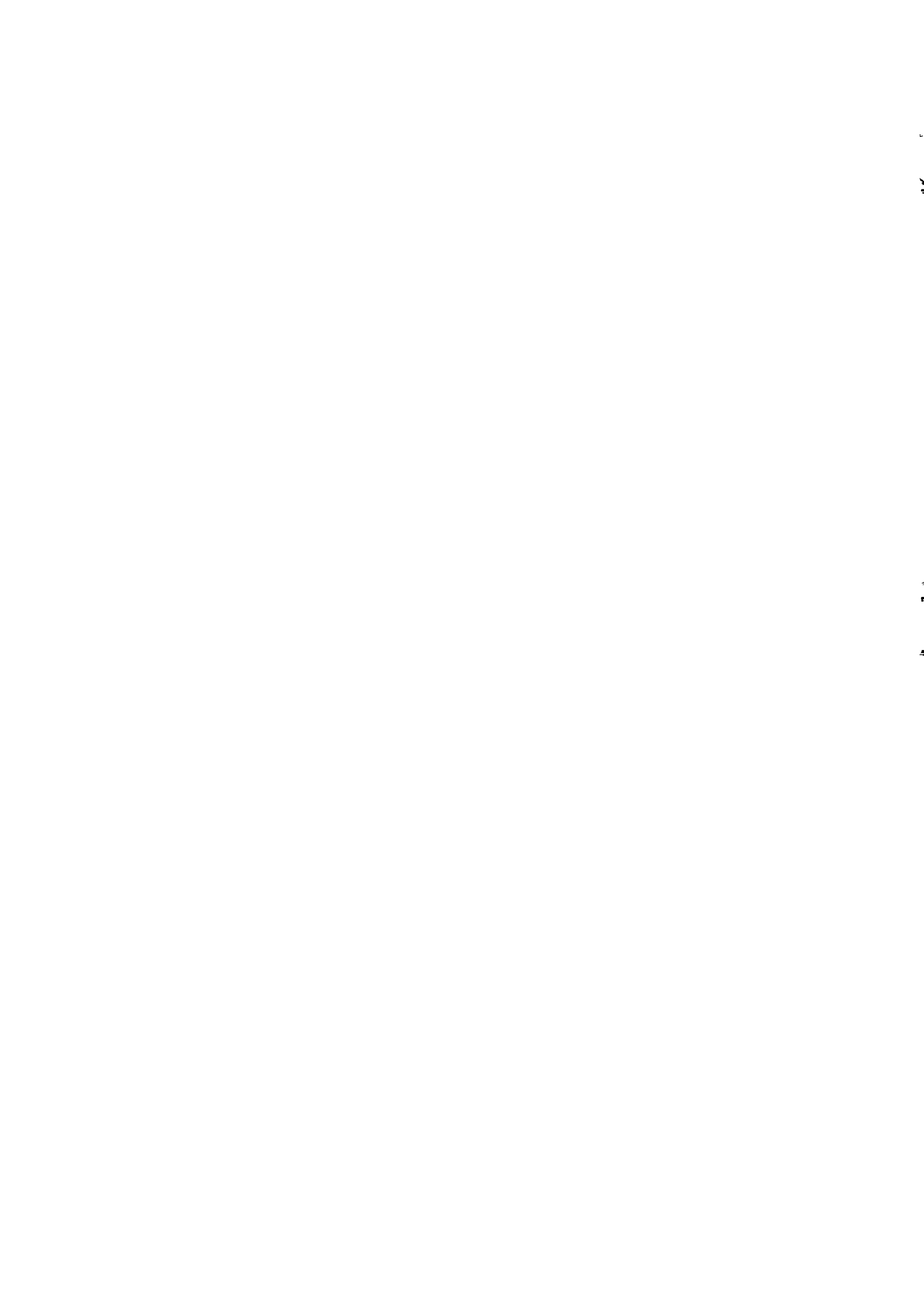


ed by children under 15 years (27, 22, 25 percent). Its total use was far more extensive than the other location. For each of its three functions nearly as many people used it as the total number of users of all 6 other locations together. References

- 5.8. The other locations (I, II, V and VIII) are more similar to each other in size and the total number of users is about the same for each. However some variation in use could be observed, because of variations in construction and differences in local needs. 1.9  
1.10  
1.11  
1.12  
1.13
- 5.9. Locations I and II (both of them MCK keluarga built as part of KIP) seem to function very much in the same way as the other small sanitary facilities, including privately owned facilities which are publicly used, but differ clearly from the multiple unit MCK and location VII.



- 5.10 Several of the variations in use of the MCKs could be explained by the personal preferences of the person/family who either owned or otherwise had the responsibility for the "MCK". E.g. in location V the owner allowed neighbours to make use of the well and bathroom but not of the toilet. The person who had erected location VIII also had erected another MCK and more or less stipulated that location VIII be used only by women and that the other facility which is situated near a musholla be used only by men. Possibly the underuse of the washing place at the multiple unit MCK has a similar explanation. At location I the person in charge (RT) does not allow others to use the MCK for washing, at least partly because he fears that the watersupply (shallow well) will not be sufficient.
- 5.11. Seasonal variations also clearly exist although they were not observed directly. In the dry season the total number of sources of water diminishes, increasing the use of the places where water is still relatively abundant and/or of better quality.





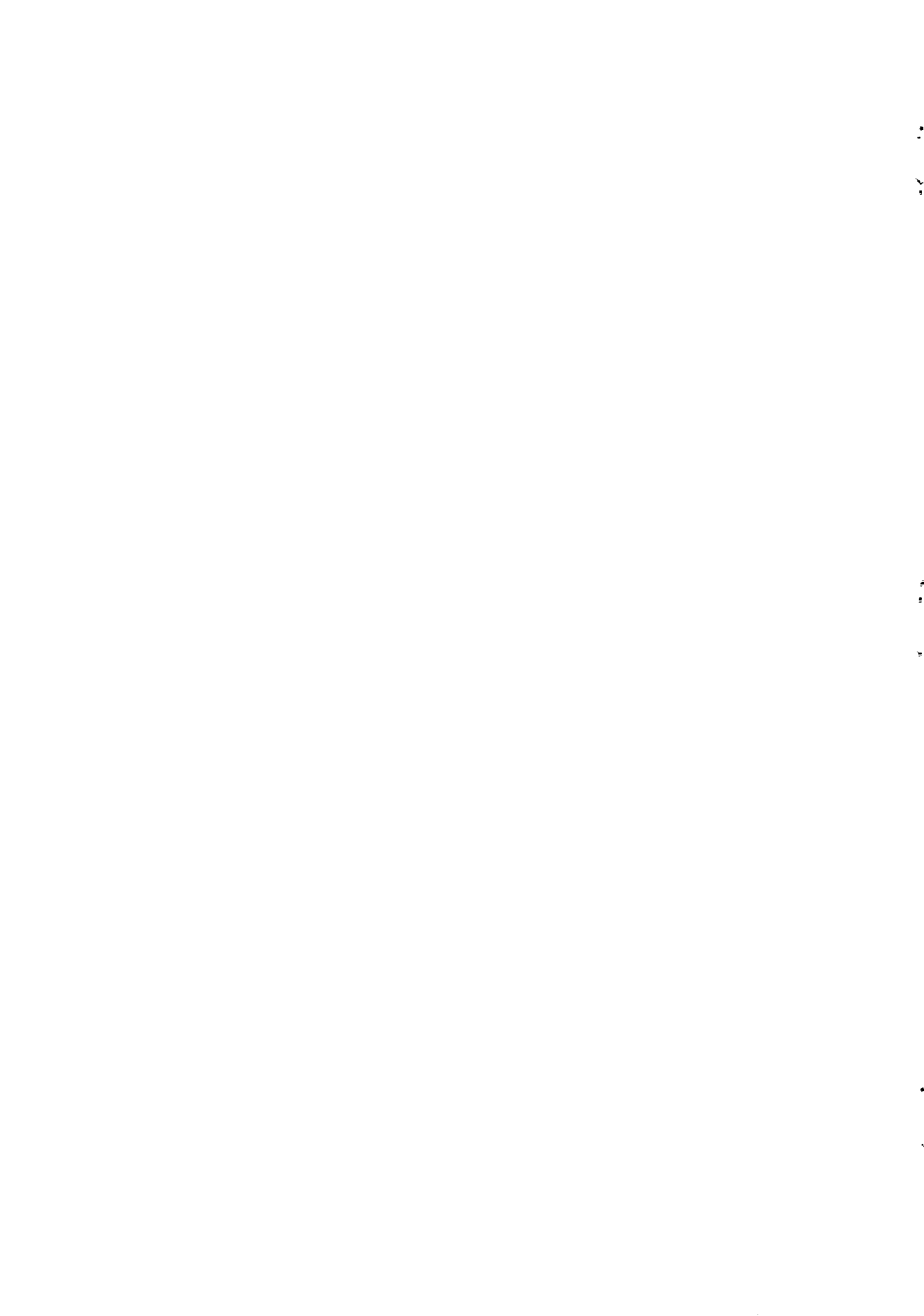
## 6. Results from interviews with MCK-users.

