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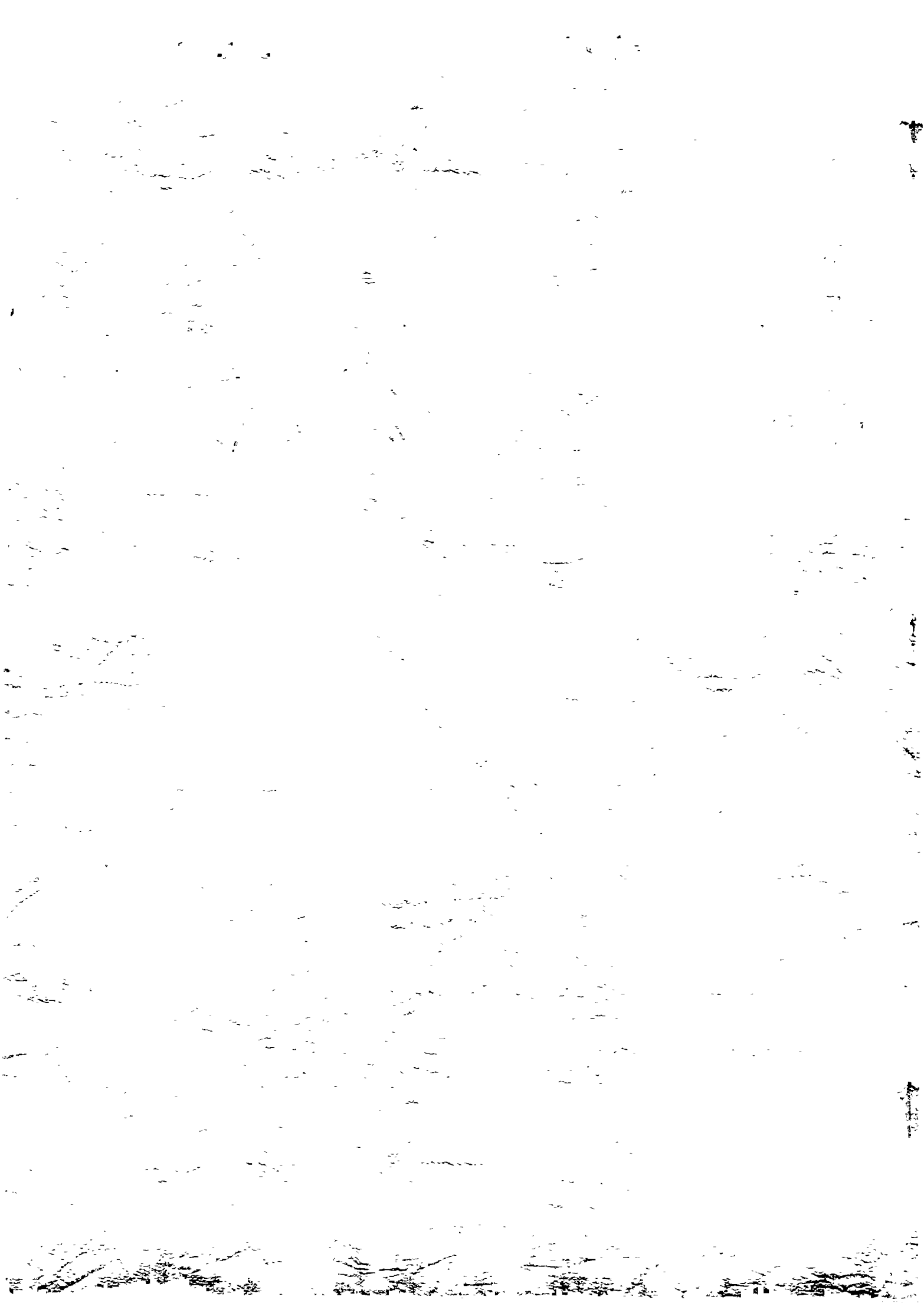
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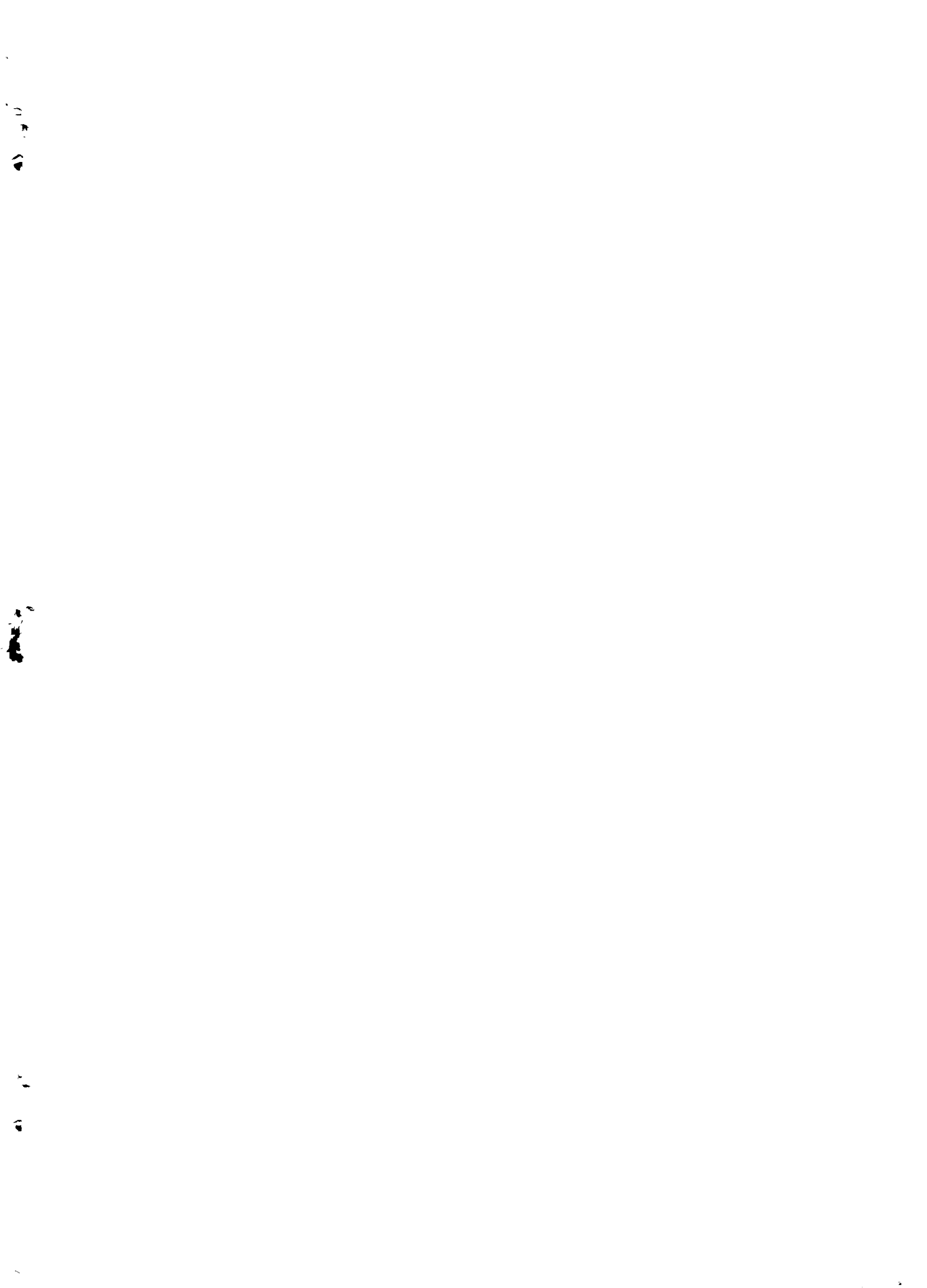
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FINAL REPORT

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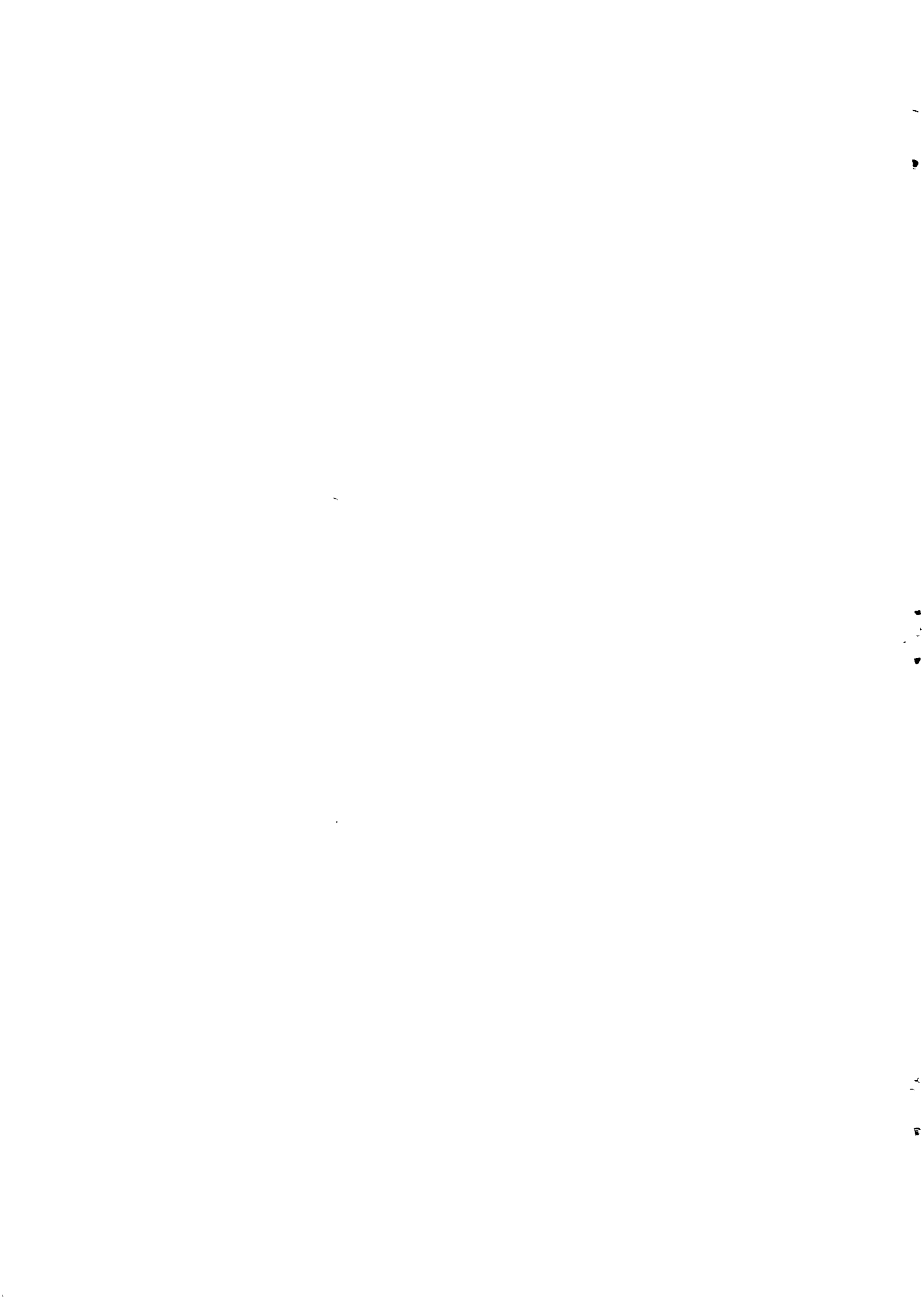
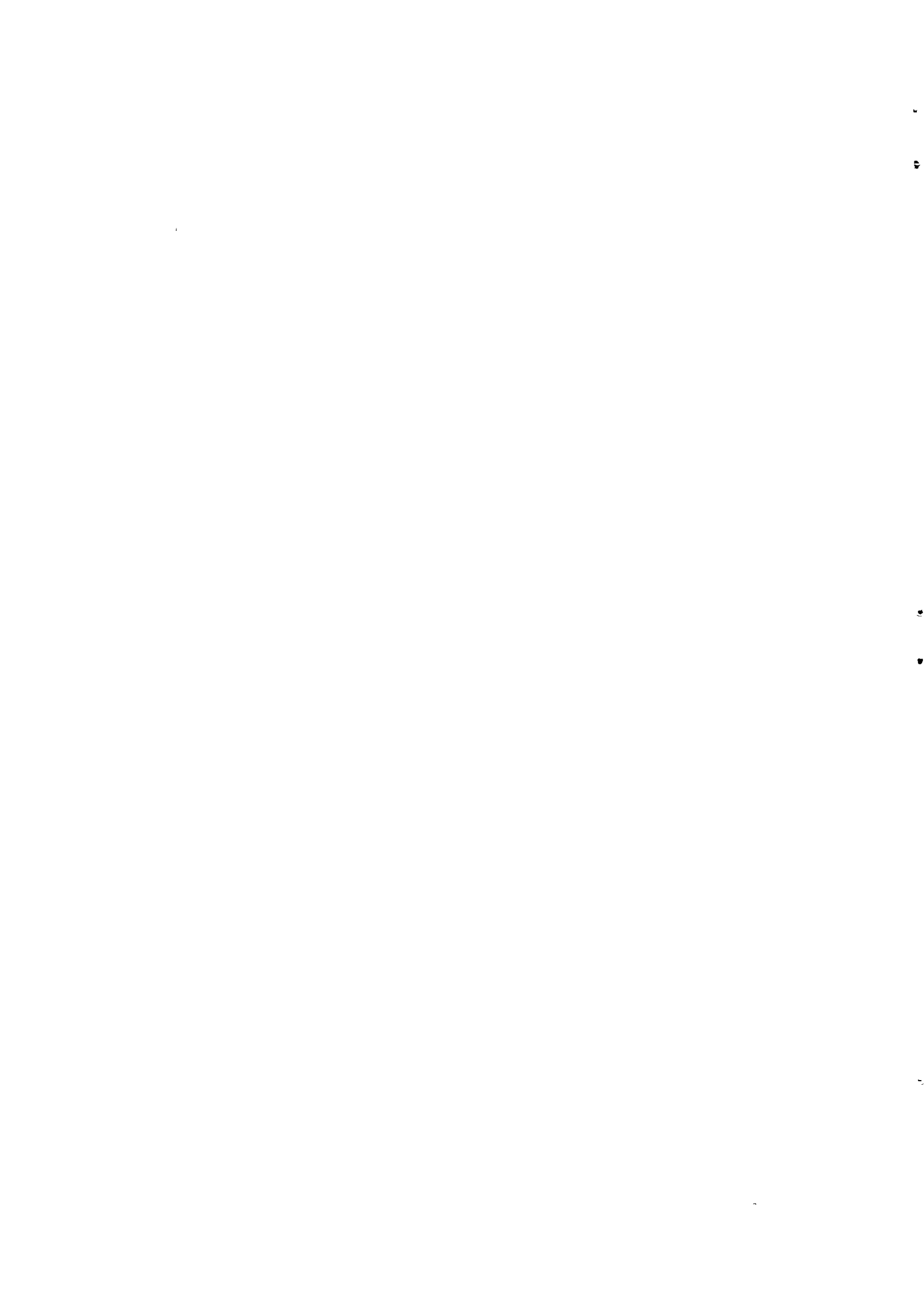


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- Annex 1 Selection of JUDC reports
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1. Introduction

This final report on the Kampung Improvement Programme in Bogor, Tangerang, Bekasi and Cirebon tries to highlight the major characteristics of the programme. Rather than attempting to present a detailed list of all works accomplished, or to present an account of expenditures, an overview will be given of KIP Botabek-Cirebon from four angles:

- approach, procedures and designs
- activities carried out and results achieved
- transfer of knowledge
- impacts of the programme.

This overview can also be seen as an evaluation of KIP Botabek-Cirebon from those four angles. As a concluding note we will discuss the question whether KIP Botabek-Cirebon can be or should be repeated elsewhere and what revisions are recommended in such a case.



2. Objectives and targets

2.1. General objectives

The Kampung Improvement Programme intends to improve the living conditions of the people living in the poorest parts of Indonesia's towns.

In this context a kampung can be described as an urban area with low levels of services, inhabited mostly by poor people. Included in this category are both old urban areas, normally with high densities, and fringe areas which were rural villages until they became absorbed into the expanding town.

