

EBOLA

***MISSION REPORT KIKWIT ZAIRE
16/5 - 1/7 1995***

RAPPORT RÄDDNINGSTJÄNSTAVDELNINGEN P22-106/95



**RÄDDNINGSS
VERKET**

EBOLA
MISSION REPORT KIKWIT ZAIRE
16/5-1/7 1995

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<p>Utgivare Statens räddningsverk</p>	<p>Uppdragsgivare Statens räddningsverk</p>
<p>Författare Håkan Eriksson Anders Tegnell Bo Niklasson</p>	
<p>Summary</p> <p>7/5 A first request for WHO assistance was received from Zaire on Sunday 7 May.</p> <p>9/5 The team composes of experts from WHO, COC in Atlanta, the Pasteur Institute in Paris and the National Institute for Virology in Johannesburg. Their mission is to assist in confirming the diagnosis, advising local health officials on patient care and management and assist in efforts to contain the outbreak.</p> <p>11/5 WHO confirmed today that the Ebola virus is implicated in the outbreak of haemorrhagic fever in Zaire. MSF is playing an important role in setting up case facilities for patients.</p> <p>12/5 Health workers are touring Kikwit with megaphones advising people to the General Hospital (Kikwit 1) if they had symptoms of disease. The bodies of the epidemic's victims are regularly picked up by the Red Cross of Zaire which is also taken care of their burial.</p> <p>14/5 A request for at least two French speaking logisticians, for an initial period of 15 days. Logistical support, particularly ensuring communications and transportation. The Swedish National Board of Health and welfare and the Swedish Rescue Services Agency decide to send three consultants assigned to WHO.</p> <p>15/5 WHO team members begin to trace contacts of those who have died or become ill as part of a surveillance operation. The Swedish team 1 leaves Sweden for Kikwit, Zaire via Geneva.</p> <p>16/5 Debriefing of Swedish team 1 in Geneva.</p> <p>17/5 Team 1 arrives in Kikwit.</p> <p>18/5 Team 1 visits the two hospitals (Kikwit 1 and 2) in order to undertake a rapid assessment of needs of medical supplies. A report about the situation is sent to WHO Geneva, Brazzaville and Kinshasa as well as to SRSA, Sweden.</p> <p>24/5 The Swedish government takes the decision to send a support team (team 2) and material and equipment requested.</p>	

28/5 Team 2 arrives in Kikwit.

29/5 - 4/6 Team 1 and 2 work with distribution of material and in collaboration with MSF staff start to construct a new isolation ward (pavilion 5) at Kikwit 1.

5/6 Team 1 leaves Kikwit for Sweden via Geneva. Team 2 continues to work at Kikwit 1 and prepares actual work at Kikwit 2.

6/6 Debriefing in Geneva leaving a draft report.

7/6 A draft report to Swedish authorities.

OBJECTIVES

During the Ebola epidemic in Zaire in 1995 WHO requested assistance from the Swedish government. Sweden responded by sending a team of three experts recruited from the Swedish National Board of Health and Welfare and from the Swedish Rescue Services Agency for rapid assessment of the situation and to estimate the need. The team was assigned to WHO and given the following terms of reference:

Drs B Niklasson and A Tegnell

1. Undertake a rapid assessment of needs of medical supplies based on various clearly analysed scenarios.
2. Work with the International Committee on Scientific and Technical co-ordination and provide necessary technical support.
3. The specific duties will be assigned by the WHO Team Leader.

Mr H Ericsson, Logistician

1. Undertake a rapid assessment of logistical support needed in terms of transport, radio and telecommunications, supplies, administrative and all other aspects of the organisation of the operation.
2. Provide any necessary logistical support during the mission.
3. Recommend follow-up actions for logistical support.