- |  | References |
|--|------------|
| In several aspects differences were found between the 7 locations where the case study was executed.   |            |
| 6.1 In 4 of the locations most of the users also used other sanitary facilities or water sources. In the three other places for more than half of the users the studied MCK was the only sanitary facility they used.  | 2.1        |
| 6.2 Most of the respondents used the MCKs for taking a bath except in location IV where many users come to the MCK for toilet and/or fetching water only. In location V the MCK apparently is used by some of its users only when other wells in the area run dry or in addition to other wells.   | 2.2        |
| 6.3 If we exclude those people who don't do any washing such as small children and most of the men, most of the locations are regularly used for washing dishes or clothes by many of the respondents. Exceptions are locations IV and I. In location IV no washing is done at all except on a small scale (which was not reported by respondent to avoid payment). In location I the family responsible for the MCK (-keluarga) does not allow other families to do their washing at the MCK, because the watersupply is limited. | 2.3        |



## References

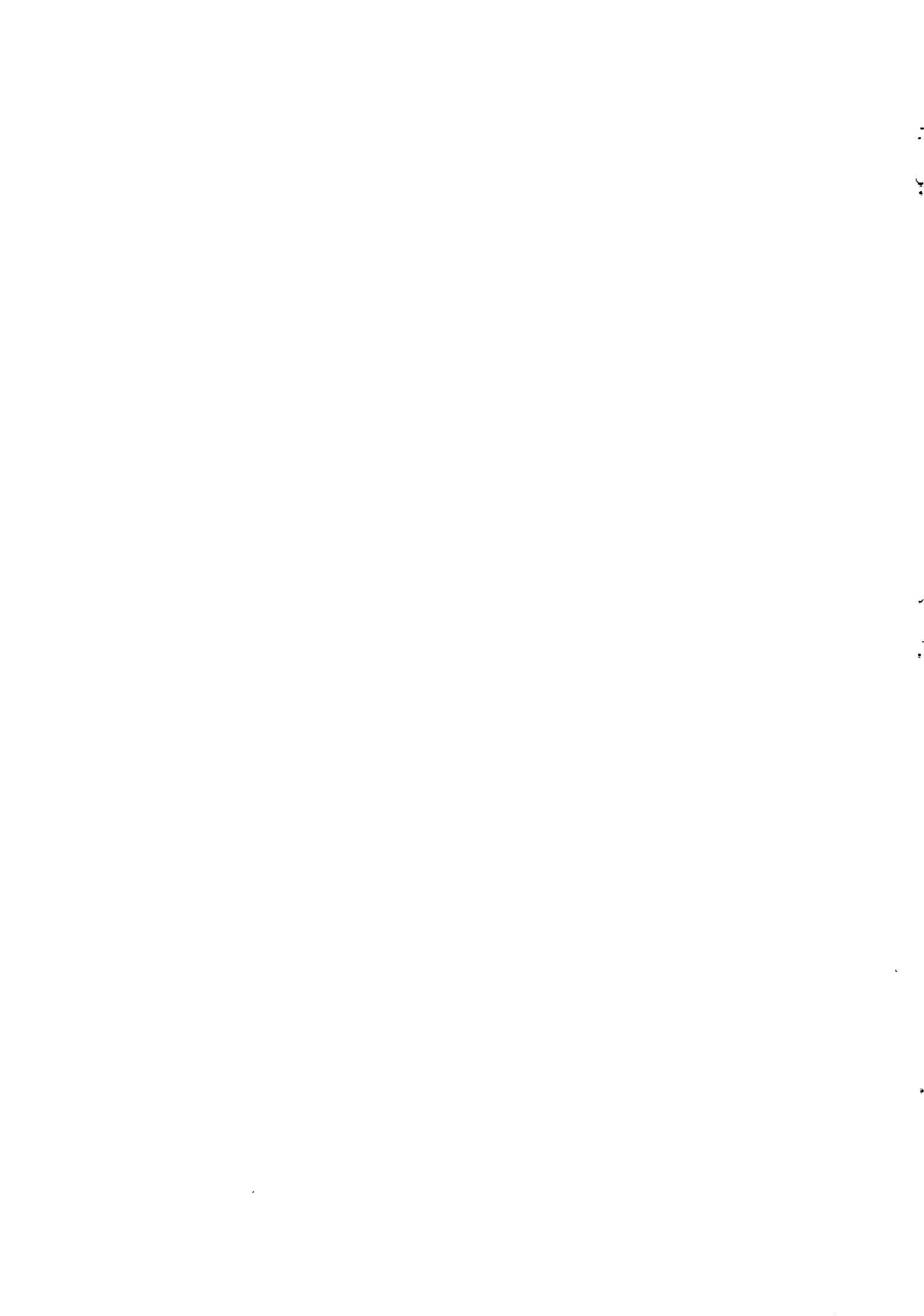
- 6.4 Use of toilet was of course limited to MCKs having such a facility. At 3 of the 4 location with a toilet most or all respondents regularly made use of the toilet. At location IV only one third uses the toilet regularly. This figure may be too low because people who take a bath at this multiple unit MCK do not want to report that they also use the toilet to avoid payment for both. 2.4
- 6.5 Use of the MCK for fetching water is also very regular in general if we exclude people who normally do not fetch water. Again locations IV and I form an exception to some extend. Location IV is also used by people who do not live nearby and at location I the owner limits the use of the well. 2.5
- 6.6 In addition to above data we have looked at the alternative facilities (places used for bathing, washing, toilet, fetching water). For bathing we find clear differences between the locations. Locations II, VI and VII were for most of the users the only place of bathing. Bathing at home occurred regularly among users of the other MCKs. 2.6
- Locations I, II, VII and VIII were for most respondents the only washing places whereas near the three locations in Cirebon, especially location IV, many went (also) to other places such as their home to do their washing. 2.7



- Location II (MCK keluarga) for all of the respondents the only toilet used. Locations I and VI were so for most. At location IV few reported to use this location as their only toilet. Half of them said to use the river. References
- 6.7 In general it was found that there was a clear correspondence between places used for bathing, alternative washing place, alternative toilet and alternative source of water for use at home.  
E.g. people using the MCK for washing often used the same MCK for its other functions.
- 6.8 Distance of living had a significant correlation with frequency of bathing and washing. Distance was also correlated with frequency of using the toilet and fetching water at the location. However the percentage of people from larger distance using the MCK-toilet regularly or fetching water regularly water at the MCK was bigger than for bathing and washing. 2.9  
2.10  
2.11  
2.12
- 6.9. Sex of user was found to be correlated with frequency of using the MCK, especially with frequency of washing and of fetching water. 2.13
- 6.10. Also sex seems to be correlated with distance to alternative sanitary facility used. It was found that among the adults who also went to other facilities for bathing etc., clearly more women than men used another facility within a distance of 100 meters. 2.14  
More men than women used also a facility further than 100 meters away. No correlations between sex and other variables were found.



- 
- 6.11 About 60 percent of the respondents has a clear preference for a roof on top of the MCK. This preference is more frequent among the people visiting the MCK more than twice a day (66%) than among the people who come to the MCK only once or twice a day (45%). However, contrary to this trend it is most frequent among the people who do not come to the MCK regularly (71%).
- Reference  
2.15





## 7. Validation of hypotheses

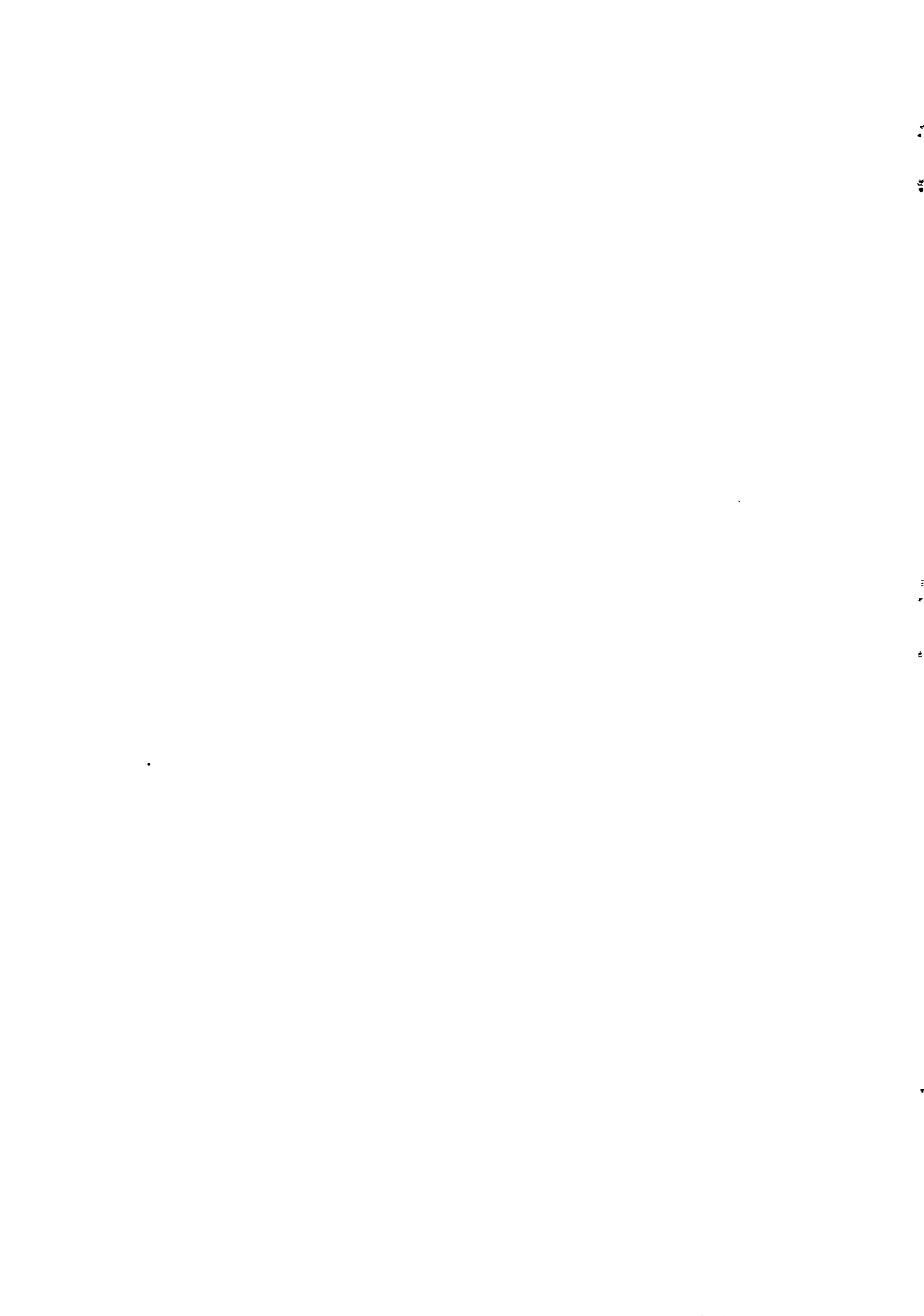
On the basis of the study results we will try to see whether the hypotheses as formulated in the study design\* can be accepted or not. In addition to the data from the observations and the interviews with users also the results from interviews with community leaders are used to validate the hypotheses.

- 7.1 H1 If the community, especially the Ketua RW/RK and RT, supported by the informal leaders, feel a need for having (or increasing the number of) MCKs, the community will find a solution to the land problem.

In the kampungs where the study was executed both a need was felt and land could be found where the owner would accept or even requests the construction of an MCK. However only a small MCK like MCK-Keluarga would be so easily acceptable. Often the site for such an MCK is an existing semi-public sanitary facilities which is either in bad condition or has only 2 or 3 of 4 functions of an MCK. Therefore we must conclude that in its present formulation hypothesis 1 can not be accepted but should be qualified as to size and type of MCK.