A major assumption of kampung improvement is that general living condition in the kampung will improve, directly or indirectly, as a result of the improvement of the physical infrastructure of these kampungs.

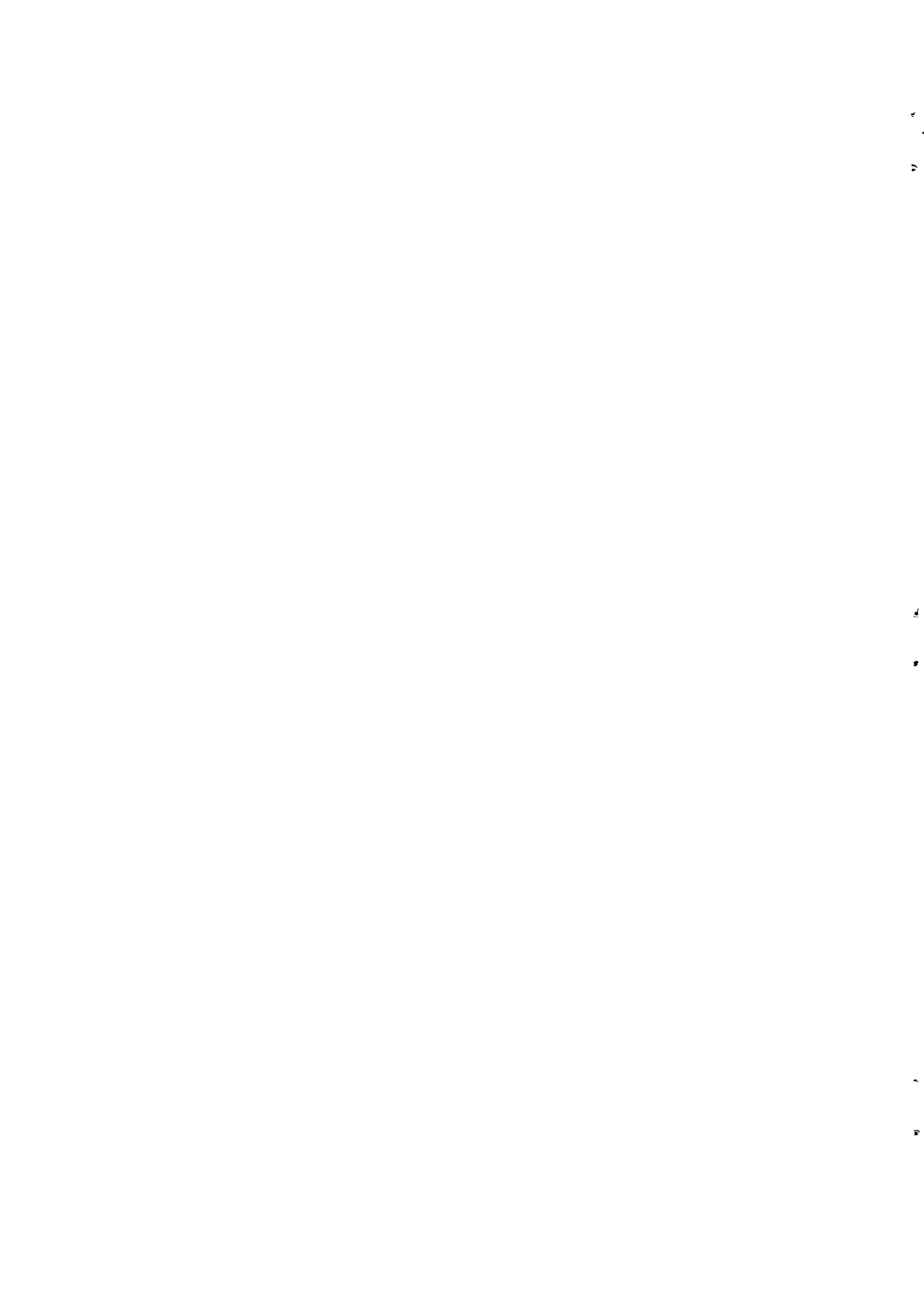
2.2. Physical and non-physical targets

In order to reach the objective of improving the living conditions of the urban poor, the programme has a number of physical and non-physical targets. The physical targets of the kampung improvement are the number of roads, drains, sanitary facilities of acceptable standards. The non-physical targets are improved accessibility, improved sanitary conditions, (including) improved drainage of the kampungs. A difference between these two is made to stress the fact that a proper functioning of the works provided is essential for reaching the goal of kampung improvement. An extreme example may clarify this. Providing a certain number of garbage containers and garbage carts may satisfy the physical targets. If however these containers and carts are not used the non-physical target of improved garbage collection is not reached, nor are these containers and carts helping to reach the general objective. In other words the success of the programme to a large degree depends on the proper functioning of the facilities pro



vided. We will see that this has had clear implications for the designs and procedures in KIP Botabek-Cirebon. For planning and budgetting purposes it is useful to use an average amount of improvements per hectare (or per 1000 persons). This does not mean that the same amount of works have to be carried out in each kampung. For KIP Botabek-Cirebon planning standards or target were set which define the number and quality of vehicular roads, etc. per hectare (and per 1000 households in the case of sanitation) that every kampung should have after completion of the programme. Because the existing situation varies widely some kampungs therefore need far more improvements to reach that target than other kampungs.

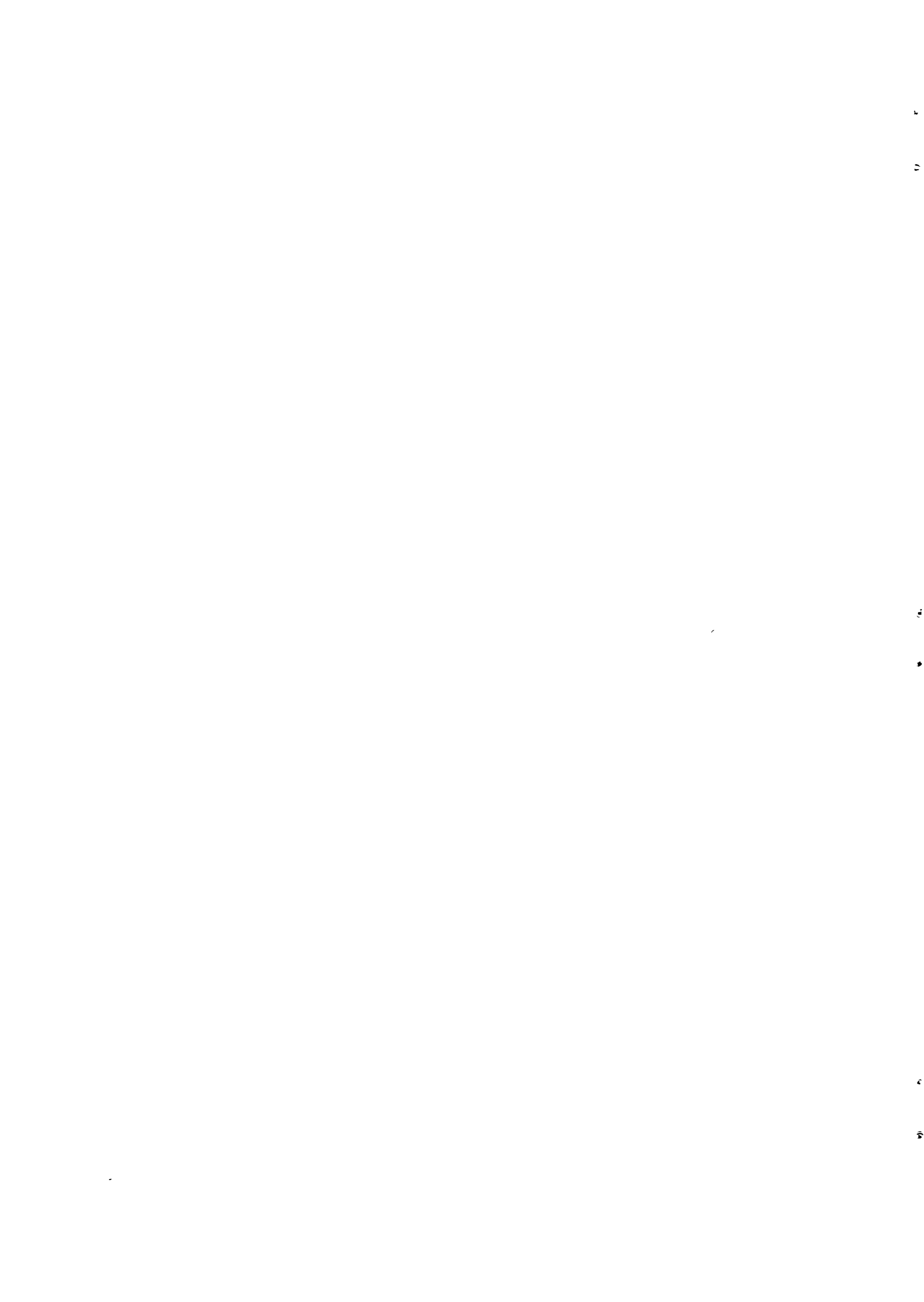




3. Approach

3.1 KIP as improvement of the existing situation

Kampung Improvement means that the existing situation is improved without major changes in position of houses, roads and footpaths. Not a new situation is created to replace the old one but the programme literally builds upon the old situation. This implies a recognition that the existing situation represents a considerable amount of investments. JUDC has calculated that to construct a infrastructure level such as KIP aims at in a virgin area would cost about twice as much as improving existing facilities up to that level. On the other hand the improvement of the infrastructure in existing kampungs requires a high degree of flexibility and inventiveness in applying designs. In the planning and execution of KIP Botabek-Cirebon special care was taken to limit destruction of existing houses etc. to the minimum, even if that would mean that planning standards could not always be adhered to or that sometimes more expensive technical solutions had to be chosen. Not only the destruction of houses faces the practical problem of convincing the inhabitants of the need for such destruction and of compensating for the losses involved, also and even more important the destruction of houses would mean that part of the kampung inhabitants suffer rather than gain. Therefore avoiding destruction was considered more important than strict adherence to the planning standards. In some rare cases part of a house had to be demolished in order to open up the kampung for vehicles. Even destruction of fences was avoided unless the people concerned clearly indicated that they were prepared to sacrifice the fence and part of their house. The designs for small roads and footpaths include the possibility to construct the drain under the road or footpath if no other solution can be found to avoid demolition.



3.2. KIP as a stimulation programme

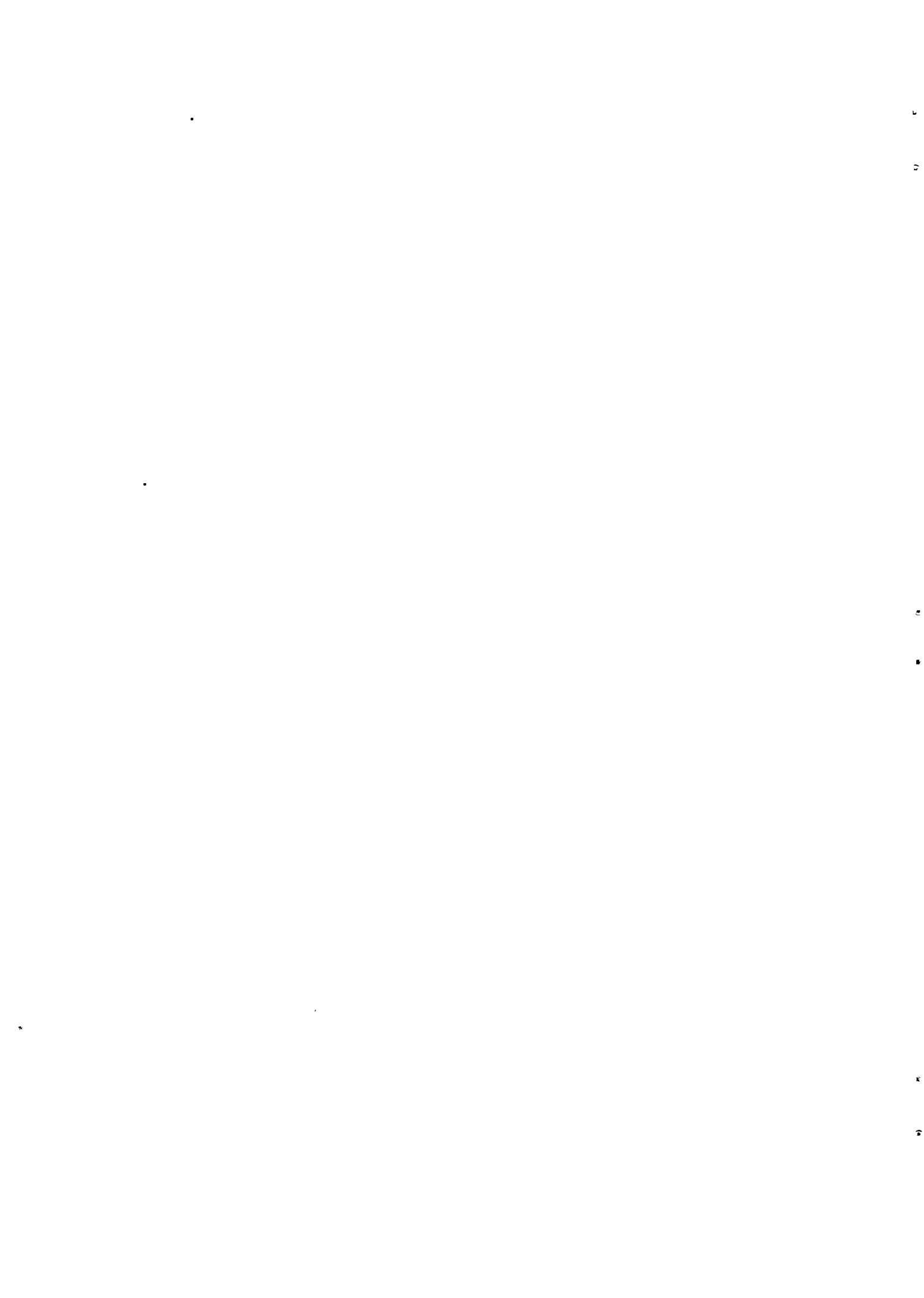
KIP has been defined as a *proyek perintisan* which can be translated in two ways, i.e. as a pilot programme and as a stimulation programme. Both are correct descriptions of the intention of KIP. It was a pilot programme in the sense that a start was made with a new approach which was tried out in a limited number of kampungs. In two ways it is a stimulation programme. The Central Government provided funds to municipalities to improve part of the kampungs. This should stimulate these municipalities to pay more attention to the position of the urban poor and improve also other kampungs. Finally, by improving part of the existing facilities the kampung inhabitants are stimulated to execute other improvements. We will see in 8.3 that improvements executed by the kampung inhabitants exceed, financially, the improvements provided by the government.

Every programme has to strike a balance between coverage and intensity. KIP has ideally an extensive approach. It does not aim at providing a complete package of high standard improvements. By limiting expressly the planning standards, more kampungs can be improved with the same total budget than if e.g. every single road and footpath were to be upgraded to a high level.

One of the consequences of KIP Botabek-Cirebon as a pilot project is that at the end of the project the decision should be taken whether or not to go ahead with KIP along the developed road. This final report tries to provide an evaluation which may contribute to such a decision.