The team

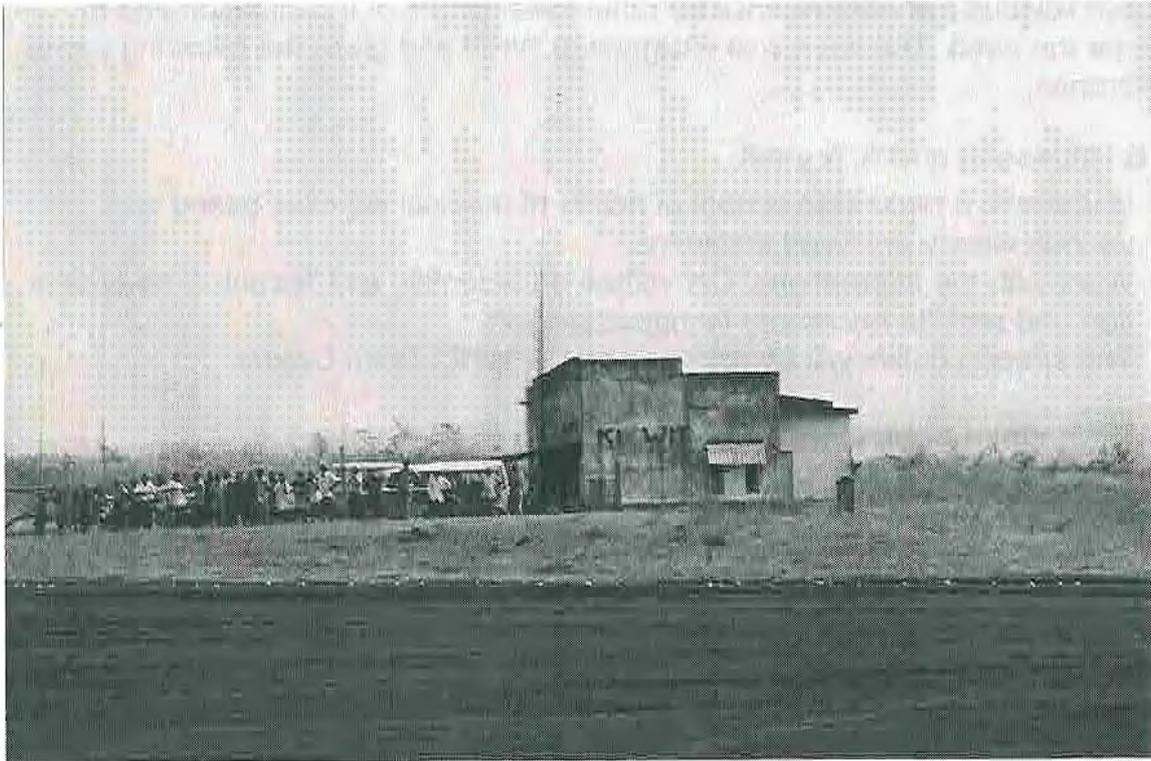
1. At the end of the mission, the team will submit to WHO a report of their activities, including recommendations that could be useful for the present epidemic and future similar situations.

BACKGROUND

During May 1995 an Ebola outbreak was reported from Kikwit in Zaire. A WHO team consisting of experts in different areas was rapidly sent to Zaire. A request for assistance were sent to many countries including Sweden. Sweden decided to send a small group of experts to Zaire with the objective to help the international committee in Kikwit and to rapidly assess the situation in terms of supply and personal needed.

ACTIVITIES AND FINDINGS

The Swedish team (team 1) left Geneva May 16 and arrived in Kinshasa May 17 in the morning. The team continued with Dr Moudi (WR Kinshasa) to Kikwit the same day. The group was briefed on arrival by Dr D. Heyman WHO Kikwit.



The two hospitals in Kikwit (Kikwit general hospital also named Kikwit 1 with 300 beds and Kikwit hospital 2 with 75 beds) were visited May 18. At this time all suspected and confirmed cases of Ebola were referred to Kikwit hospital. This hospital was at this time getting organized for the task to isolate all Ebola patients. An isolation ward had been set up in the middle of the compound and fenced off by plastic sheeting. The former emergency room was still used as an emergency room without any adaptation to the existing epidemic. The clinical work was performed by Zairian doctors and nurses together with 2 physicians from the international team.

The hospital had water cisterns provided by MSF. Electricity was available during daytime from a diesel generator. Procedures in the isolation ward to eliminate the risk of virus spread between patients and their relatives and hospital staff were improved gradually. However, Kikwit hospital 1 was extremely short of disposable material and had to reuse eg disposable masks.



Kikwit hospital 2 were also visited May 18. all non-Ebola patients from Kikwit hospital 1 were referred to this hospital. The hospital had no electricity and water. No protective equipment or disposable masks or gloves were available.



Mosango hospital with 600 beds and located approximately 160 km from Kikwit (between Kikwit and Kinshasa) was inspected on May 19 since this hospital had experienced Ebola patients with secondary cases being infected in the hospital. No surgery was performed at this hospital due to the risk of Ebola virus infection. This hospital was in general good conditions but with total lack of protective materials.