- 7.2 H2 The construction of a MCK in reply to expressed need of the population will enhance :
1. the proper use of the MCK
  2. the maintenance of the MCK
  3. the expressed felt needs of people neighbouring the area served by that MCK.

\*For easy reference the original hypotheses are repeated in this chapter. (H1, H2, H3).



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7.3 H3 An improper construction of a MCK will affect negatively

1. proper use of the MCK
2. maintenance of the MCK
3. expressed felt need for additional MCK's.

Proper use and maintenance of the MCK seems to be more dependent on the control by the person in charge of the MCK than on any other factor in the cases observed. Because all locations were selected on the basis of their being in use, insufficient data are available from the study to accept hypotheses 2 and 3.

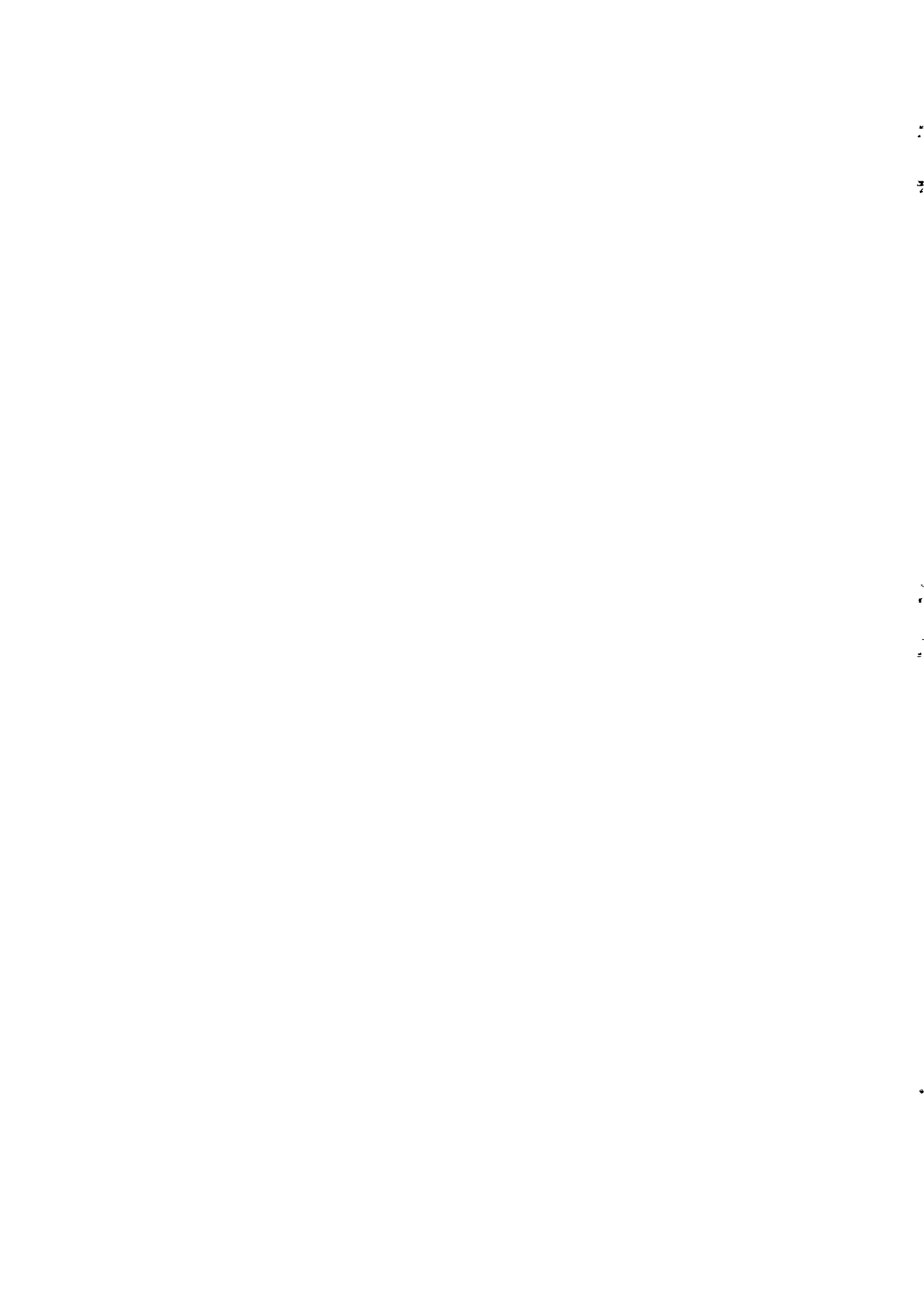
7.4 H4 The community has a preference for a bathing place and washing place where more than one person can mandi/cuci at the same time.

From the study data we could support the thesis that the community prefers an MCK with sufficient space so that several people may do their washing at the same time. No similar conclusions can be formulated for the bathroom.

Probably considerations of size of the MCK (it is easily to find space for small MCKs) and distance from the house of the people using it are more important variables favouring single unit MCKs.

7.5 H5 Preference for separate cubicles for kakus and separate mandi area for men and separate for women.

In general the community has no strong preference for a separation of the MCK



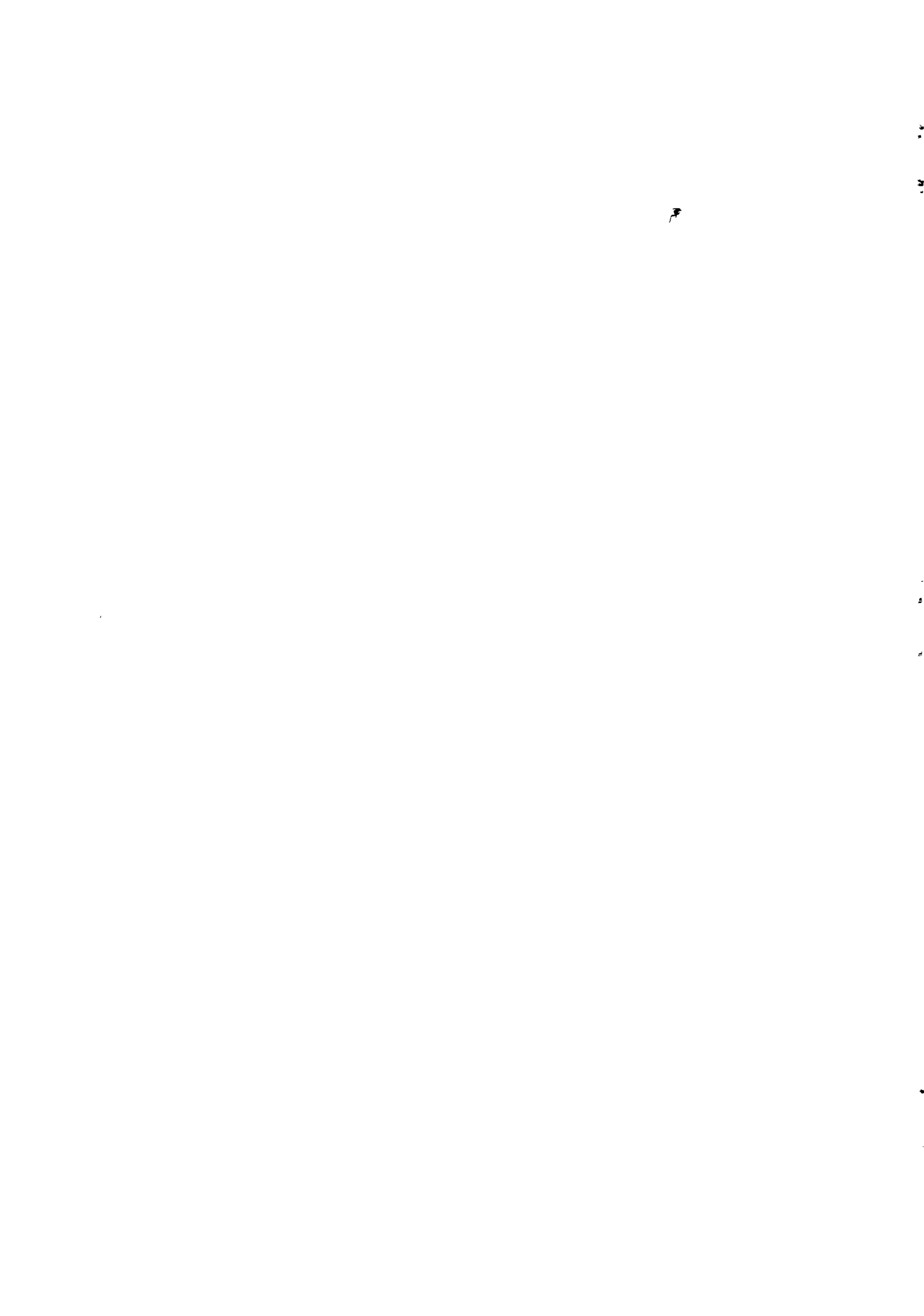
for the sexes. However the community leaders may have a strong preference for separated rooms for men and women and may try to impose such a separation if technically possible.

- 7.6 H6 People are ambivalent towards roofs on top of MCK.