3.3. Development of small enterprises

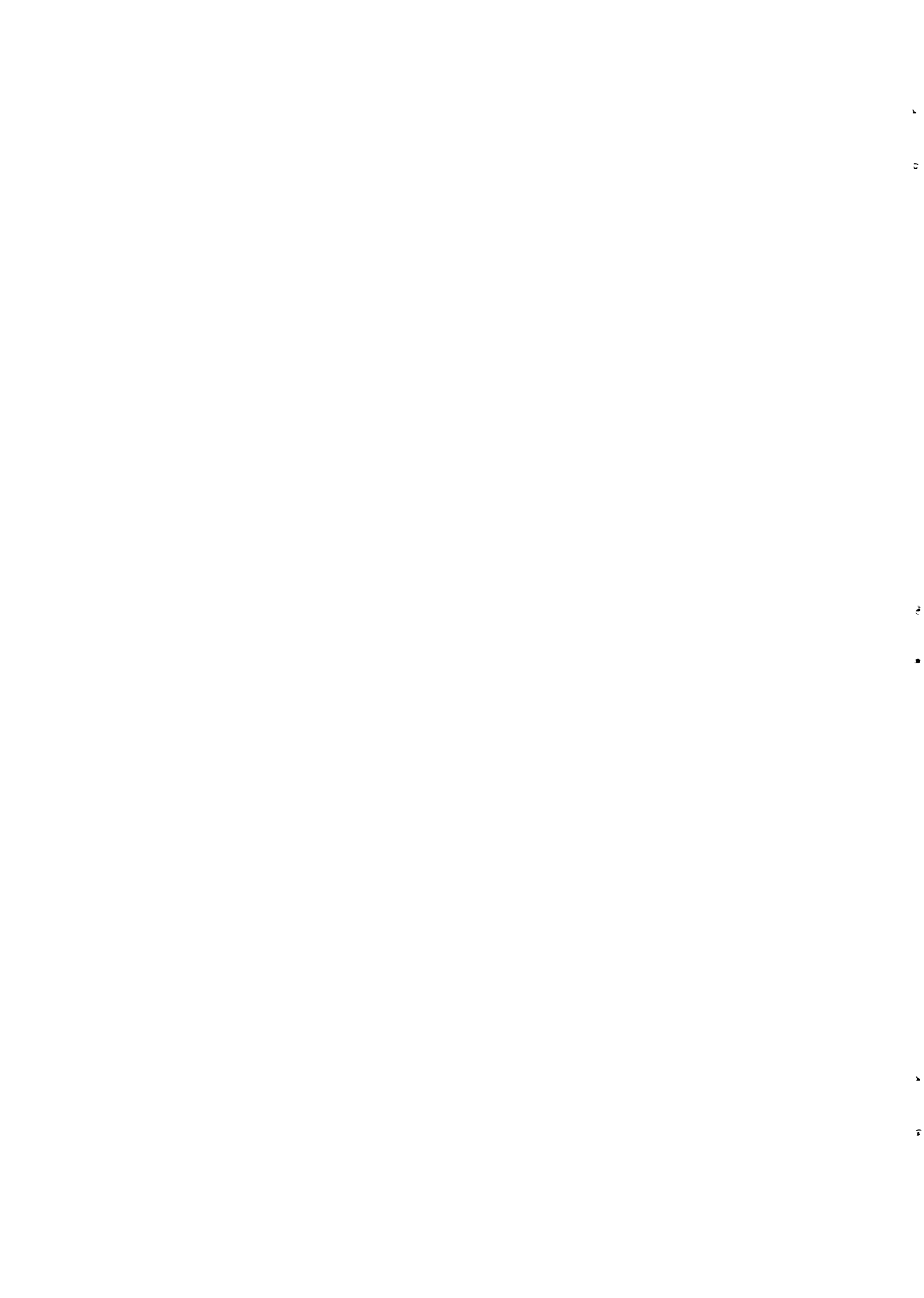
KIP is executed by small contractors in accordance with the presidential instruction Keppres 14A of 1980 and Keppres 18 of 1981. Execution of the works by weak contractors has the advantage that the programme provides opportunities for the development of indigeneous small enterprises. Because of their financially weak positions and their low level of skills, these contractors



have not always been able to execute the works in accordance with the design and according to the time schedule. Therefore in order to minimise deviations from the tender documents the plans had to be very detailed and specific and supervision had to be very intensive. Execution of the works by the kampung inhabitants themselves could make the execution cheaper but would require a far more intensive guidance and supervision by the authorities.

KIP as a multitude of small improvements is a very labour intensive programme. Half of the funds spend on KIP Botabek-Cirebon were used to pay local labourers, the other half to acquire building materials from local or regional industries. Except for some instruments no imported equipment or materials had to be used.





3.4. Community participation in planning, execution and maintenance.

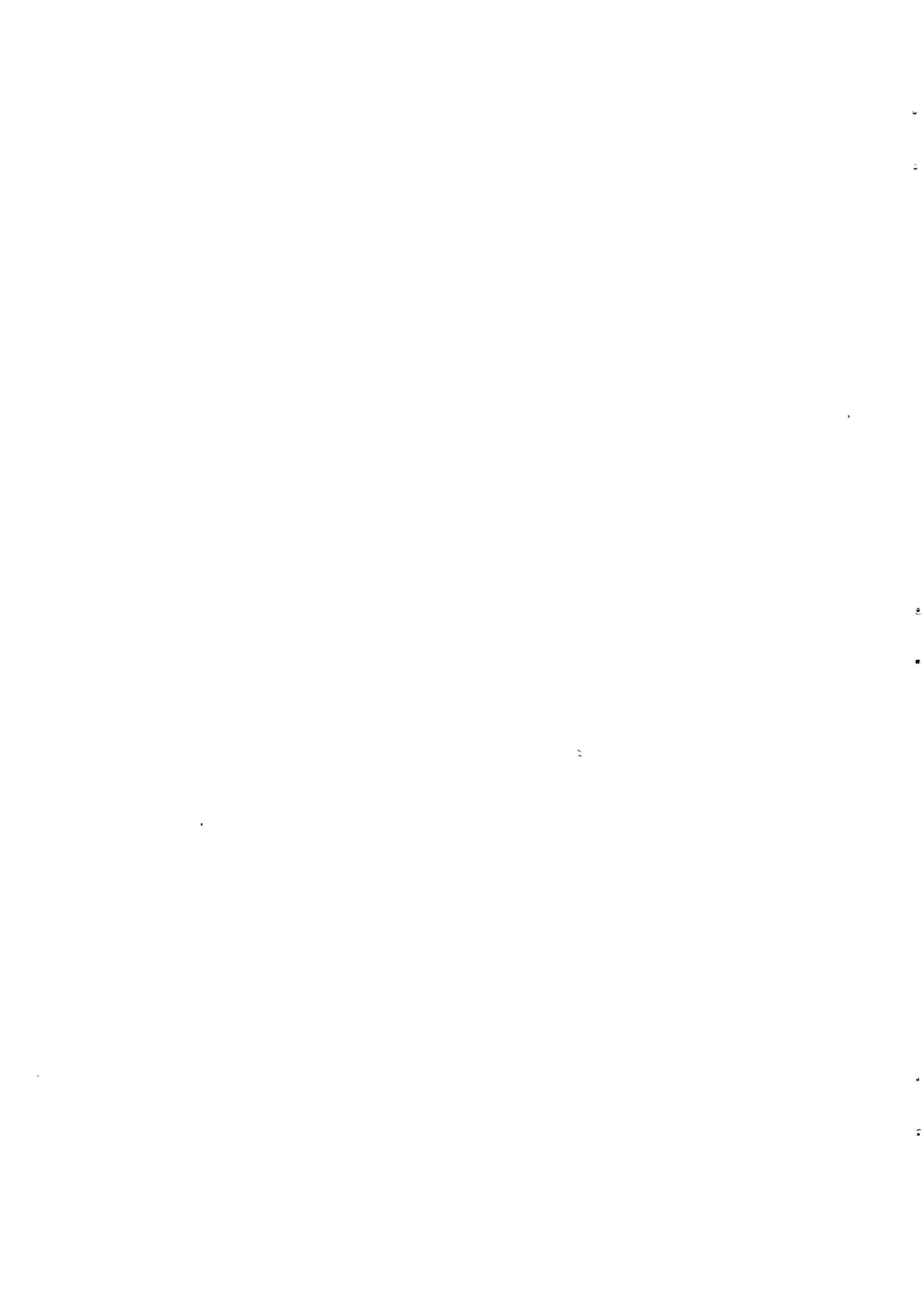
Although, as was stated in 3.3 the community is not the implementor of the works specified in the KIP-budget, their contribution is high and their involvement essential.

During the planning stage they contributed by providing their knowledge on existing conditions and needs. Plans prepared by the KIP Units, in the cooperation with the technical assistance team, were based on information which was partly received from the kampung inhabitants. These plans were finalised in a process of discussion with the kampung communities.

During the execution the most valuable contribution of the communities has been the amount of land they made available for the construction. No compensation was paid for the land, neither for the location of sanitary facilities, nor for other construction works, with a few rare exceptions of houses which had to be demolished. Although KIP Botabek-Cirebon has limited the demolition of houses to a few exceptional cases, many kampung inhabitants lost part of their gardens and garden fences for the widening of roads and footpaths or for the construction of sanitary facilities.

If we view kampung improvement as all improvements in the kampungs of which the KIP works are the stimulating start, the contributions by the community have been very large indeed. Many improvements on the housing conditions in the kampungs were carried out by the kampung inhabitants themselves.

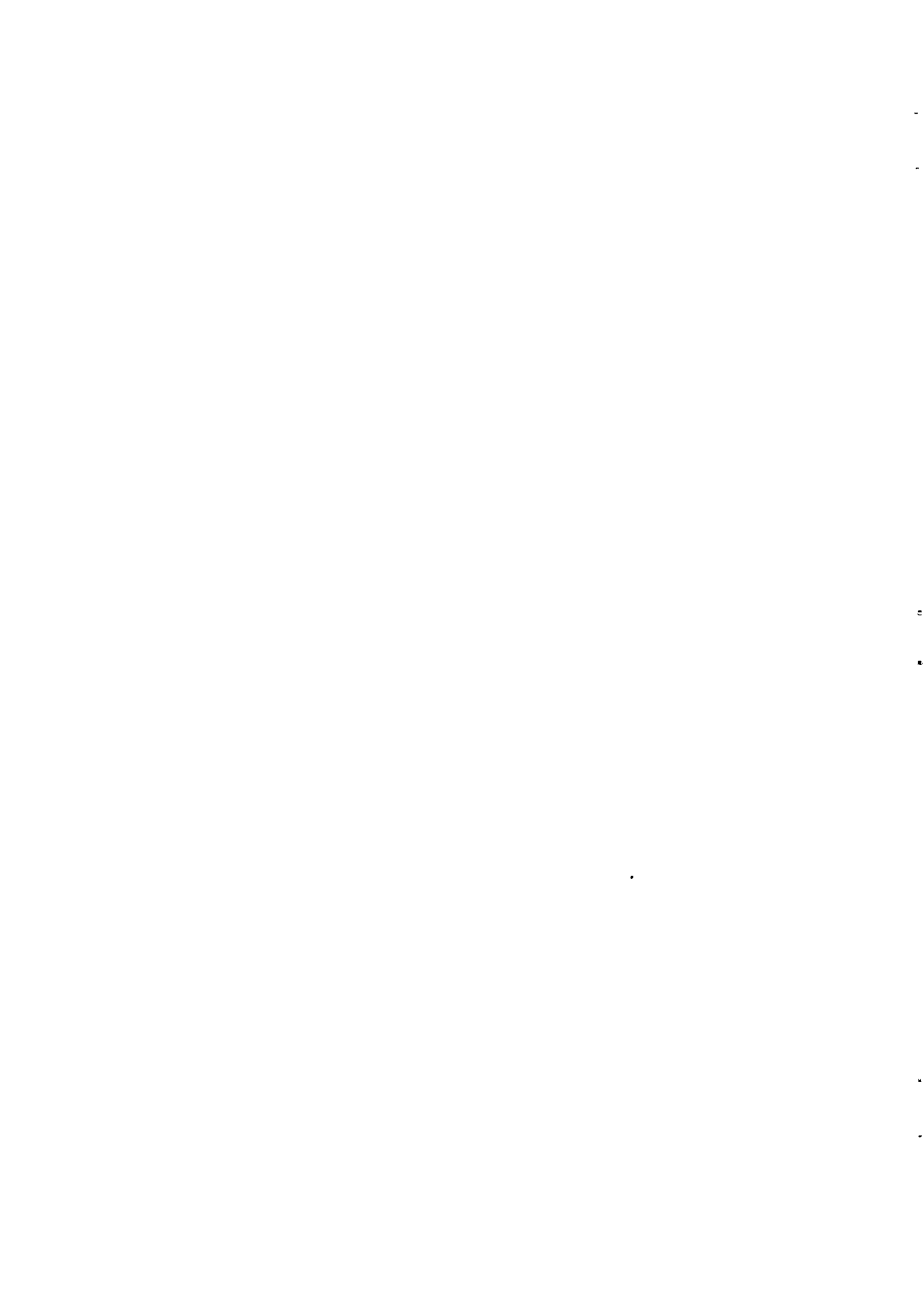
Not only the community participation is important for providing counterpart inputs, the value of community participation also lies in the operation and maintenance. Since the objective of kampung improvement has been formulated as improved living conditions, the actual functioning of the facilities provided is essential. By



accepting the community as partner in the process of upgrading the kampung, the programme becomes their programme. The community should and normally does, accept responsibility for the use and upkeep of the facilities provided if they have been involved in their planning. The degree to which the people feel responsible for the facilities seems to be directly related to the smallness (privateness) of the facilities. This applies to footpaths/roads, drains, garbage facilities and sanitary facilities.

A classical example of the benefits of community participation in KIP has been the issue of land acquisition for the construction of sanitary facilities. Without involvement of the community in the planning of sanitary facilities it may be possible to find places where it is physically possible to construct a sanitary facility. By paying compensation for the land involved a few locations may even be actually acquired and the facilities built. However many facilities built in this way are either broken down or remain unused. With the involvement of the community, i.e. by letting the community de





cide whether they want sanitary facilities and where they want them, and by opting for a small (semi-public) facility, KIP Botabek-Cirebon has succeeded in constructing 1355* sanitary facilities, almost all of which are still in use.

3.5. Roles and functions

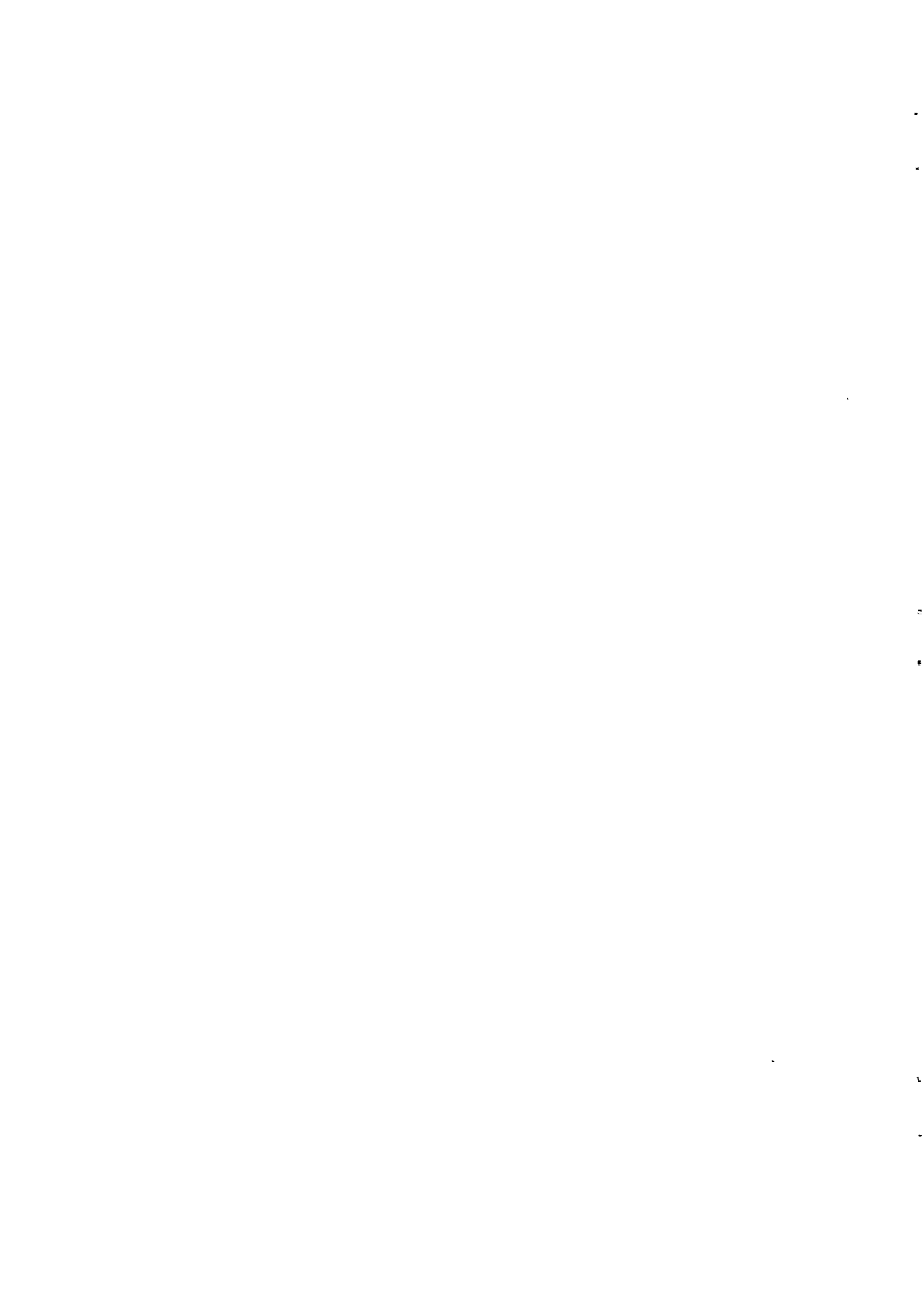
3.5.1. Central Government. The Central Government, specifically the Directorate of Housing in the Directorate General Cipta Karya, Department of Public Works, is the initiator and funder of the programme. As a starter programme KIP was financed by the Central Government with the intention that the municipalities continue with their own funding. However only in the larger cities the municipalities have been able or willing to make large contributions to the programme.