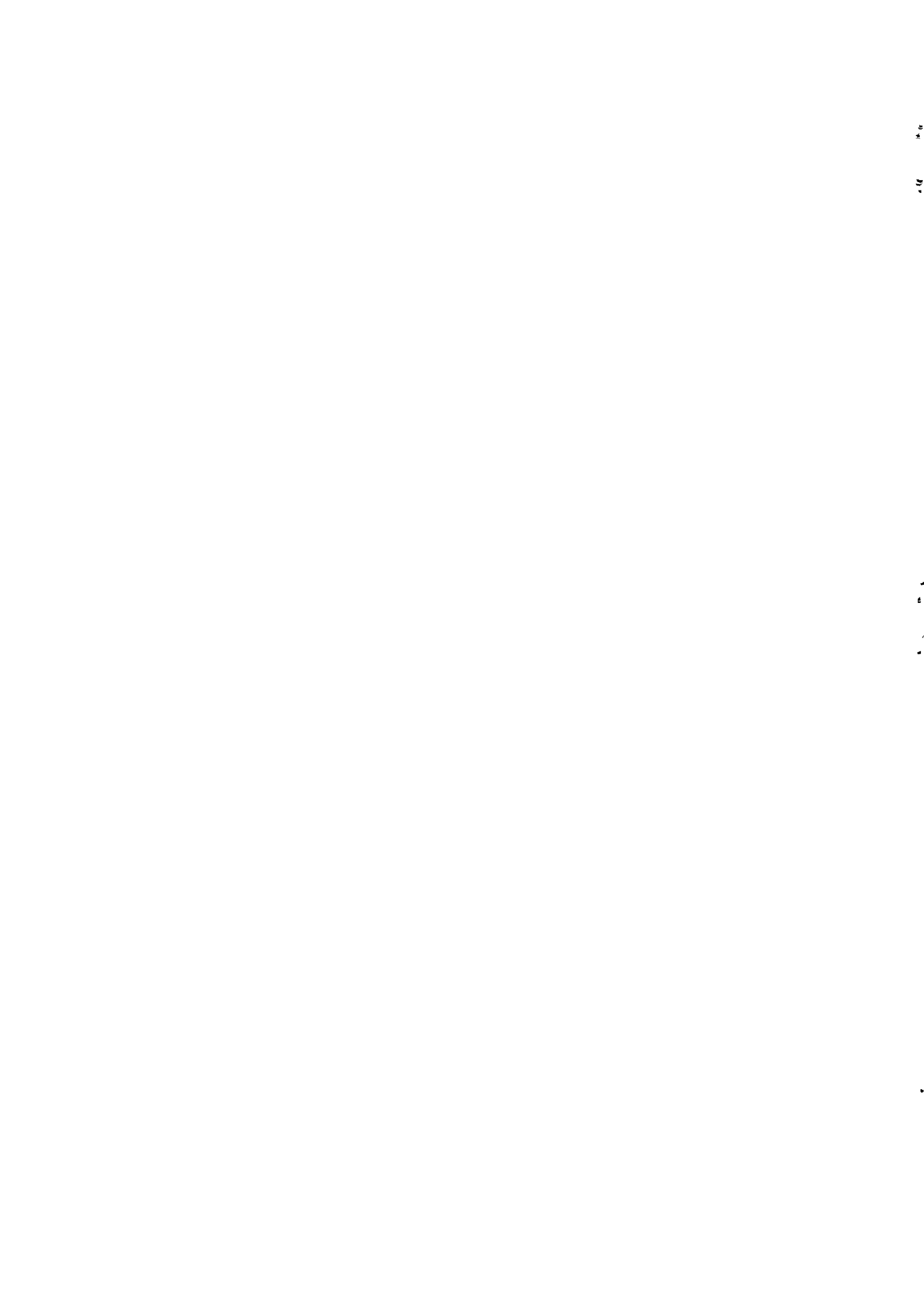
In general people like to have a roof on the MCK. Only few people prefer an MCK without roof. Reasons stated are cleanliness (no leaves falling into the bak mandi), protection against the sun and protection against rain. It may however be that people preferring a more open MCK also have strong reasons for their preference.

- 7.7 H7 Proper water supply is the most essential criterium for well functioning of an MCK.

Abundant and relatively cheap water of acceptable quality seems to be an essential criterium for the well functioning of the MCK. Where water was insufficient (location I) or expensive (location IV) the MCK is underused. Acceptable quality in above statement refers especially to smell, taste and colour of the water.



- 7.8 H8 Because of wide diversity in physical and social environment the actual solution found to the problem of sanitary facilities also varies widely.
- From the data it is very clear that the MCKs studied varied widely in their use. Partly this can be related to physical factors in the environment such as the quality and quantity of water available in the area, partly to social factors such as the social control over the users by the person responsible for the MCK.
- The need for sanitary facilities varies widely mainly depending on number of alternative facilities, especially sources of water available in the kampung.





## 8. Conclusions

On the basis of the analysis of the collected data the following conclusions may be formulated. In formulating these conclusions we will try to answer the general and specific problems which had been formulated in the design of the case study.

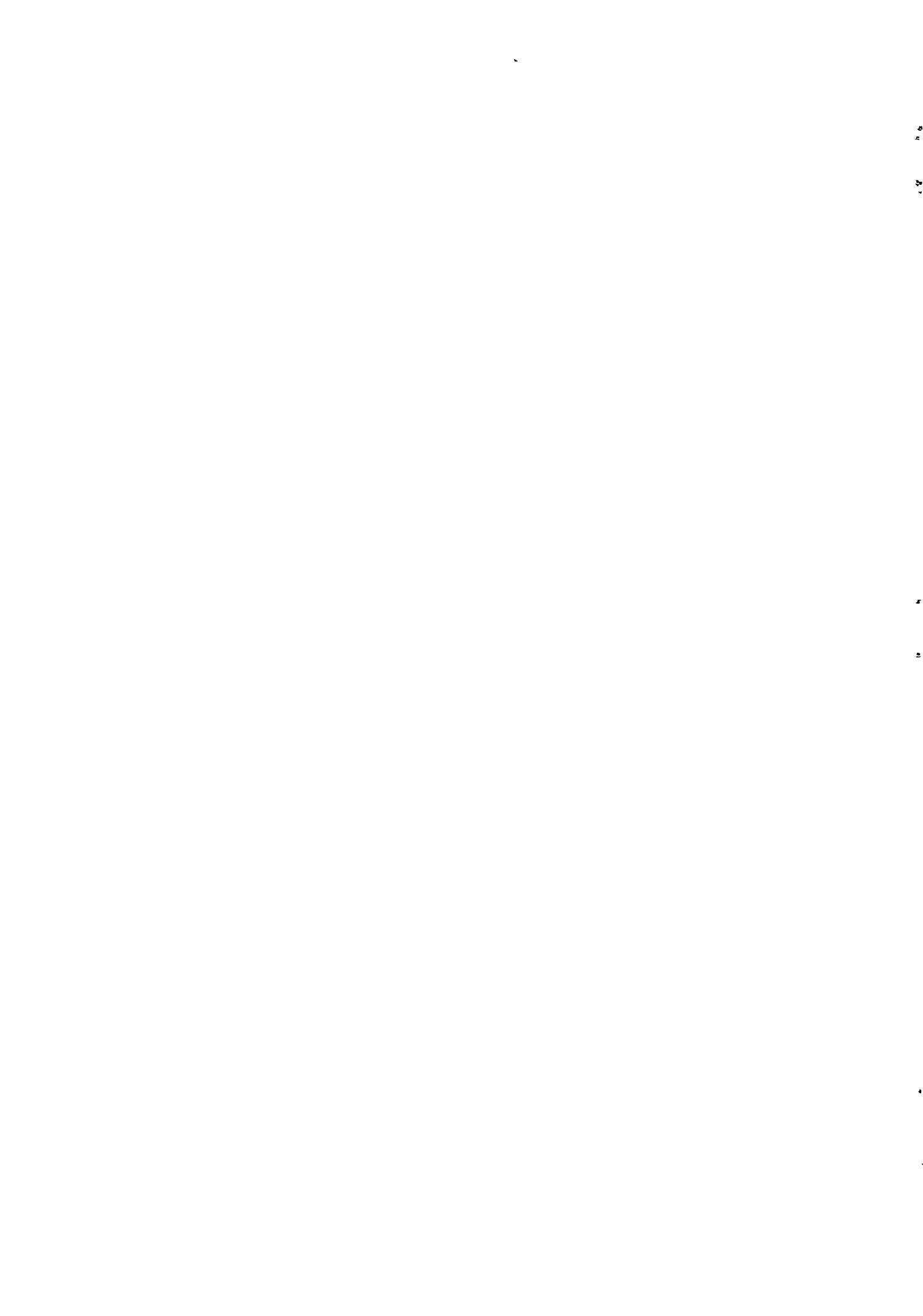
8.1 In the cases studied land doesn't seem to be as big an obstacle as had been expected if the following conditions are fulfilled:

- a. if the MCK to be built is small (single unit) and the local population is aware of the small size; and
- b. if the selection is made in close cooperation with the inhabitants or their leaders.

Also MCKs can be built where at present already public (or publicly used) sanitary facilities exist (rehabilitation).

The process of discussing with the local population where to build MCKs and how to adapt them to the specific conditions of the suggested locations and local preferences does not need to take more than 1 or 2 weeks. In the cases observed (insofar as applicable) other steps such as preparing tender documents, or construction took more time than the mushyawarah on where to construct MCKs.

However it is important that from the



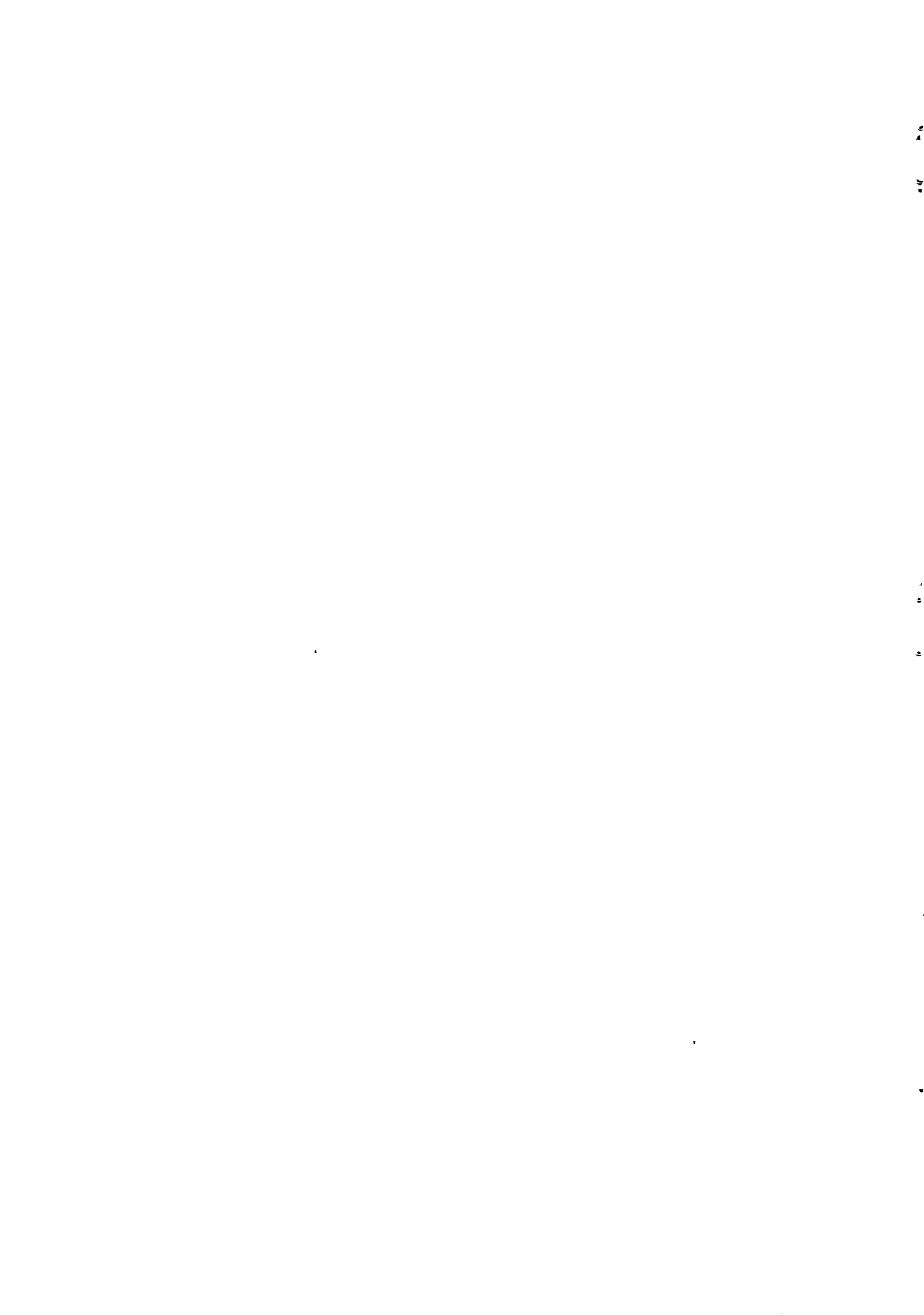
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start the community realizes what type of MCK is to be built.

8.2 In each of the cases observed one person or family had the responsibility for the "MCK", either paid or unpaid, either as owner or otherwise. Whether all users participate in operation and maintenance (often not) depends on that person. In most of the kampungs persons who have such a sense of responsibility can be found, certainly if we include the up-grading of existing (semi-) public MCKs.

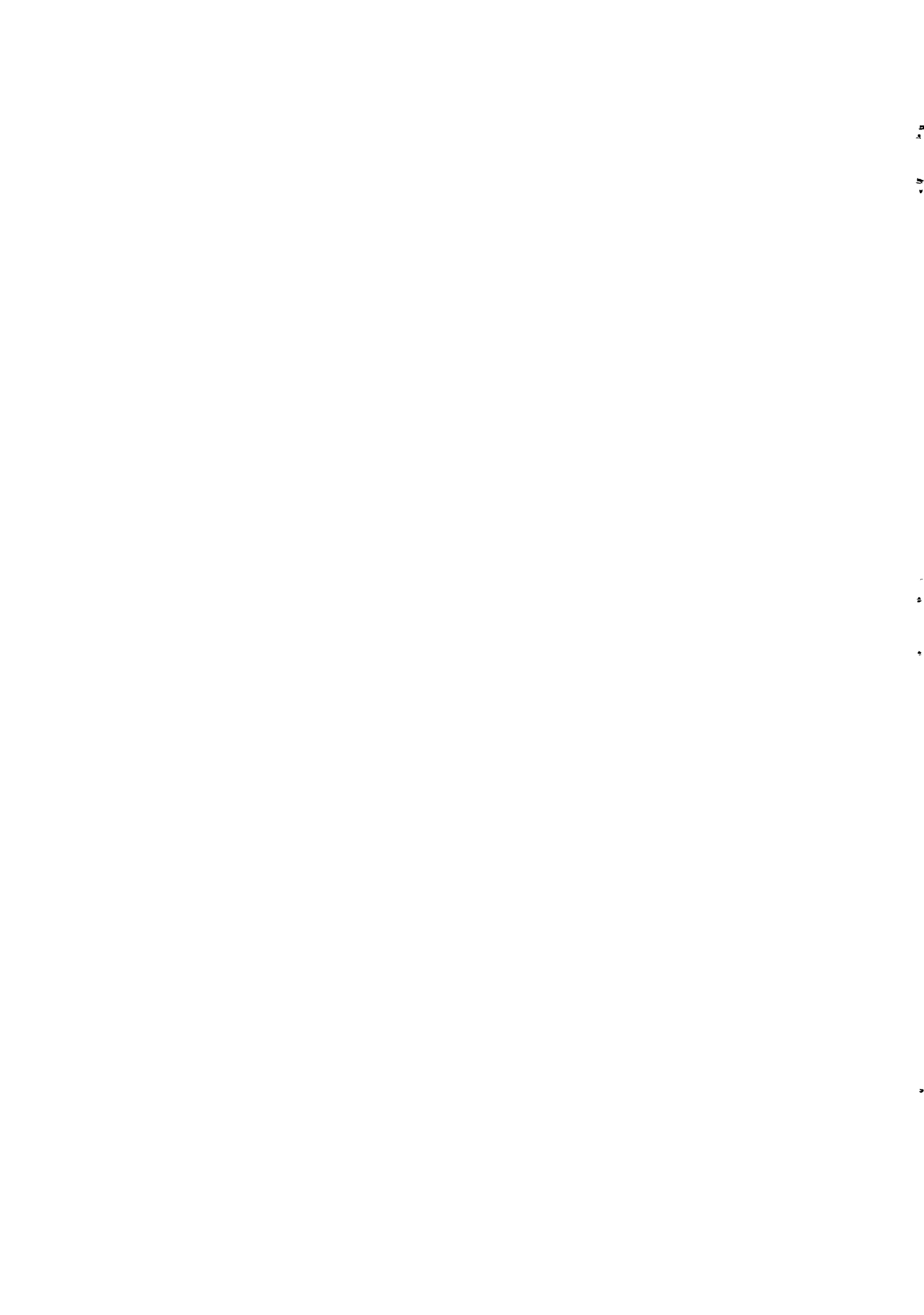
8.3 In its functioning the MCK Keluarga can be compared more with other single unit MCKs which are at least partly public than with a multiple unit MCK. As with the other single unit MCKs the level of maintenance will depend mainly on the person who is 'in charge' of the MCK. Because of this personal aspect and because of some other variables such as the local needs, each MCK should be considered a case in itself. For the erection of MCKs this has the consequence that the project would benefit greatly from involving the local inhabitants and especially their leaders in the selection of the type of MCK required etc.

8.4 The MCKs are used more often by women than by men and mostly by people living very close to the MCK. Very few children use the toilets at the MCKs. Except when payment is required the same people use



all functions of the MCK. This has the important consequence that we may expect that if a toilet is provided at locations where no proper toilet is available yet, the users of the MCK will also make use of that toilet, even though the expressed need for public toilets as yet is not very big in many kampungs.

- 8.5 It was noticed that at almost all locations included in the case study the MCK was either constructed by somebody from the local community or its design was altered in accordance with local wishes. This resulted in a fairly large variety in construction. To meet the specific local needs and wishes (and therefore to make the MCK a success) such a large variety seems unavoidable. Some of the factors which influence the required capacity and type of MCK are the following :
- 8.5.1 - availability of other sources of water, divided in water suitable for drinking and water for bathing and washing, in the immediate surroundings of the planned MCK, and the seasonal variation. In the dry season not only some wells are dry, also the quality of the ground water deteriorates in some areas;
- 8.5.2 - peak hours in the use of the MCK. For mandi and toilet : early in the morning and late in the afternoon, except near markets where also a peak around noon could be observed. That such peaks

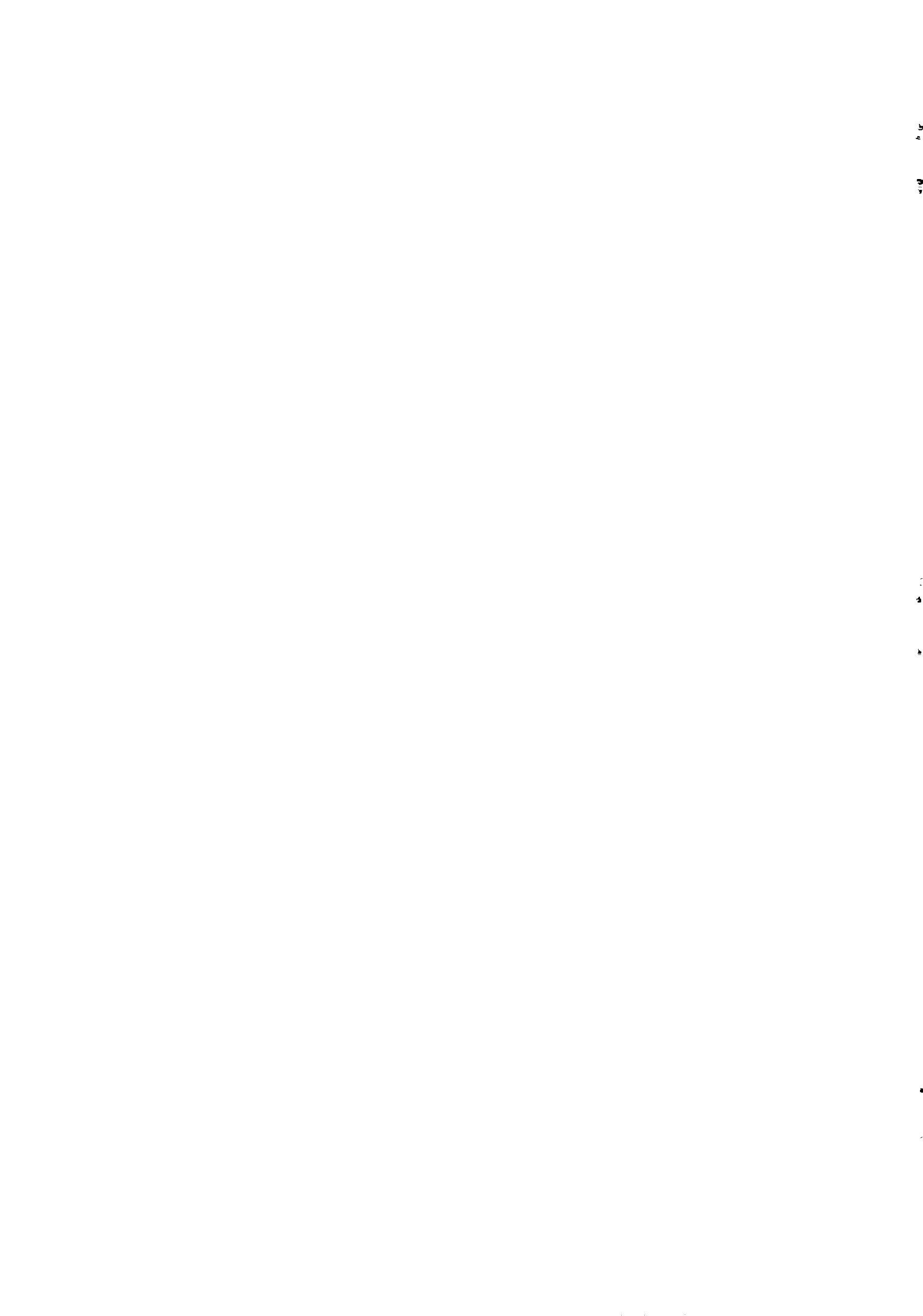


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were observed is in itself not surprising. Perhaps more interesting to note is that the use of the toilet/bathroom is not limited at all to the peak hours. If up to 25 people can use the same single unit MCK within one hour (all uses, including fetching water) then this means that one MCK could probably cater for a multiplication of this figure. For washing clothes and dishes no clear peak hours were observed;

8.5.3 - a small sized MCK, built in large enough numbers seems to be preferable from many points of view, including the issues of land, cleanliness and maintenance. However, it seems that the capacity of an MCK (if defined as the total number of families that could rely on it for all its functions) could be increased by making the washing place big enough so that three people can do their washing at the same time. This would also enhance the social function of the MCK;

8.5.4 - a roof is preferred by many people, as protection against the heat of the sun and against the rain, but also to prevent leaves from falling into the bak mandi.