3.5.2. KIP Units. At the municipal level the KIP Unit is the planning, coordinating and supervising body of all KIP projects in the town. They are supervised by a Pimpro or project leader at the provincial level. For logistical reasons the Pimpro for Bogor, Tangerang, Bekasi has been a staffmember of the Directorate of Housing in Jakarta.

3.5.3. Contractors. Local contractors, generally selected by a process of tendering, are responsible for all construction activities. They remain responsible for the condition of the facilities until 1 month after the KIP Unit has indicated that the construction has been carried out correctly.

3.5.4. Community and community leaders. The role of the community is to cooperate with the KIP Unit during the planning stage by supplying the necessary information on existing human and physical conditions, by indicating where they want to have the facilities and by solving among themselves any problem regarding land titles.

*An additional 410 MCKs are under construction.



They should provide the land required. Finally they are responsible for the proper use and maintenance of all facilities improved or provided.

The role of the existing leadership structure within the kampungs is very important. On the one hand the local leaders such as *Lurah*, *ketua RK/RW* and *ketua RT* are the spokesman of the kampung inhabitants. On the other hand they and other (informal) leaders (*tokoh masyarakat*) are the most suitable persons to stimulate the community to cooperate in planning, in providing land and in proper use and maintenance.

3.5.5. Dutch Government. The Dutch Government, as part of its development cooperation programme has assisted by providing Dfl 6 million as a soft loan to finance the KIP Botabek-Cirebon works and by providing, as grant, the services of a Technical Assistance Team.

3.5.6. Technical Assistance Team* The TAT (Joint Urban Development Consultants, HASKONING by leading partner) has had the dual function of giving advice to Central and Local Governments and checking the quality of the works. The advice towards the government was mainly in the field of programming and engineering and at developing suitable technical designs and planning procedures, but included also a considerable amount of assistance in the actual planmaking and engineering.

The checking of the quality of accomplished works has had as main objective to establish whether the works would be open for reimbursement under the loan agreement. Gradually it has evolved into assistance to the KIP Units in their supervisory function.

* See also annex 2 for the composition of the team.

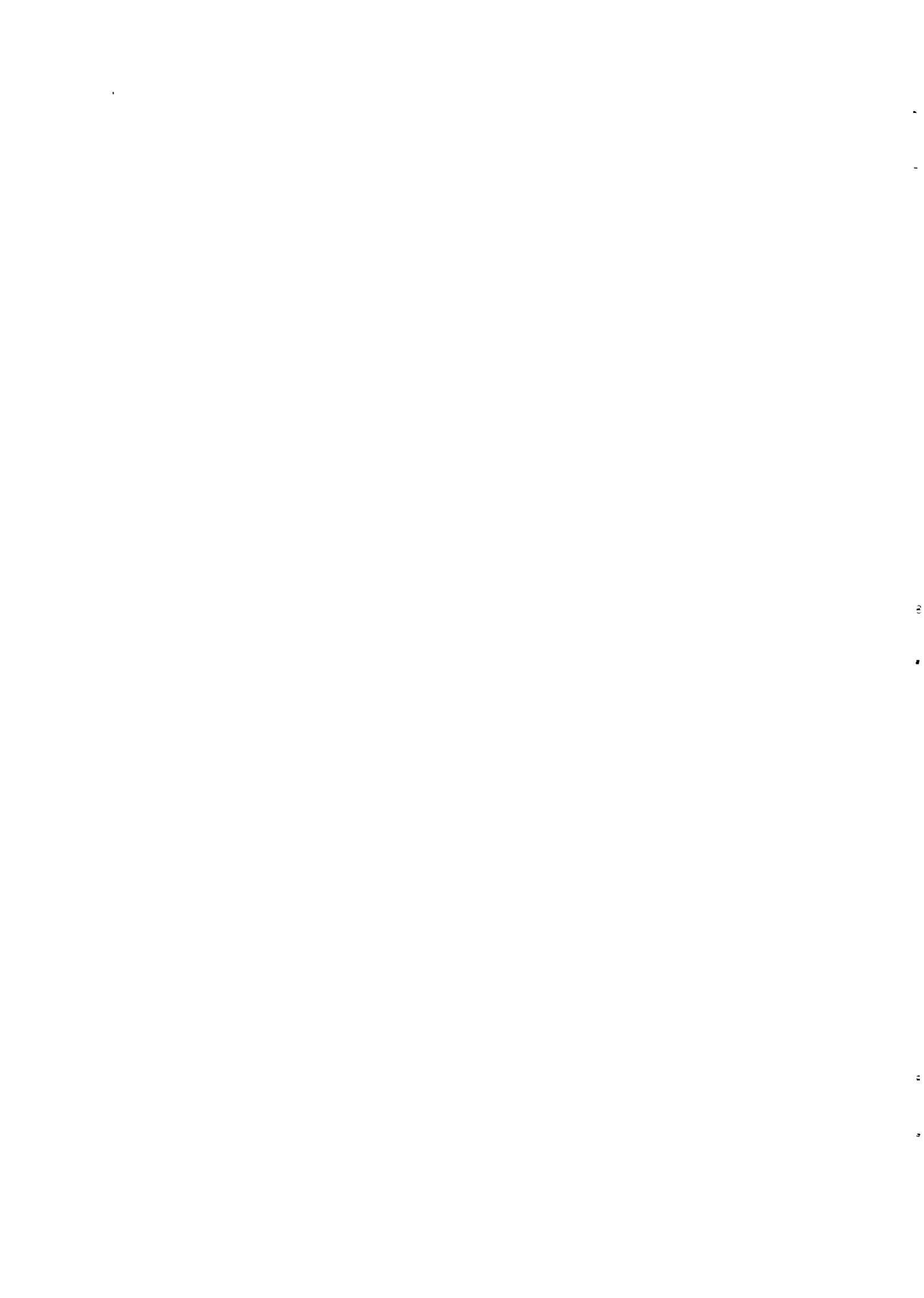
4. Procedures

The procedures described in this chapter are a generalisation of the actual procedures. Variations from city to city, from year to year, from kampung to kampung have been considerable. The procedures developed in KIP Botabek-Cirebon have been laid down in the various manuals prepared as part of the programme. This does not mean however that always the actual procedures have followed the steps outlined in those manuals in detail. As a pilot project the programme learnt from its own mistakes and revised designs, procedures and their application in an almost constant process of learning by doing.

4.1. Selection of kampungs

The selection of kampungs to be included in the programme was based in principle on a ranking of kampungs in terms of their environmental deficiency. Kampungs with the worst conditions received the highest priority. Also other factors played a role in the decision which kampungs were to be improved first. At the end of the programme we may conclude that the kampungs with a high



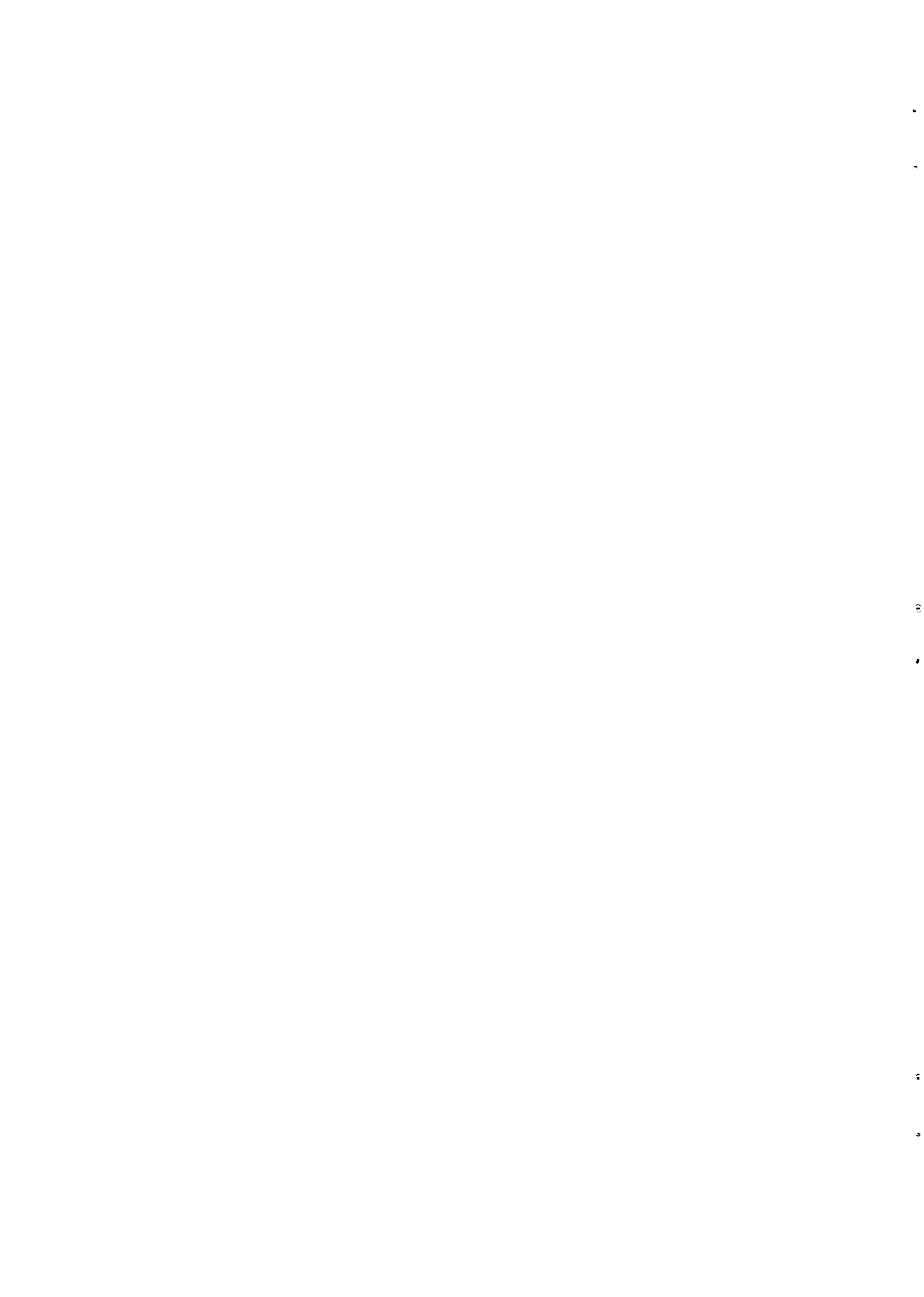


score of environmental deficiency were included in the programme.

The selection procedure applied in Botabek-Cirebon originally used 20 scoring components. Annex 1 of the planning manual shows how this procedure can be simplified by looking only at eight kampung characteristics (water supply, human waste disposal, solid waste disposal, drainage, accessibility, land use, location of the area, population density), the data for which can be obtained fairly easy with a sufficient degree of reliability. The application of the 8 components selection system generally results in the same kampung being selected as with the 20 components selection system. Many of the components excluded are social and economic factors which are difficult to measure in a reliable way and which tend to correlate very high with the physical factors included in the 8 components.

4.2. Planning procedures

The planning and programming of improvements to be carried out in each kampungs was based on a detailed investigation of existing conditions. Use was made of aerial photographs, combined with field observation and interviews with village heads. Planning standards which specify the minimum quantity and quality of facilities that should be in the kampung after completion of the programme, were then applied to make a plan proposal. In other words the plan proposal contained those improvements needed to bring the facilities up to the level of the planning targets. In this process of plan making considerable care was taken to avoid that houses would have to be demolished even if this would have the consequence that the planning standards could not be reached in all cases. The plan proposal was presented to the various parties involved in the project, including notably the kampung inhabitants. The kampung community often took the opportunity to suggest changes,



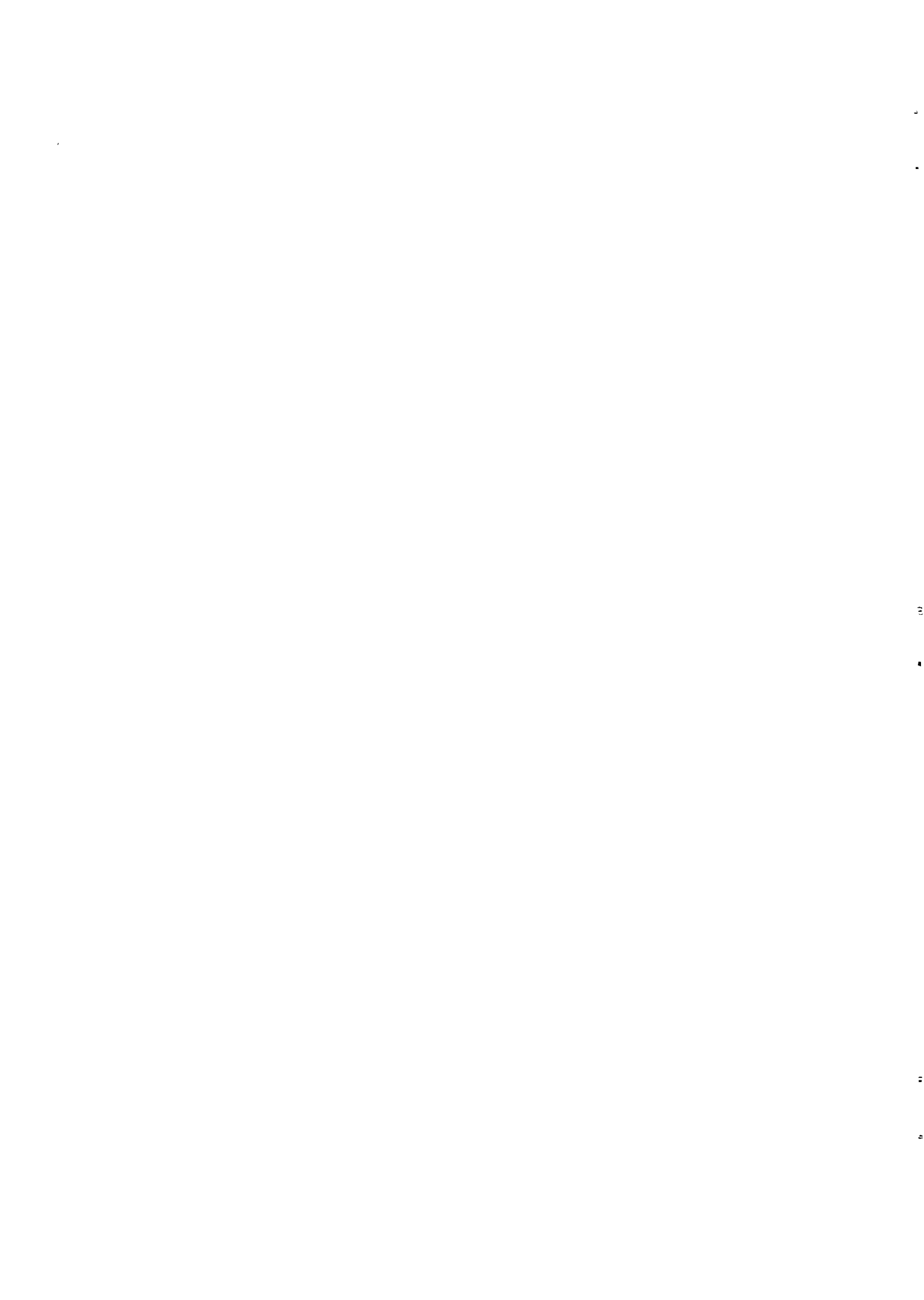
in the plan proposal. Generally these suggestions could be accepted, unless it would raise the costs of the project considerably or would mean a large deviation from the planning standards. Usually the planning of roads, footpaths and drains was carried out together, while the plan making for garbage collection and sanitary facilities was sometimes done separately. One reason has been that in the initial period the KIP Units involved were hesitant in finalising the detailed planning of the sanitation component because of feared difficulties in finding locations. Only after it became clear that, with a proper approach, literally hundreds of locations could be found the planning and execution of this sanitation component gathered its proper momentum.

4.3. Engineering

The process of checking the feasibility of the planned improvements and choosing the technical designs to accomplish the planned improvements has been elaborate for several reasons including the following :

- Available designs were not considered suitable for a kampung improvement programme with a limited budget per hectare.
- Few standard solutions could be applied because adaptation to existing conditions requires a high flexibility.
- The low level of skills of the contractors meant that the technical plan had to specify very precisely how the works had to be executed.

Although the preparations of technical plans was considered to be the responsibility of the KIP Units, the JUDC has given considerable amounts of assistance to the KIP Units in the actual preparation of these plans. Three detailed engineering manuals were prepared, i.e. a tertiary drainage manual, an MCK-keluarga manual and a footbridge manual.



4.4. Tendering

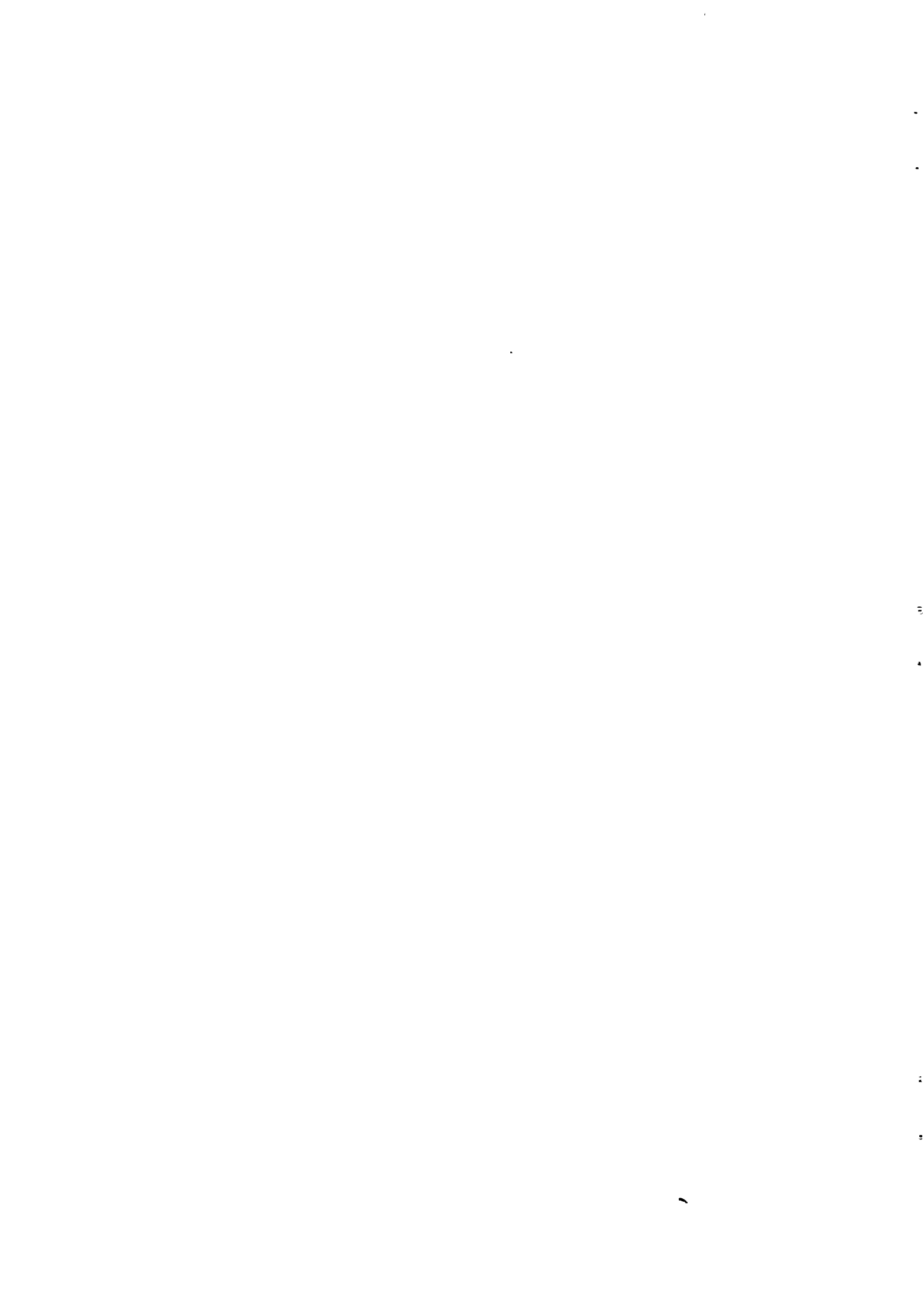
KIP Botabek-Cirebon generally followed the instruction laid down in Keppres 14A and Keppres 18. These two presidential instructions on the use of small indigeneous contractors specify the procedures of tendering. The tendering documents were prepared by the KIP Units in the four towns, assisted by JUDC, and approved by the project leaders. The tendering itself was executed by the KIP Units. A large number of economically and technically weak contractors have been competing for these contracts. Because of the considerable expenditures for the tendering procedures and inability to manage the project both technically and financially some of the contracts ran into difficulties, forcing the contractors to abandon the contract or to finalize the works not in accordance to the specifications. Also a considerable part of the delays incurred have their basis in the tendering procedures and the managerial shortcomings.

In order to strike a balance between the number of contracts to be tendered and supervised and the size of each contract, the improvement works were divided in packages of about Rp 20 - 50 million each. Generally roads, footpaths and drainage works (and sometimes sanitation) were combined in one package while other packages consisted of sanitary facilities only. This had the advantage that the number of contractors building these MCKs was somewhat limited.

4.5. Construction and supervision

The execution of the works was generally carried out by economically weak contractors, in accordance with the stipulation of the presidential instructions Keppres 14A and Keppres 18. Their generally low level of technical skills on the one hand required that the technical plans had to be very detailed and elaborate, while on the other hand it was one of the reasons why also the supervision had to be intensive.

The direction of the works was in the hands of the KIP Units. Their shortage of full-time available staff, re



sulted in an arrangement whereby gradually JUDC became more and more involved in the actual supervision.

4.6. Reimbursement

The 2-years programme of KIP Botabek-Cirebon was covered for 75% by the Dutch loan of Dfl 6 million and for 25% by APBN funds. The loan agreement stipulated among others that only those works would qualify for reimbursement from the Dutch loan which conformed the planning and design standards. In other words the works were carried out first with prefinancing from the Indonesian development budget. It was one of the functions of JUDC to judge which works were according to the standards and therefore reimbursable.



Initially the general procedure was that after completion of a package JUDC would check the works and write its recommendations. However for various reasons this procedure was changed in a series of checks of proposals, plans and designs and of the implemented works. Because of the frequency of checks on the quality of execution, these reimbursement checks in fact, though not formally, became a valuable assistance by JUDC to the KIP Units in their supervisory tasks.



5. Basic Documents

As part of their function of advising on programming, technical design and planning procedures, the TAT (Joint Urban Development Consultants) has prepared and distributed a number of documents. The most important documents in this respect are the masterfile of standards, the analysis of works and a number of manuals, including a planning manual, a manual on community participation and manuals on the MCK-keluarga, on designing a tertiary drainage system and on footbridges. Whereas these documents were intended in the first place for KIP Botabek-Cirebon they have intentionally been written in such a way that they can also be used in other cities.

All 7 documents have been issued both in English and in Indonesian. They were discussed in some detail at the Seminar on Kampung Improvement (Cisarua, Dec. 1982).

Subsequently some of these have been revised and all have been printed (650 copies each of the Indonesian version) and handed over to the Directorate of Housing to be used in other cities and for training purposes.

5.1. Masterfile of standards

The masterfile of standards outlines kampung selection criteria, technical design standards and planning standards applied in KIP Botabek-Cirebon. In a portfolio detailed design drawings are given. This document, including the drawings, presents the standards and gives justifications. In the manuals these standards are repeated and supplemented by a detailed outline of the processes and procedures required to arrive at actual plans.

5.2. Analysis of works

In this document a detailed analysis is given of the amount of works and materials to execute the designs which are included in the masterfile of standards.



5.3. Planning manual

The planning manual describes the requirements and processes for the selection of kampungs to be improved, for the programming and budgetting and for the detailed plan making. Some of the essentials of the manual are that the amounts and types of improvement required depend on existing physical and social conditions which vary from kampung to kampung and on a set of planning standards or targets which are uniform for all kampung, and that planning is presented as a process with various steps. The planning standards specify the minimum level of facilities that should be in each kampung after the execution of KIP. They have been kept fairly low to make an extensive coverage of the programme possible with the available funds. The planning standards include :

- At least 70% of the dwellings should be within 300 meters from an asphalted 4 meter road.
- At least 95% of the dwellings should be within 150 meters from an asphalted 1.80 m - 3 m road (or a 4 meter road).
- At least 95% of the dwellings should be within 150 meters from a paved footpath of 1.05 meter (or a vehicle road). Approximately 20% of the footpaths may become a collection footpath with a width of 1.20 m.
- All roads and footpaths have a drain on one or both sides. In small gangways the drains may be located under the footpath. To secure proper drainage also drains may be included along not-to-be-improved roads or footpaths, or running solitarily.
- A one-unit MCK-keluarga will be provided per every 3 to 4 dwellings or about 5 families which have poor or no sanitary facilities.
- At every MCK-keluarga a connection to the city water supply should be installed except where required pipe connections exceed 50 meter. At all other MCKs either spring water or shallow pumps should be supplied.



- Garbage storage and transport facilities are to be provided including one garbage bucket per house or one masonry receptacle per 5 families, one cart for every 100 houses, and a 6 m³ garbage box for every 600 houses.
- An amount of 5% of the improvement budget should be set aside for other improvements, such as bottlenecks not normally covered by KIP (garbage truck, main drain, landslide protection).
- The budget should be based on Basic Prices. However an amount of 10% of the improvement budget should be set aside to cover differences between normal costs and the actual situation.

The planning manual also describes how the local community should be involved in the planning of the improvement of their kampung. Though a process of *musyawarah* or discussion between KIP Unit and local communities a consensus must be reached which satisfies as much as possible both the planning standards and the felt needs and wishes of the local population. Deviation from the standards may be justified if this would ensure the satisfaction of the target population.



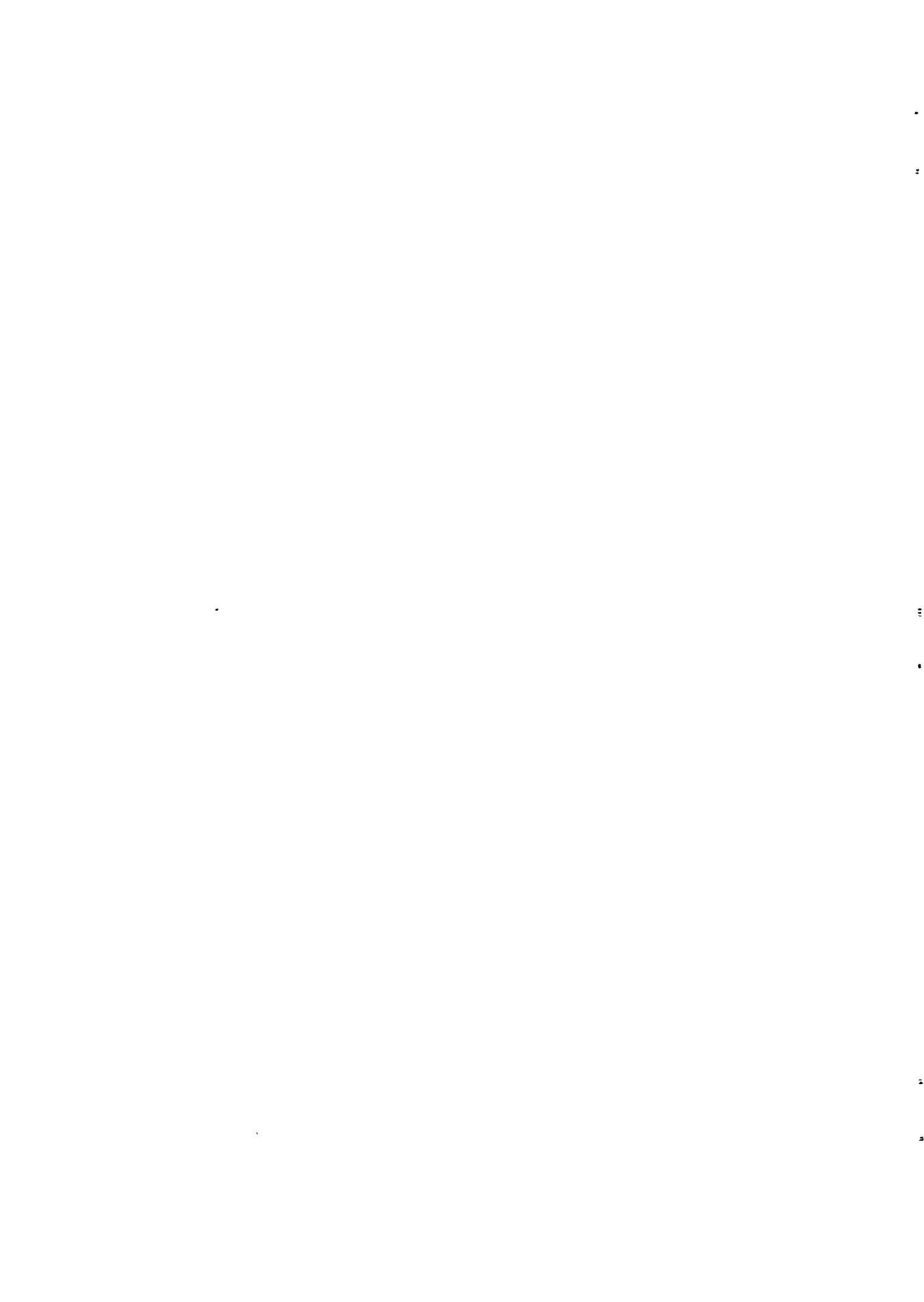


5.4. Manual on community participation

Community participation, the involvement of the target population in the programming, planning, execution and operation of the improvement of their kampung, has been the subject of separate manual. It should not be seen as a separate activity but as part of the approach which applies to all components of KIP.

Partly the manual explains the importance of community participation for the success of KIP, partly it describes how KIP Units can give form and content to community participation. Three essentials are that the community should be considered and treated as partners in the improvement process, that use should be made of existing organisation and leadership structures of the kampungs and that community participation can not be limited to one single meeting between KIP Units and the local community, but is a repeated process of *musyawarah*. Generally it is best to approach more than one level in the kampung leadership because it varies from kampung to kampung whether the *lurah*, *LKMD*, the *ketua RW/RK* or *ketua RT* is the most active and effective in organising and stimulating the kampung inhabitants.

Although community participation requires some effort from KIP Unit staff as well as a recognition that "uneducated" people can give useful suggestions to engineers etc., the effort will more than pay off in most cases because many land acquisition and other problems can be solved smoothly, because use can be made of the wealth of information on local conditions, needs and wishes, and because it greatly helps to ensure that the facilities will be used and maintained properly.



5.5. Manual on MCK-keluarga

The sanitary facility for bathing (Mandi), washing (Cuci) and toilet (Kakus) which was developed by the TAT for KIP Botabek-Cirebon is a small semi-public facility. The manual gives a description of its various parts and describes step by step the procedures for planning and constructing these MCKs.