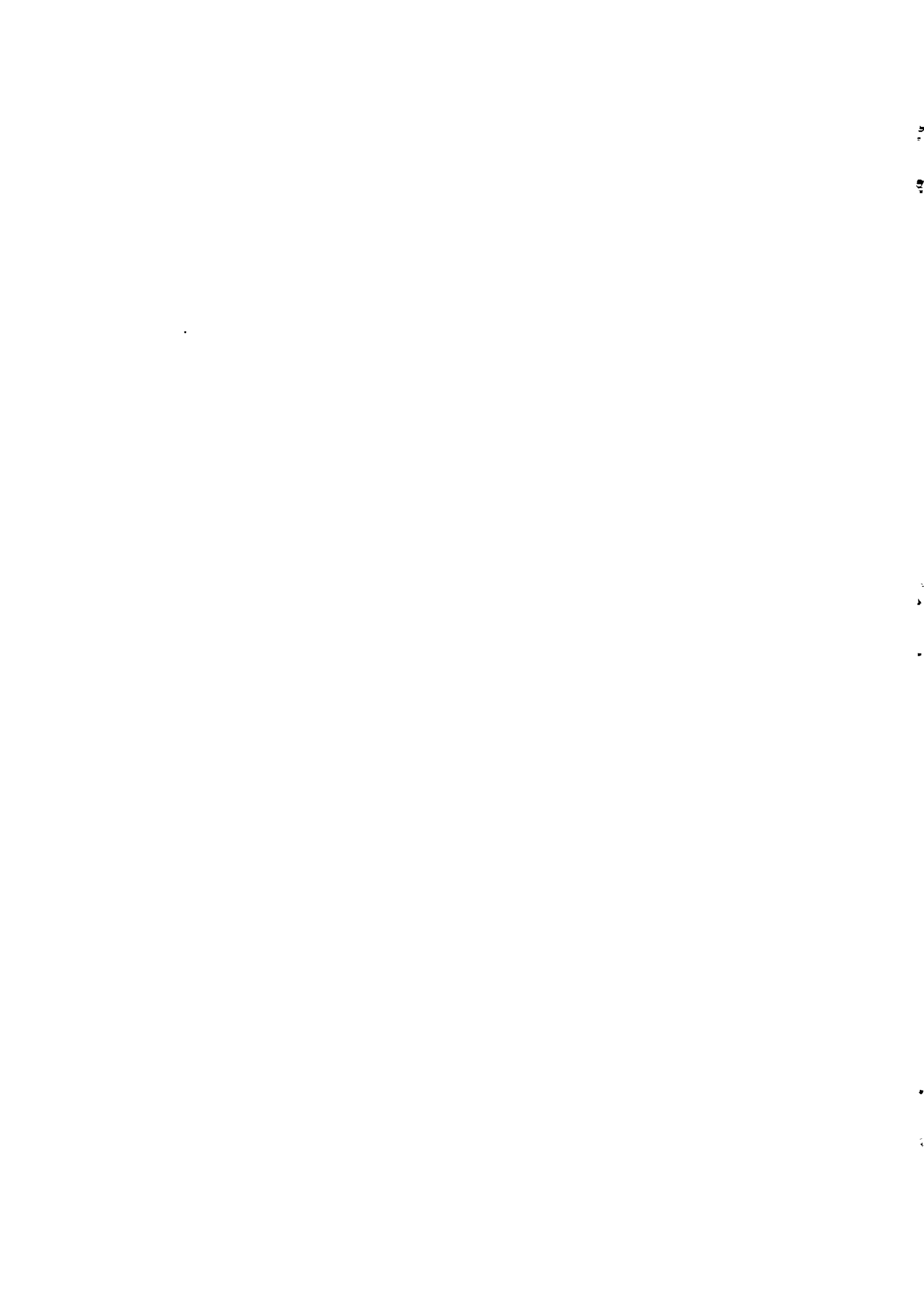


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## 9. Recommendations

9.1 It is recommended to continue the construction of one unit MCK Keluarga as part of KIP unless specific conditions such as nearness of a market suggest the construction of a multiple unit MCK. In Figure 9.1 a drawing is presented of the MCK keluarga designed by JUDC. However in the detailed design and construction of MCKs there should be enough flexibility to adapt the MCK to the specific local conditions. E.g. in Cirebon any PAM connection may attract water sellers. Sufficient space should be available for them to move their carts near the tap.

9.2 In order to facilitate the process of finding locations for MCKs and to ensure that the MCKs will be used properly after their erection it is strongly recommended that, through its local leaders at RT and and RW/RK level, the local population is actively involved in suggesting locations. By inviting them to select possible locations they will receive part of the responsibility which will facilitate especially maintenance and operation. At the same time this procedure guarantees that locations will be chosen where land can be made available and where there is at least some need for an MCK at that location.



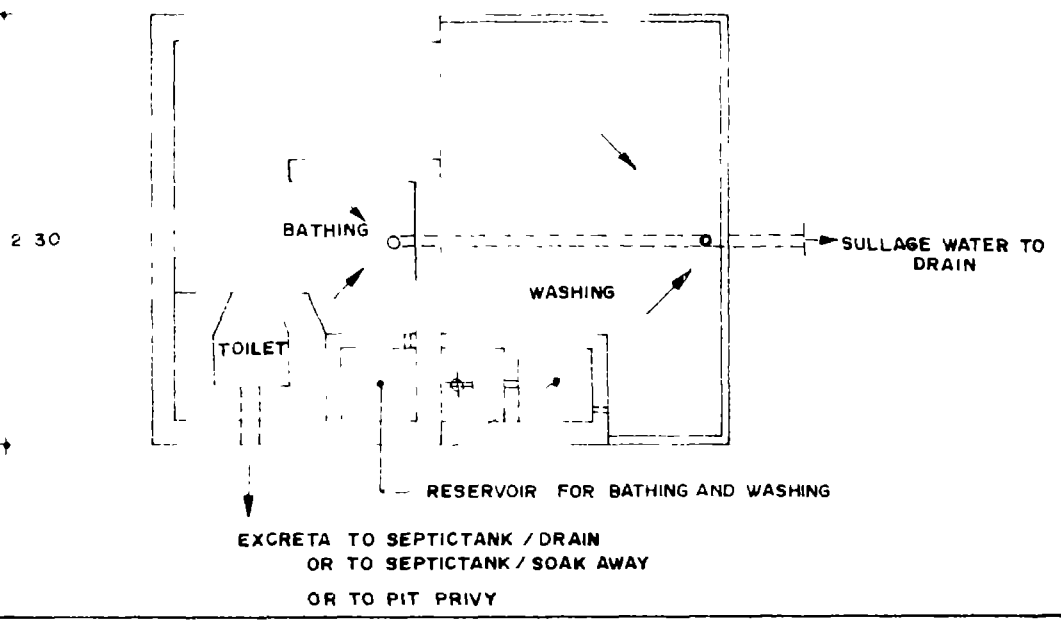
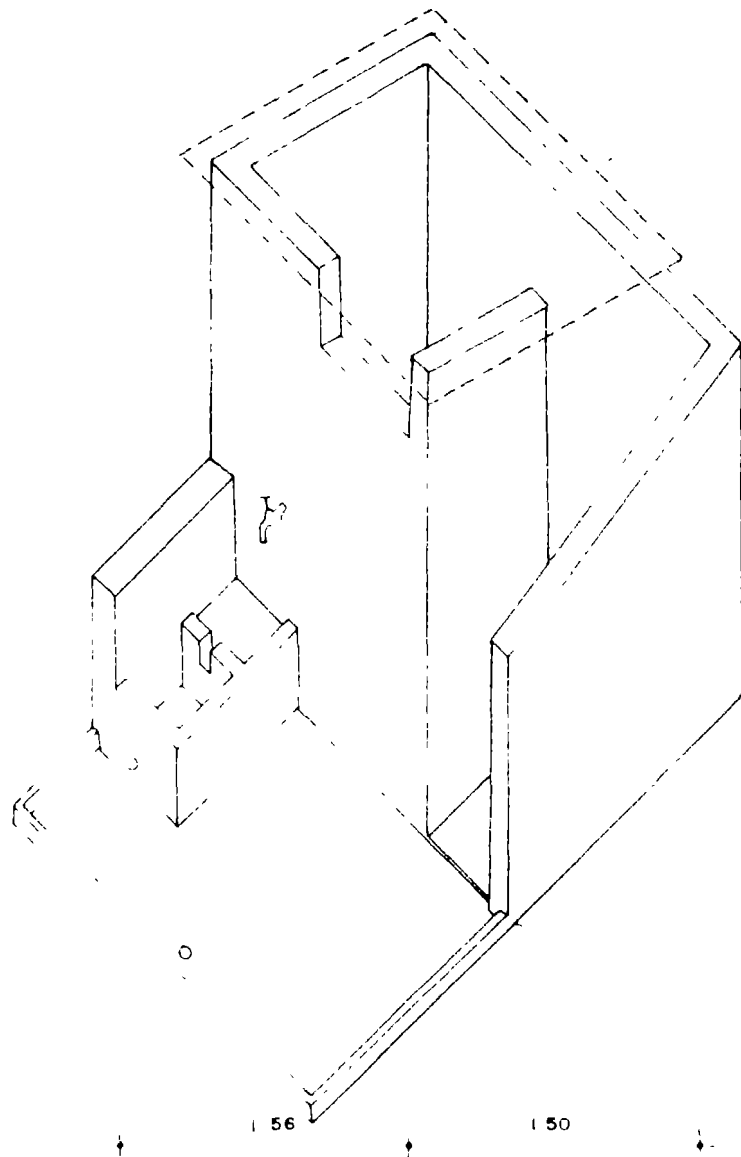


Fig 91

LAY-OUT OF MCK - KELUARGA



- 9.3 In selecting locations for the construction of MCKs it is recommended that also at places where already some public or semi-public sanitary facility exists these existing facilities can be upgraded to become MCK Keluarga if their present conditions are clearly below the standard for an MCK.
- 9.4 As part of the process of inviting the local population to participate by selecting locations for erecting MCKs, it is important that sufficient information is given about the size and the type of MCK. Misunderstandings about the size of MCKs (MCK is connotated with multiple unit) and about suggested use (not public but semi private) will make it more difficult to find land. This information can be given orally, through posters such as the one prepared by JUDC (see Figure 9.2 for a photocopy, reduced size), through visits by RTs to an MCK Keluarga which has been built already, through showing a scale model, photographs or other visual presentations.
- 9.5 Efforts are required to stimulate especially children to use toilets (private or public). Because, unless these children make use of the toilet of the MCK, at the most only half of the target group will be affected. This stimulation can be done through their school (both primary school and kindergarten, both public schools and private schools such as madrasah) and through their parents.