The MCK-keluarga consists of a single bathroom of about 1.7 m^2 where also the toilet is situated, a washing floor of about 2.8 m^2 , water supply and a sewage discharge system. Because situations vary considerably between kampungs the MCK design allows for different types of water supply and different types of discharge of the sewage.

The success of the MCK construction programme largely depended on a suitable involvement of the local population in the programming and planning of the MCKs. The local community needs to participate in the determination how many MCKs are needed and wanted in their kampung and at which locations they can be constructed. The participation of the community is very important to ensure that they will make land available, that they will use the facility and will accept responsibility for proper maintenance. Therefore several of the steps described in the MCK-keluarga directly concern the involvement of the community.

Also very important is the choice of the most proper water supply and sewage disposal systems considering such factors as safe distance between water supply and sewage disposal systems.

5.6. Design manual for tertiary drainage systems

The design of a tertiary drainage systems is based on the peakflow of the catchment area of the drains and on the discharge capacity of the drains. Factors influencing the peakflow are the storage capacity of the drains, size and the run-off coefficient of the catch-



ment area and rain intensity. The discharge capacity of the drain depends on the dimensions, the roughness of the finishing, hydraulic aspects and the slope of the drain.

Step by step the manual describes which data need to be collected and how they should be processed to be able to determine types and sizes of tertiary drains in a particular area.

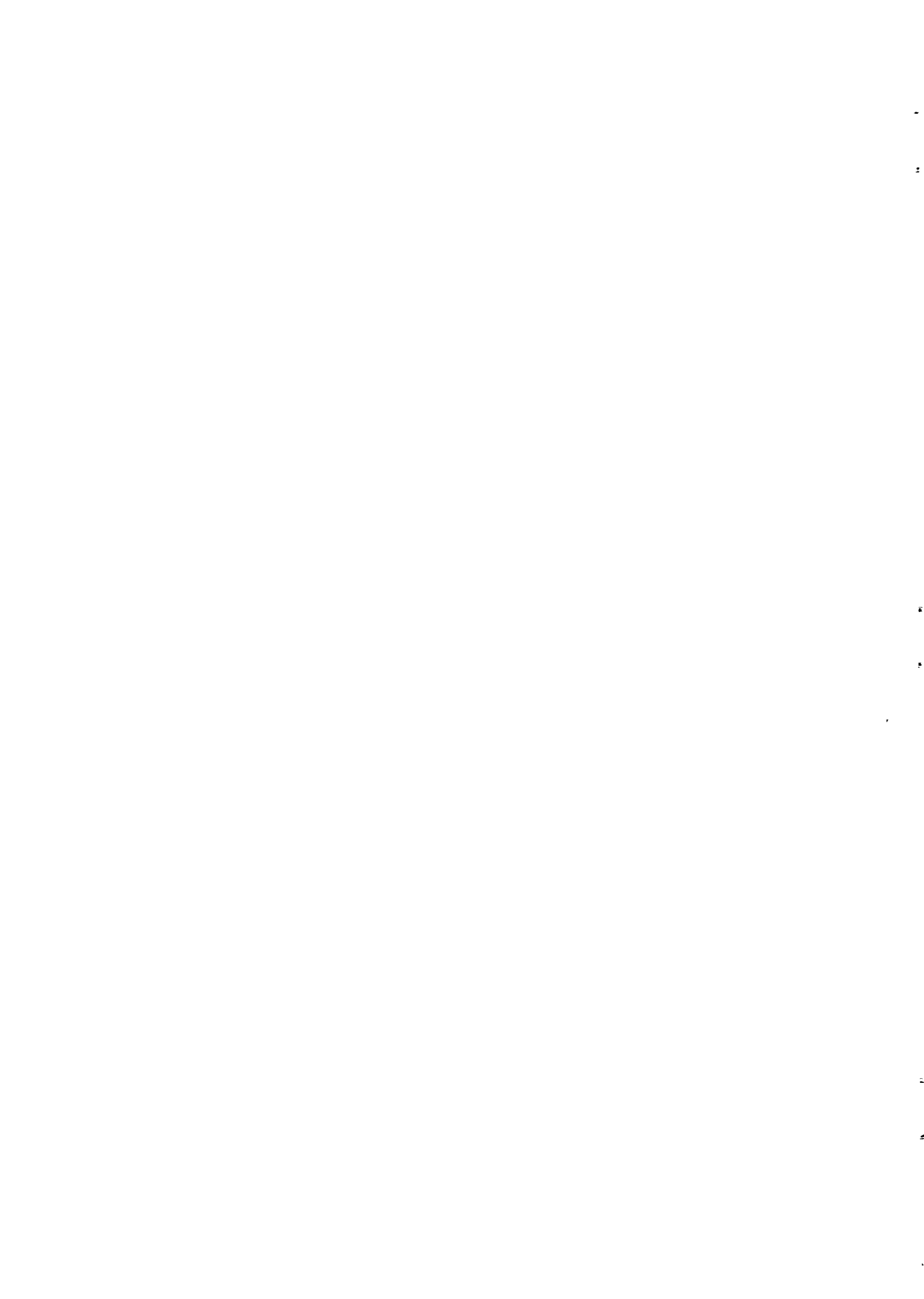
The manual also describes how a drainage system can be designed without levelling. However in areas with minimal slope levelling is crucial for the calculations of the required drainage system.

The manual includes an adjustable chart to select the proper size of a drain, once the basic data have been compiled.



5.7. Footbridge manual

The footbridge manual describes the process of designing a footbridge and presents the various calculation models and standard drawings essential for this process. Two types of footbridges are covered by the manual i.e. bridges with iron beams and concrete slaps and bridges with concrete beams and concrete slaps (monolith construction).



6. Completed works

6.1. Type of works

Formally the KIP Botabek-Cirebon included four components, i.e. accessibility, drainage, sanitation and water supply. From the viewpoint of non-physical targets such a division is helpful in clarifying what KIP intends to improve. From a construction point of view it is easier to have the following differentiation of the works. KIP Botabek-Cirebon included the construction or rehabilitation of vehicular roads (3'-4 meter wide), foot paths (105 - 3 meter wide), drains alongside these roads and footpaths and sometimes also solitary drains (or drains along roads which were not otherwise improved), the provision of garbage receptacles, carts and boxes, and the construction of MCK-keluarga's : semi-public sanitary facilities for bathing (Mandi), washing (Cuci) and toilet (Kakus) which of necessity included some water supply. Where feasible a water tap was installed with a connection to the city water supply but often a shallow well hand pump was provided.





In Bogor many footpaths included stairs and in several of Bogor's kampungs landslide and riverside protection walls were constructed. In Cirebon and in Bogor, several footbridges were built. Two garbage incinerators were made. Finally equipment to desludge septic tanks will be provided before January 1985.

To quantify the amount of works executed we should differentiate between KIP Perintis, the 2-Year's Programme and the MCK-keluarga construction.

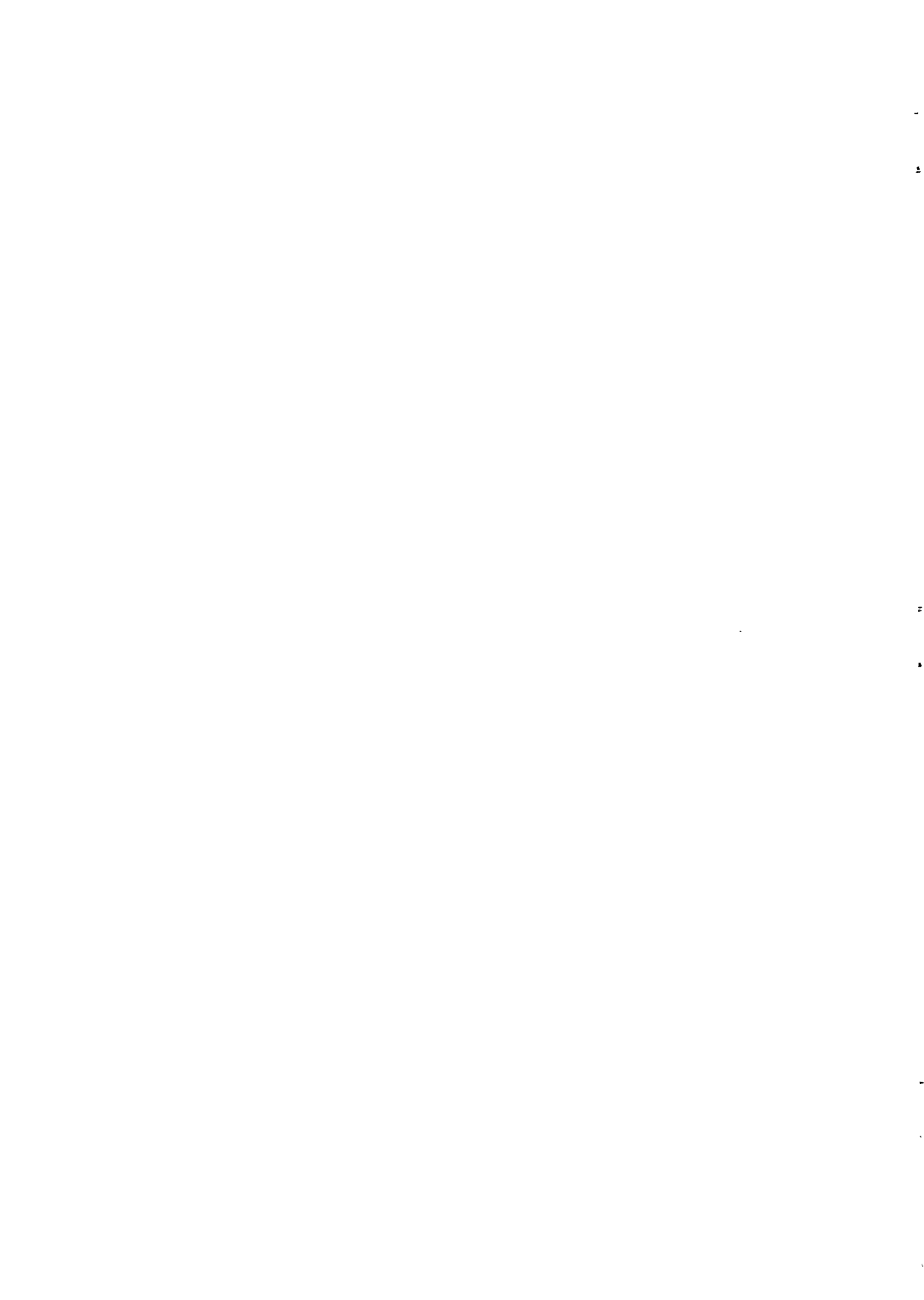
6.2. KIP Perintis

"KIP Perintis" in the narrow sense of those KIP - works executed without Dutch loan funds, but with technical assistance from JUDC funded by the Dutch grant, covered about 380 hectare kampung. KIP Perintis in Botabek-Cirebon concentrated on accessibility (roads and footpaths) and drainage, but included in Tangerang and Bekasi also sanitary facilities.

6.3. 2-Years Programme

"The 2-Years Programme" of KIP Botabek-Cirebon, executed with the Dutch loan and with technical assistance by JUDC funded from the Dutch grant, covered a total of 600 hectare kampung (200 hectare each in Bogor and Cirebon, and 100 hectare in Tangerang and Bekasi). The programme included in most kampungs the full package of KIP elements.

The total length of footpaths and roads constructed or improved have been estimated at 75.3 km and 25.5 km respectively or 125 m and 43 m per hectare and 109.8 km drain (183 m per hectare) were constructed or improved.

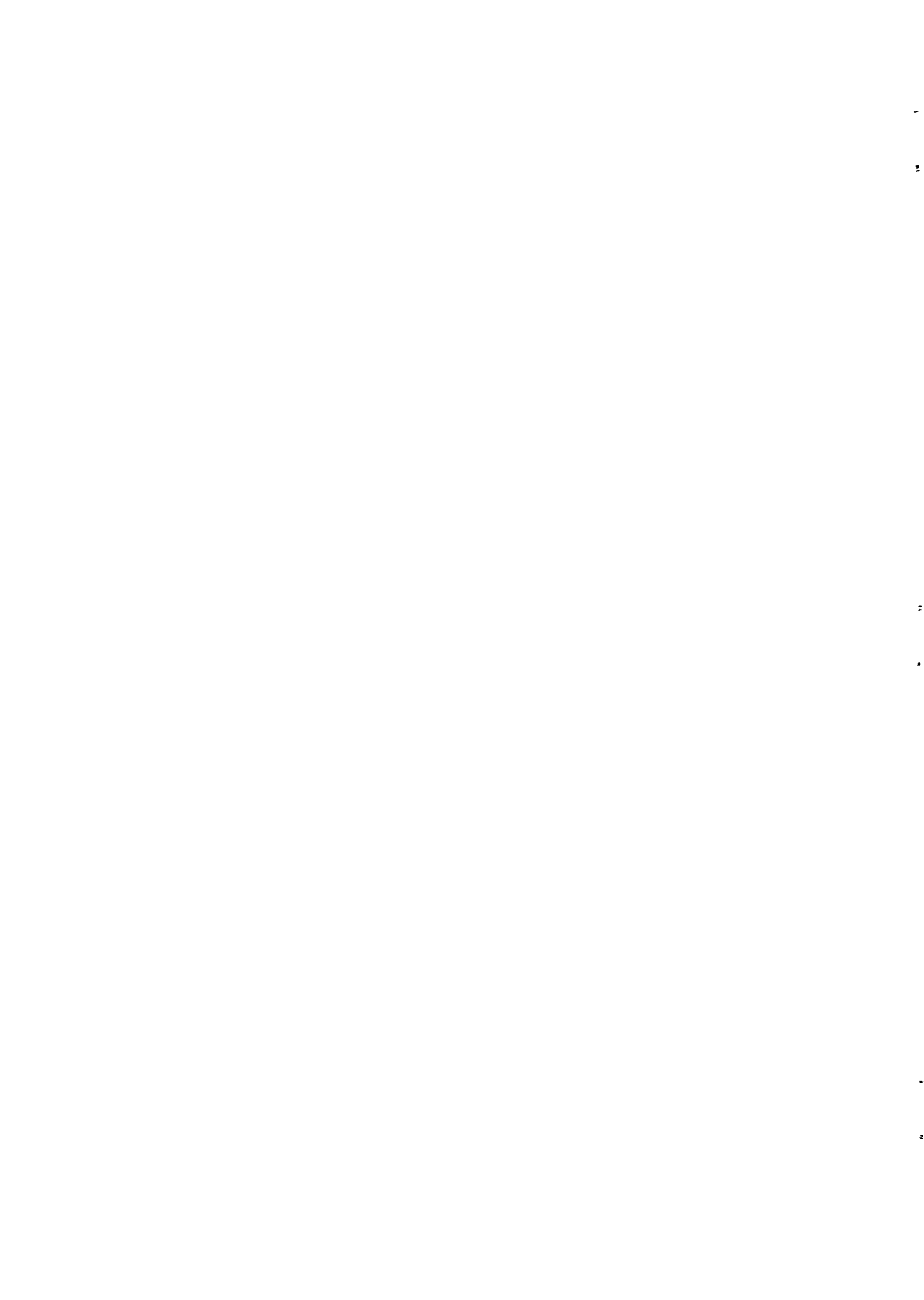


6 4. MCK-keluarga

One of the biggest accomplishments of KIP Botabek-Cirebon is the construction of some 1765 MCK-keluargas. By October 1984 1355 of these semi-public facilities were completed. 410 additional MCKs should be completed by May 1985.

Of the total of 1765 MCKs nearly 1000 MCKs have been constructed in kampungs where also the accessibility and drainage were improved as part of 2-years programme, while about 800 MCKs are situated in other kampungs, including kampungs improved under KIP Perintis.





7. Transfer of knowledge

The primary task of TAT (JUDC) was to assist its counterparts at central and local levels in the programming and execution of KIP Botabek-Cirebon. A second task has been to train KIP Unit staff and to develop models which can also be applied outside the selected kampungs in these four cities.

7.1. On-the-job-training

Formal meetings have been held between JUDC and KIP Units to explain and discuss designs and procedures. More important however has been the transfer of knowledge through almost daily working together on programming, planning, budgetting, designing and supervision both at their respective offices and in the field. In the opinion of JUDC the KIP Units in the four cities now have the technical capabilities required to apply KIP or similar programmes.

During "aanwijzing" meetings and in the field JUDC and KIP Unit staff have explained extensively to contractors and their staff such matters as efficient working





procedures and importance of executing the works in accordance with the designs and other documents.

7.2. Designs and manuals

Almost all designs and procedures developed as part of KIP Botabek-Cirebon can also be applied in other programmes in these towns or in similar programmes in other towns. In order to make these available in such a form that they can be applied elsewhere manuals have been prepared as described in chapter 5. On purpose these manuals were written to be applicable also in areas which are physically or socially different from the average kampungs in Bogor, Tangerang, Bekasi and Cirebon. In this context it may however be noted that the kampungs included in KIP Botabek-Cirebon varied from steep, very densely populated, strongly urbanised kampungs to very flat and marshy kampungs with either rural or urban characteristics, while the inhabitants varied from Sundanese labourers and fisherman to Chinese artisans to Javanese farmers and craftsmen.

With the exception of the manuals on community participation and on planning all manuals contain technical design drawings and also indicate with examples how these designs can be adapted to situations where the facilities concerned can not or should not be constructed as indicated on the standard design drawings.

7.3. Seminar on KIP

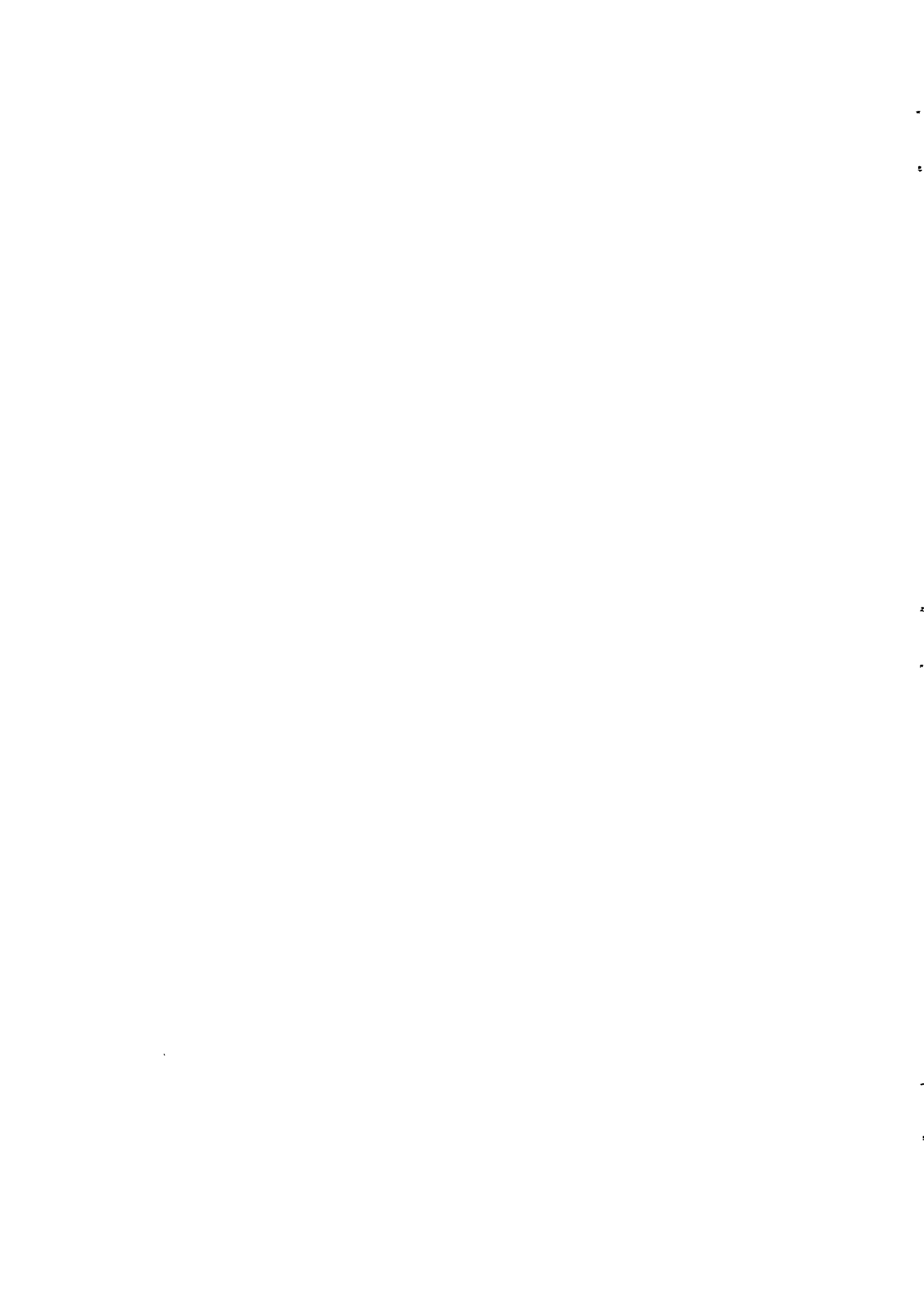
From 13 to 16 December 1982 a Seminar on Kampung Improvement was held in Cisarua/Bogor, organized by the Directorate of Housing with assistance from JUDC. The Seminar presented and discussed in particular the experiences gained in KIP Botabek-Cirebon. Participating at the Seminar were mayors and KIP Units from the four Botabek-Cirebon cities; representatives from other Directorates of the Department of Public Works and from other Departments; bupati's (regents), mayors and heads



of KIP Units from Banjarmasin, Cianjur, Surabaya, Semarang, Palembang, Pontianak, Solo, Manado, Denpasar, Yogyakarta; consultants and funding agencies active in the field of kampung improvement and others.

For this forum of many people directly involved in kampung improvement in many cities of Indonesia, the approaches and procedures of KIP Botabek-Cirebon were explained and discussed. The Seminar also included a field trip for all participants to several improved kampungs in Bogor and Bekasi to see what can be accomplished with limited budgets (compared to KIP projects in larger towns such as in Jakarta, Bandung, Solo and Surabaya) and with the particular KIP Botabek-Cirebon approach.

Also the various manuals prepared by JUDC were explained, discussed and approved by the Seminar. The recommendations from the seminar stress community participation and the minimalisation of destruction of existing houses and other structures. The presented papers, proceedings and recommendations have been compiled in a report of 3 volumes.



7.4. Reports

Another way in which JUDC has transferred its knowledge and experience has been through a vast amount of reports ranging from monthly processing reports and 6 - monthly progress reports to reports on the sociological and other studies executed. All these reports have been distributed widely in order to enable many interested parties to profit from the experiences, insights and study results of KIP Botabek-Cirebon. Annex 1 lists reports issued by JUDC. The processing and progress reports and most of the other reports were written both in English and Indonesian.

7.5. Contribution to workshops and conferences

Staff of JUDC have been able to present on many occasions procedures and results of KIP Botabek-Cirebon, including the International Seminar on Sanitation (Jakarta 1983). The International Seminar on Land for Housing the Poor (Bangkok, January 1982), the International Workshop on Measuring Health Impacts (Bangladesh November 1983), a workshop on Urbanisation in Indonesia (Leiden, The Netherlands, October 1983), workshops on kampung improvement and garbage collection in Cirebon. Staff of JUDC has on many occasions contributed to training seminars, most notably at DPMB (Bandung).



8. Studies

JUDC has carried out a large number of systematic studies. In terms of their objectives the studies can be divided in baseline surveys, case studies intended to develop designs and procedures and evaluation studies measuring the impacts of (components of) KIP Botabek - Cirebon.

8.1. Socio-economic baseline surveys

In each of the four Botabek-Cirebon towns an extensive socio-economic survey was executed to measure existing conditions in the kampungs before improvement. The main units of analysis were the household and the house. One house may comprises more than one household. In total 1200 households were interviewed. They were selected at random with the use of maps drawn from 1 : 1000 aerial photographs. The results of these surveys have mainly been used for comparison with surveys carried out after kampung improvement.

About one quarter of the houses were found to be in very poor condition and have also poor facilities and an equal percentage of the kampung population is situated below the poverty line but in these as well as in other respects many differences exist between the kampung inhabitants. Rich and poor live door to door. Unemployment is very high (20 percent). Many of those employed get their income from work in the informal service sector of the economy, often in or near their homes.

8.2. Case studies

A number of smaller studies were carried out to develop the most suitable designs and procedures for various KIP components. Some of these were carried out in kampungs that were not improved yet to judge what type of facilities are available and how these existing facilities are used. E.g. the first MCK case study studied ex-



isting public and semi-public sanitary facilities and concluded that while in most kampungs small privately owned but semi-publicly used facilities exist which function very well, large public facilities are very much underused except as sources of water supply.

Some studies tested new designs or materials. E.g. one study systematically tried out membrane pumps and other tools in order to arrive at the most suitable equipment to desludge septic tanks in urban kampungs, especially on locations at a fairly large distance from any vehicular road.

Other such small studies looked at facilities constructed (and procedures applied) as part of KIP Botabek-Cirebon to investigate whether the designs and procedures were successful. Through immediate feedback the results of these studies could be used to further improve designs and procedures. One MCK study of this type carried out immediately after the construction of MCKs, concluded that these facilities were generally successful, but some particular technical failures resulted in less intensive use.





8.3 Impact studies

A third category of studies executed by JUDC measured the impacts of KIP on socio-economic life in the kampungs, on health conditions, on construction activities by the kampung inhabitants themselves.

The respondents of the 4 baseline studies mentioned in 8.1 were interviewed again in 1982, i.e. after KIP had been executed in most of the kampung concerned. Through computer analysis (using SPSS) various correlations were found between socio-economic and other variables and KIP.

Children under 5 years old of the same household included in the socio-economic impact evaluation study were examined on their health conditions. The indicators used were the number of worm eggs in their stool and symptoms of skin diseases.

Another impact study looked specifically at construction activities carried out by the kampung inhabitants by observing housing conditions before and after improvement in a sample of kampungs. A similar study measured the frequency and intensity of use of the footpaths before and after improvement.

In a different study again it has been calculated that improvements carried out by the inhabitants themselves exceed in value the improvements carried out by KIP.

Some results of the studies are presented in the following chapter.



9. Results and impacts

9.1. Improved accessibility and sanitation

In chapter 6 we have listed the improvement works carried out by KIP Botabek-Cirebon. The results of KIP Botabek-Cirebon should however not be measured merely in terms of its physical targets. Far more relevant is the question to what extent the programme contributed to improved conditions and to what extent this resulted in improvement of the well being of the kampung population.

KIP Botabek-Cirebon has clearly succeeded in improving the accessibility of those parts of the four towns where accessibility was poor to very poor. This improved accessibility enables vehicles, from fire brigade and ambulances to public and private cars, to reach to within a distance of less than 100 - 150 meter from all but a very few of all inhabitants of the four towns. The improved accessibility also means that the footpaths in the kampungs no longer are muddy dirtpaths but clean paths with hardened surface. Push carts, motorcycles, bicycles and becaks can now easily reach most houses.

The improvement of the sanitary conditions has been effected by the improved drainage systems, by the construction of MCK-keluarga and by the provision of solid waste collection equipment (to the extent that they are used).

In most of the kampungs included in KIP Botabek - Cirebon, the drainage system has been greatly improved by the application of lined drains alongside roads and footpaths and by the solitary drains, combined with the thousands of house connections, made by the inhabitants themselves. These drainage systems are generally very successful in removing rain water and sullage water (and often also sewage) fairly fast out of the kampungs. Even in kampungs where the drainage works were less successful they are an improvement compared to the situation before the execution of the works. The drainage works, combined with the hard



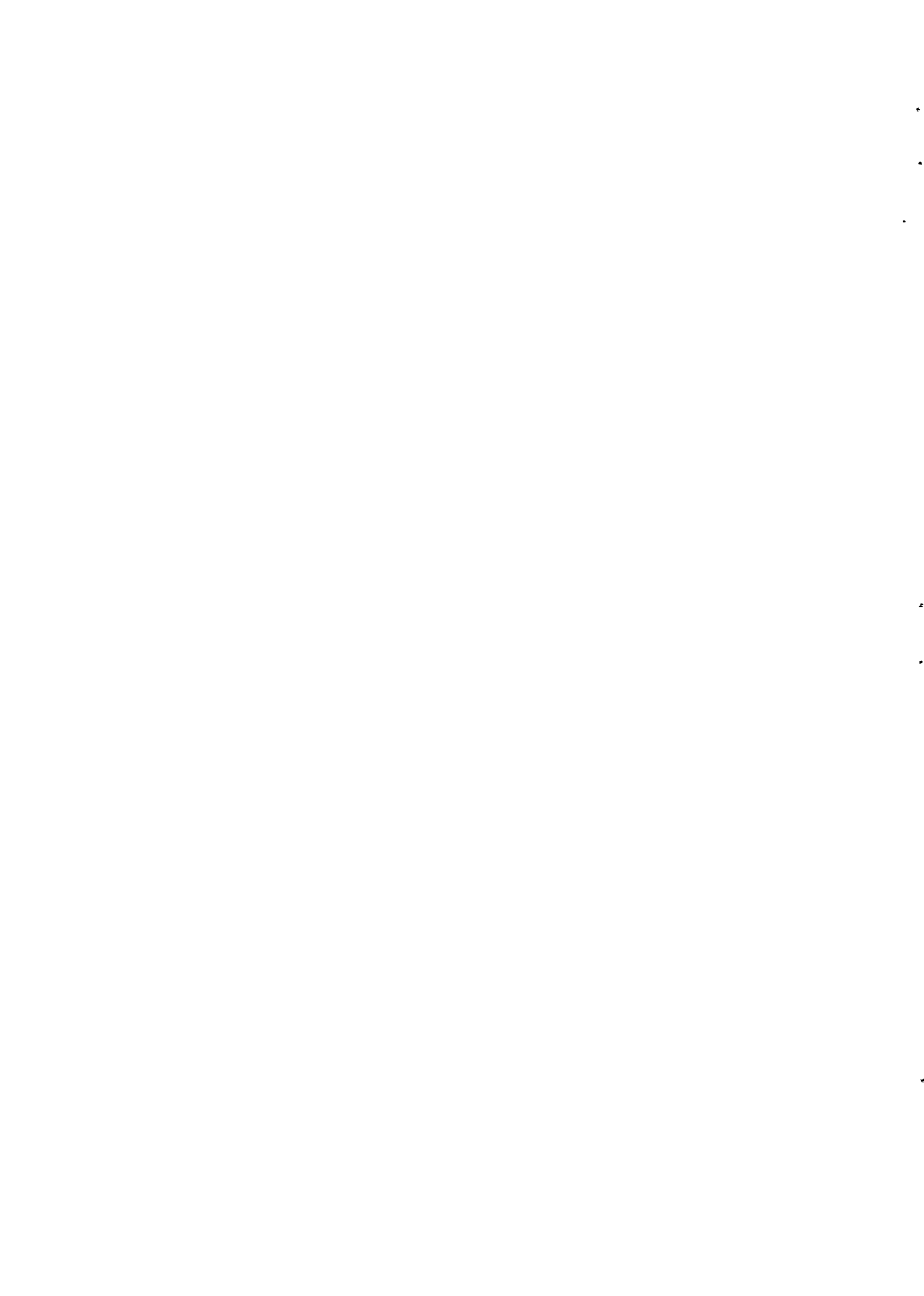
surface roads and paths have greatly increased the possibility to walk or play in the kampung without having to walk through mud. The improvements in the drainage of the kampungs also reduced the number of breeding places for mosquitoes.

Perhaps the most prominent success of KIP Botabek-Cirebon has been the construction of MCK-keluarga's, not simply because so many are built (1765) but because most of them are used properly and generally also maintained in a satisfactory way. Compared to the facilities used previously by most kampung unhabitants to bath, wash and defecate, these MCK-keluargas are a very noticeable improvement of the sanitary conditions in the kampung of the four towns, especially for those who had very unsatisfactory or no sanitary facilities.

One indirect but very important result of KIP Botabek-Cirebon has been a very large amount of home improvements carried out by the inhabitants of the improved kampungs. Many of these home improvements were sanitary improvements ranging from improved drainage to the construction of private toilet facilities and bathrooms.