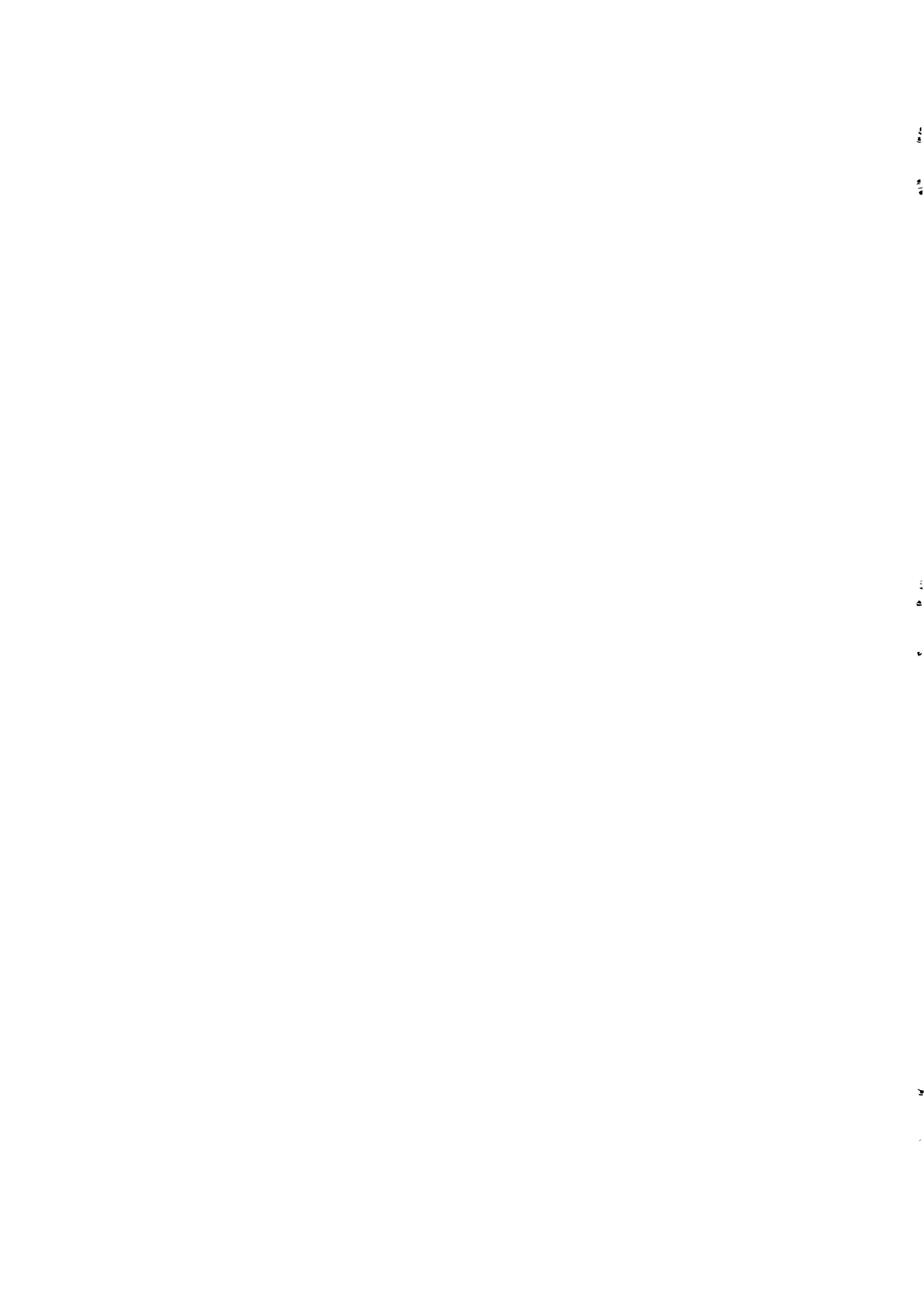
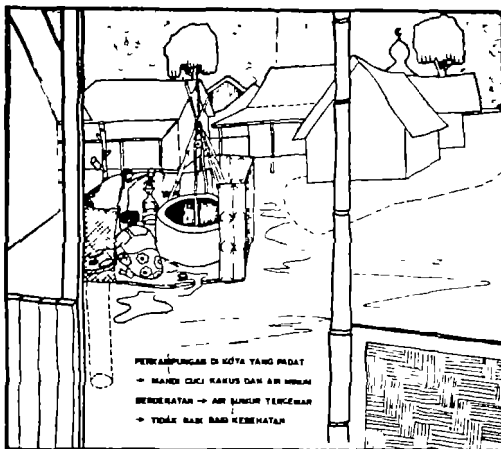


Fig. 9.2  
(reduced size)

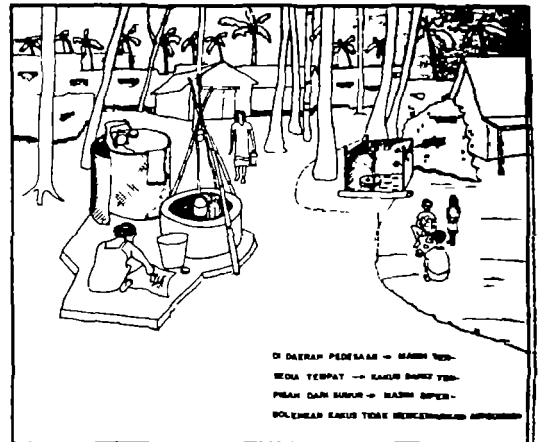


LEMBARAN PEROTAK SAAT INI  
SUDAH SEMPURNA, PERUMAHAN YANG PADAT → AIR SUMPAH KOTOR

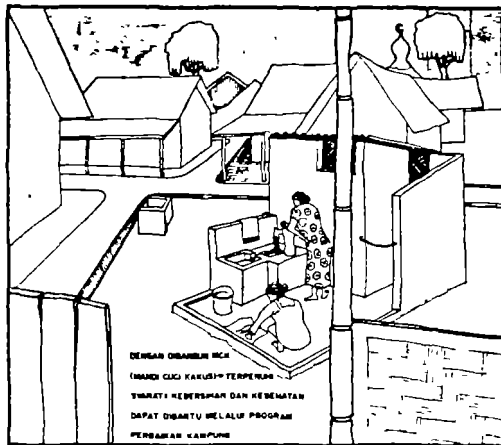
BERILU PAKARAI DI SUNGAI DAN BAKSI  
DI SUNGAI YANG DAPAT DI LANGKAH LAGI  
KARENA AIR SUNGAI SUDAH KOTOR → TIDAK SEHAT



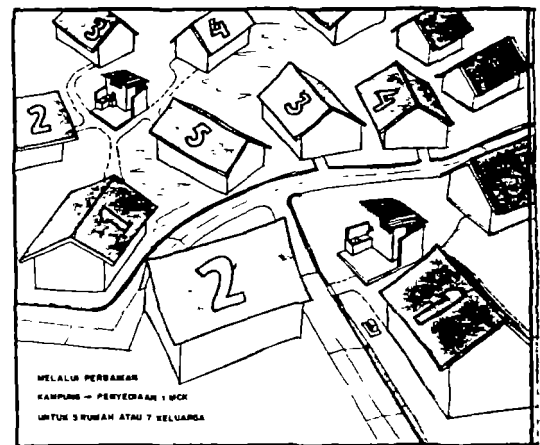
PERKAMPUNGAN DI KOTA YANG PADAT  
→ MANDI CUCI KAKUS DAN AIR MINUM  
BERHANTAN → AIR SUNGAI YANG KOTOR  
→ TIDAK BAKI BAKI KESEHATAN



DI DAERAH PEDESAAN → MANDI YES-  
MUDA TERPAT → KAKUS BAKSI YES-  
PIKAI DAN SUNGAI → MANDI SUNGAI  
BOLEHMAN KAKUS TIDAK BERKESEHATAN



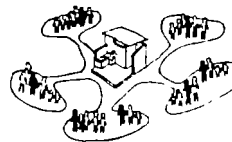
DENGAN DIBANER MCK  
(MANDI CUCI KAKUS) TERPERINDA  
TAMBAH KEBERSIHAN DAN KESEHATAN  
DAPAT DIBANER MELALU PROGRAM  
PERUBAHAN KAMPUNG



MELALU PERUBAHAN  
KAMPUNG → PENYEDIAAN 1 MCK  
UNTUK 5 RUMAH ATAU 7 KELUARGA

1. PEMERINTAH AKAN MENYEDIAKAN

- MCK KELUARGA (UNTUK KELUARGA YANG TIDAK PUNTA RAMAH MANDI-KAKUS) → 1 MCK UNTUK 7 KELUARGA
- PENYEDIAAN AIR BERSIH → KERAN U MINUM + METERAN (DI DAERAH YANG SUDAH ADA PAM) ATAU SUNGAI POMPA (DI DAERAH YANG BELUM ADA PAM) DI SETIAP MCK KELUARGA
- PENYEDIAAN SEPTIK TANGKAI ATAU CUBLUNG