Many garbage collection facilities (receptacles, carts and collector boxes) have been provided. If used properly and regularly these facilities are a clear help in removing all solid waste from the kampungs. Although many of these facilities are not used, partly because the municipal garbage collection system cannot cope with the vastly increased amounts of garbage offered to them, many also are effectively used and are thereby removing part of the health risks from the kampungs.

The water supply situation has been improved in most kampungs through the construction of handpumps at the MCK-keluarga or by connecting these to the municipal water supply system. Because the MCKs are used widely as sources of water supply and because improved drainage and sewage dis



posal systems have improved the quality of the ground water the programme has made a considerable contribution also in the field of water supply.

The programme has supplied work for many small contractors and their labourers. Additional house improvements by the kampung inhabitants have further added to this.

9.2. Impacts of KIP Botabek-Cirebon

The impact of the programme on the well being of the inhabitants of the kampungs has been the subject of one elaborate longitudinal study and several smaller studies as mentioned in chapter 8 above.

Income and expenditures patterns have risen in the improved kampungs. Because their rise was sharper than in kampungs that were not yet improved at the time of the impact study it may be concluded that this economic development is probably a result of the programme. Trading activities within the kampungs have also increased considerably, as indicated by a great increase in the number of shops and in the frequency of vending taking place on the footpaths.

The health of the kampung population seems to have improved as well as indicated by a comparison of eggcounts of round worms in children in improved kampungs, compared with identical measurements taken in kampungs that were not improved yet.

In paragraph 9.1. above we have already mentioned that the programme has stimulated the kampung inhabitants to carry out home improvements. JUDC has calculated that the total value of these home improvement exceed the expenditures by the official programme.

Generally the kampungs have been integrated fuller in the urban infrastructures. Not only has the programme directly extended the roads, drainage and garbage collection networks to the individual compound level, also it seems to have succeed in developing the acceptance of these kampungs as integral parts of the town by the local authorities.



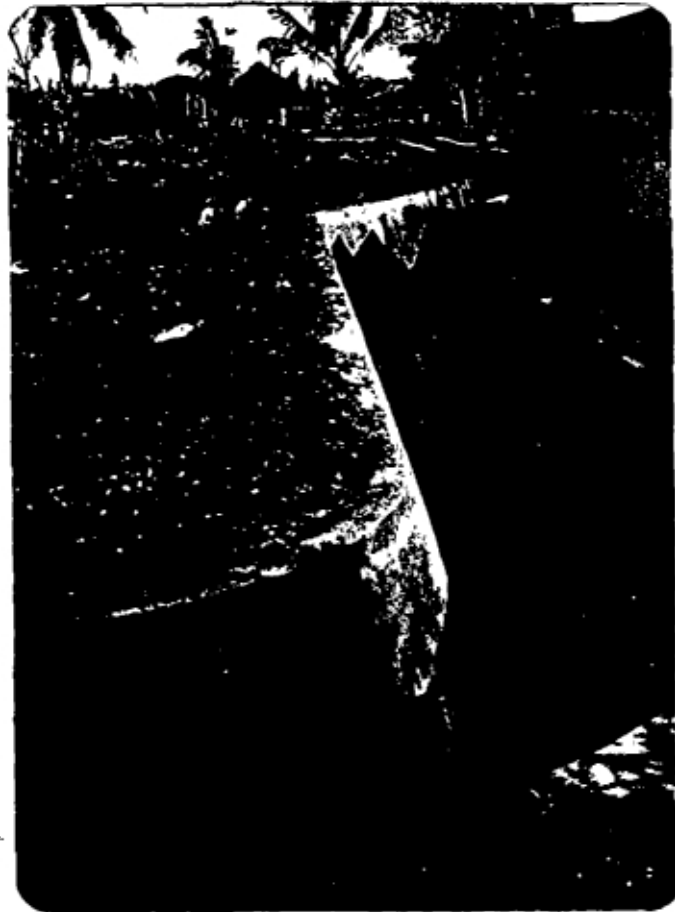
The above impacts are directly or indirectly the result of the implemented works in the kampungs covered by KIP Botabek-Cirebon. Through the transfer of knowledge described in chapter 7 the programme has had (and probably will have even more in the future) impacts on the organization and quality of improvements carried out elsewhere. If we view the past few years of the Kampung Improvement Programme as a pilot project we may conclude that it has been successful and therefore that KIP should continue. Inherent to any pilot project is that some mistakes are made and that plans and designs are modified during the course of the pilot stage. KIP Botabek-Cirebon (as well as KIP projects in other towns) has resulted in improved designs and procedures that deserve to be applied in towns and kampungs that have not yet been covered by the programme.





10. The future of KIP, some considerations

The Seminar on Kampung Improvement in Cisarua, December 1982 posed the question "After KIP, what next?". At the Department of Public Works and in particular at the Directorate General of Cipta Karya the focus of attention is moving towards integrated urban development. The importance of integrated urban development has been experienced in KIP Botabek-Cirebon. On the one hand facilities and services at the kampung level can not function properly if the urban network of which they are a part is too weak. On the other hand the stronger integration of the kampung areas in the municipal networks even increases the need to improve those networks. We will try to clarify this with a few examples.





The drainage system of a kampung cannot function properly if the receiving secondary or main drain is too small or too shallow. KIP Botabek-Cirebon at several places, notably in Cirebon, had to include improvements on a main drain because otherwise some kampungs could not be drained. On the other hand the improved drainage systems in the kampung areas will increase the total amount of water entering the secondary and main drains, because less water is allowed to infiltrate into the subsoil in the kampungs themselves and the velocity with which rain water is drained off is also increased considerably, thereby increasing the required peak capacity of the receiving drains.

One of the reasons why the garbage collection system in several kampungs don't function is that the number of municipal garbage trucks and/or personnel are insufficient to remove the garbage from the communal garbage boxes provided by KIP Botabek-Cirebon. Until recently the services of the municipal garbage collection system were virtually limited to main streets, markets, industrial areas and residential areas of the more well-to-do. To include also the kampungs in their networks such services need to be expanded considerably.

Similarly the integration of all kampungs in the networks of the municipal water supply will vastly increase its required total capacity. MCK keluarga built in the neighbourhood of markets or terminals cannot function properly as semi-public facilities, unless these markets or terminals have sufficient (public) sanitary facilities. Although electricity has not been part of KIP Botabek-Cirebon, it has been observed that the demand for electricity has increased in the kampungs. The roads, MCKs, etc. constructed in the kampungs will need to be maintained regularly. The experience of KIP Botabek-Cirebon has demonstrated that the willingness of the kampung inhabitants to supplement the government programme with their own improvement and maintenance activities is directly related to the smallness of the facilities provided. Many people are willing to repair or main-



tain a small drain serving their household and that of their neighbours. This holds for roads, waste disposal facilities, sanitary facilities for bathing/washing/toilet. At the lowest level, i.e. footpaths, drains, sanitary facilities serving only a limited number of households, the households tend to be willing to maintain them (especially if they participated in their planning). Large repairs on these lowest level facilities and almost all maintenance of higher level facilities will need to be organised by the municipal services.

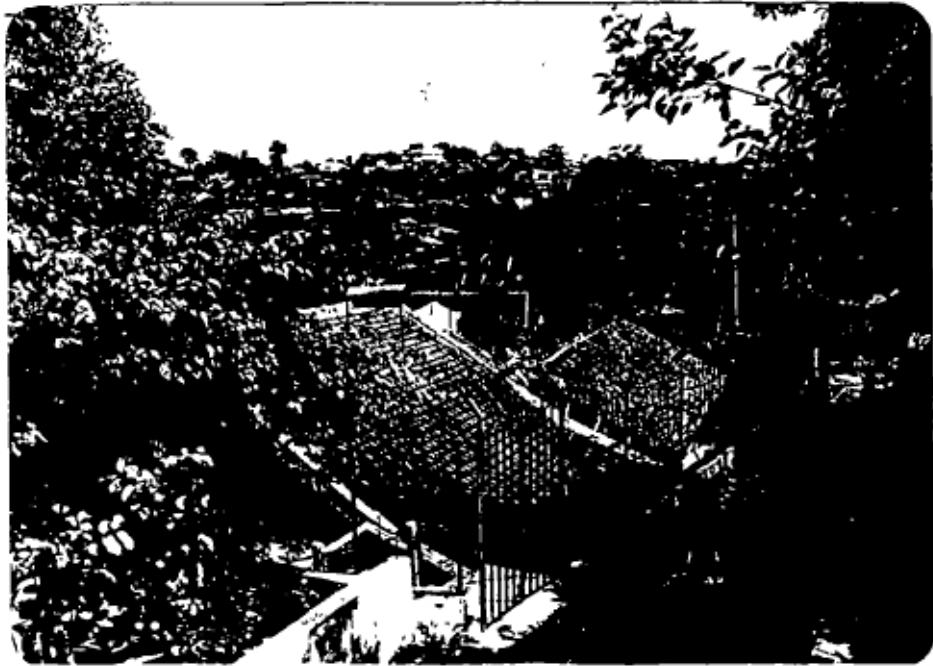
Somebody might react to the above with the remark that kampung improvement should be replaced by the development of the primary networks. Such a swing to the opposite would not be advisable. The improvement of main roads, main drains, municipal garbage transportation and disposal etc. would have little or no effect on the condition in the kampungs unless the infrastructure within the kampungs is improved as well.

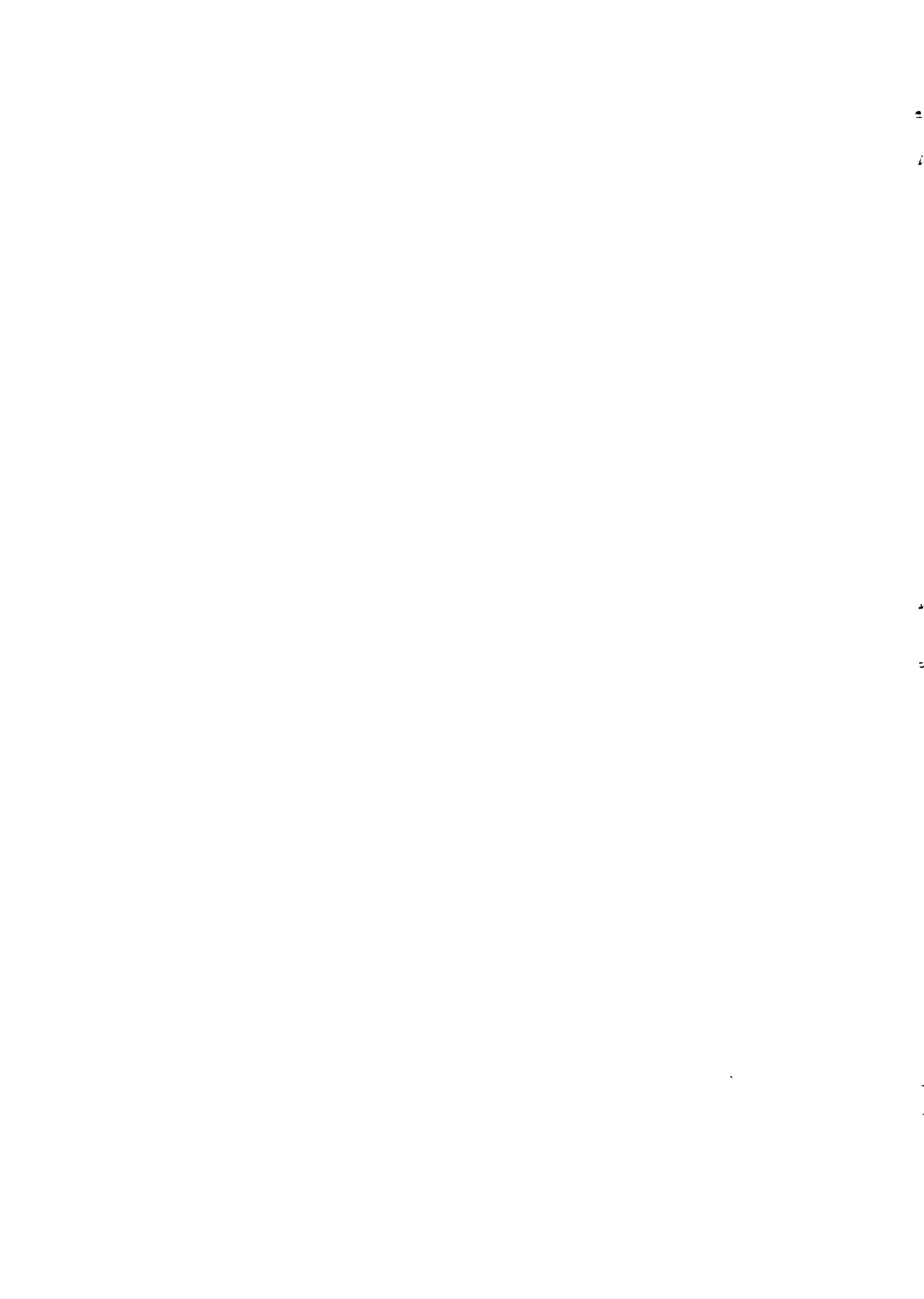
Improving the main drains will probably result in a better functioning of those main drains and the secondary drains from which they receive the water. Kampungs which do not have as yet a proper drainage system will not be effected by it. Similarly increasing the capacity of the municipal solid waste collection and disposal facilities will make it possible to service better those areas which are served already such as main streets and the more lucrative middle class residential areas. Such improvements will not affect the solid waste collection in kampungs which don't have the facilities and services to collect the garbage from the individual homes and transport it to places from where the municipal garbage trucks can collect it.

We have argued that kampung improvement limited to infrastructural improvements within the kampung boundaries may often not have the desired effect if the municipal infra-



structure is not able cope with the increased load. On the other hand a good functioning municipal infrastructural network is a necessary but not sufficient target if the objective is to improve the conditions in the kampungs (where more than half of the urban population lives). The most logical answer to the problem of the poor living conditions in the urban kampungs therefore seems to be an integrated urban development which includes in the first place kampung improvement, or a kampung improvement programme supplemented by those improvements at the town level that are necessary to make the KIP works functionally.





Annex 1 : Selection of JUDC Reports

1. Inception report
2. Schedule of operations 1979 - 1983
- 3* 2-years programme
- 4* Revised 2-years programme
5. Socio-economic survey, Bogor X
6. Socio-economic survey, Tangerang
7. Socio-economic survey, Bekasi
8. Socio-economic survey, Cirebon
- 9* Case study MCK I XV
- 10* Case study garbage collection
- 11* Case study MCK II
12. Financial studies KIP Botabek-Cirebon
13. Physical impact of KIP, condition of building and plots 3 case studies
14. Use of roads and paths two cases
- 15* Impact evaluation study (3 volumes) XII
16. MCK use and maintenance report
17. Seminar on Kampung Improvement, Main report
18. Seminar on Kampung Improvement, Final Report part A
19. Seminar on Kampung Improvement, Final Report part B
- 20* Masterfile of standards
- 21* Analysis of works
- 22* Planning manual XIII
- 23* Participation manual
- 24* MCK-keluarga manual
- 25* Manual tertiary drainage system
- 26* Manual footbridges
- 27* Bestek & Voorwaarden

* Issued in English and in Indonesian



Annex 2.

COMPOSITION OF TECHNICAL ASSISTANCE TEAM - JUDC

The Technical Assistance Team (TAT) which provided the consultancy services for KIP Botabek-Cirebon, funded by a grant of the Dutch Government (DGIS) was composed of experts from a combination of several Dutch and Indonesian firms : Joint Urban Development Consultants (JUDC). The leading partner in the combination and the company which from the beginning to the end of the project has been contributing experts to the Technical Assistance Team, including its project director and its teamleader has been Royal Haskoning bv, Concarplan is the combination of Royal Haskoning bv and OD 205. Until August 1983 PT Sangkuriang supplied Indonesian experts to the TAT, including the co-teamleader. In early stages of the project (1979/80) the Dutch firm DHV and their Indonesian partner PT Deserco also were part of JUDC, while presently PT Lestari Daya Rancindo contributes expertise. One associate expert was contributed by DGIS, the (Dutch) Directorate General for International Cooperation.