2. PENDUDUK HARUS MEMBANTU DALAM

- MENENTUKAN KELUARGA YANG MAU ME-
- MARI MCK KELUARGA BERSAMA-SAMA (SATU MCK UNTUK TUJUH KELUARGA)

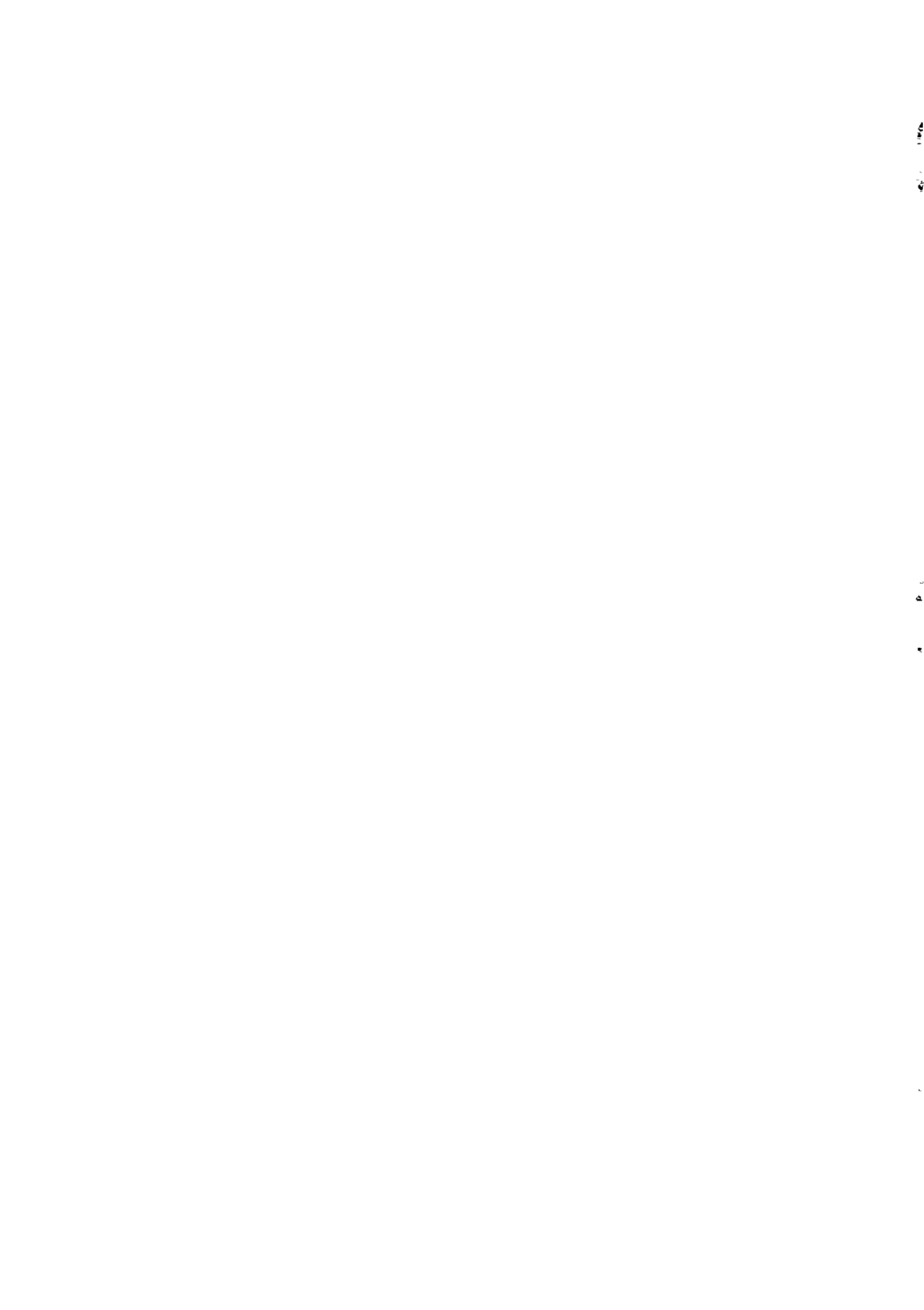
MUSYAWARAH

- MENCAIRI TANAH (DEKAT RUMAH) SELUAS 2 x 3 METER → SIKARANAN DENGAN KERUT RT → LOKAS MCK KELUARGA
- JIKA ADA PAM → PERHENTUAN SIAPA AKAN MENJADI PEMILIK METERAN DAN JIKA MENJADI PEMILIK METERAN HARUS PERHAJARAN AIR UNTUK BAYAR MEMBAYAR AIR SETIAP RUMAHNYA 7



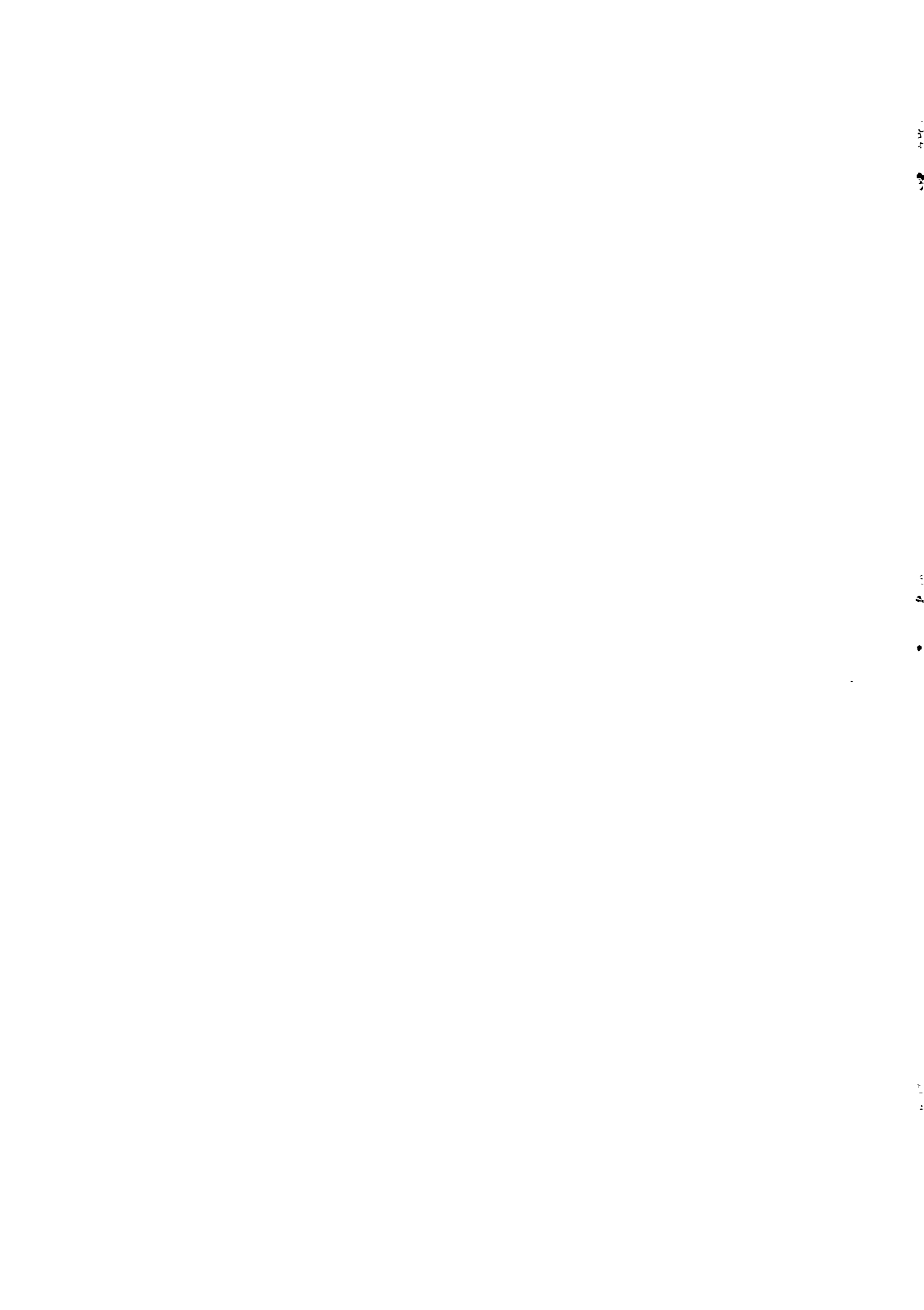
3. KEBERHASILAN MCK KELUARGA MELALU

- TANGGUNG JAWAB BERSAMA SAMA ANDA DAN PEMERINTAH
- NANTI SEBAGAI PEMAKAI MCK MELU-  
• ANKA ANDA HARUS BERBEDA BERBEDA  
• SIKAI DAN MEMERAN BEKANG TER-  
• ATUR, TARKANAN PENGERTIAN DI JASA MCK  
• TETANGGA DAN KELUARGA ANDA





- 9.6 The responsibility for the MCK can best be given to only one person at each MCK. The responsibility referred to includes mainly arranging that the MCK will be kept clean and is used properly. It also includes paying the water bills (with or without charging other users); arranging for repairs. For the emptying of the septic tank (if available) we refer to 9.9 below. It may be left to that person to decide how he involves his neighbours in the operation and maintenance of the MCK.
- 9.7 On the construction aspects of MCK it is strongly recommended that its watersupply is sufficient both in quantity and quality, and it is recommended that its washing place is large enough for several people to use it at the same time.
- 9.8 Although many users prefer a roof on top of the MCK, the results of this study don't warrant a firm recommendation. A roof has the advantage that people using the toilet don't have to squat in the direct sun or in the rain, however it also has the disadvantage that people may feel too much enclosed if in addition to four walls, also a roof is present. We may also add that from the sanitary point of view making the MCK darker may reduce the number of flies, as is often mentioned in literature on sanitation, but may increase the number of cockroaches.



- 9.9 The data from the study are not suitable to make specific recommendation on how the emptying of the septic tanks should be organised, but it is clear that this should be organised on a wider scale than a kampung, because it seems unlikely that the septic tanks will be emptied on the initiative of the "caretaker" of the MCK.
- 9.10 The case study approach has been successful in studying various aspects of MCKs. It is suggested that part of the data collection methods and instruments will be used again to study other MCKs, such as MCK keluarga which will be built in the near future.

## N o t e :

As note we may mention that several cases were observed by JUDC of MCKs not used because either water supply was not available or because the MCKs had been constructed without involving the local inhabitants. On the other hand, in Bekasi large number of one unit MCKs can be built without problems because the KIP Unit communicates effectively with the local inhabitants at the planning stage.