At the time this assessment was performed the international committee had initiated several activities and significantly improved the situation. In general all participating organisations worked well coordinated. However, there was no general accepted guidance on procedures and equipment used in contacts with

patients or infected material. Several other areas needed improvements and the recommendations forwarded by the assessment team to WHO and Sweden on May 18 included (according to appendix 1) the following:

- Protective equipment and disposable materials for an estimated 150 additional Ebola patients.
- Material needed for basic nursing of an additional 150 Ebola patients.
- Equipment to improve communication.
- Vehicles to improve transportation.
- A Swedish support team to help other organizations with logistics, sanitation, water and electricity. (See appendix 2).

On May 24 the Swedish government took the decision to send a support team and the material and equipment requested to Kikwit. Team 2 arrived in Kikwit May 28. The number of Ebola cases were at this date decreasing. Beside activities focused at stopping the Ebola epidemic high priority was given the task to get the normal hospital routines back in operation. Therefore a new isolation ward was constructed (pavilion 5) in Kikwit hospital 1 with water, electricity and latrines in collaboration with MSF staff (see drawings appendix 3). Swedish support team also worked with distribution of material during the first week.



During the second week an assessment-visit was made to Kikwit hospital 2. Tentative plans for water, electricity and sanitation were made. Actual work is planned to start in the middle of June.



Team 1 participated in a surveillance mission taking place at two different occasions. At the second mission the villages of Bamba and Kabodi were visited. There were no new cases found in these villages. The work was initiated by WHO in order to investigate several rumours of new cases.

A project proposal to reinforce epidemiological surveillance and health care delivery in Kwilu sub-region, Bandundu province, was drafted in collaboration with other WHO staff. (See appendix 1).

RECOMMENDATIONS

A. To WHO

1. WHO should organize an expert meeting to update recommendation for level of protection and appropriate procedures working with haemorrhagic fever (HF) patient and material under field conditions.
2. WHO should identify international experts willing to participate in case of outbreaks of haemorrhagic fever. The list should include experts in areas such as epidemiology and disease surveillance, logistics, laboratory support, biosafety and medical care and nursing. The idea to establish an International committee with members from different countries and organisations and local authorities working together during HF epidemics should be used again in the future.
3. In a similar future operation with an international team of experts one person should be assigned responsibility for biosafety. This person should give onsite advise on questions such as level of protection needed in different situations, decontamination procedures and questions such as were media-people (journalists, photographers etc) may visit in not to risk getting infected.
4. WHO should identify and store the equipment and material needed to go with such team. This material should be sufficient for the initial 2-3 weeks and include everything needed for protection of team members and for basic nursing.
5. Recommendations should be established for quarantine measures to be undertaken during HF outbreaks.

B. To countries at risk for hemorrhagic fever epidemics

1. Initiate a sustainable surveillance system for early detection of disease.
2. Initiate a training programme in hospital hygiene to minimise risk of HF transmission in hospital or health care environment. A minimal level of hygiene maintained at all times should be identified.
3. Initiate of a training programme in hospital hygiene to be used when HF transmission in the country is present. This training programme should include everything from how to establish isolation wards to procedures used by local nurses attending suspected patients in the villages. This level of hygiene should be maintained only during an outbreak of HF.
4. WHO should make recommendations on how to decontaminate belongings and homes of HF patients. If patients are to be nursed for in their homes - what precautions should be taken?
5. To store at hospital level equipment ("emergency kit") to be used in case of an outbreak of HF in countries at risk.
6. It should be recognized that in time of HF epidemics all other medical activities is significantly decreased or totally interrupted. The result of this may be a higher number of death caused by non HF related and curable diseases than the number of deaths caused by the HF itself. Recommendations for procedures to minimize this unwanted effect is necessary.

Dr Almeida
WHO Brazzaville

ASSESSMENT OF THE SITUATION IN KIKWIT IN TERMS OF SHORT TERM NEEDS OF SUPPLY.

The hospital situation in Kikwit has improved significantly after the arrival of the international team. A low number of patients with Ebola virus infection or suspected Ebola virus infection is presently treated in Kikwit hospital no 1. Part of this hospital has electricity and water and have also established a reasonable containment strategy to avoid hospital transmission and to avoid staff from being infected. Measures have also been taken to instruct and equip other categories of health care workers such as the red-cross who organize the transportation of sick and dead patients.

Hospital no 2 lack electricity and take water from a local well. This hospital does not primarily treat Ebola virus infected patients but patients may pass through this hospital before the diagnosis is being made.

Hospital no 1 is short of disposable protective equipment and hospital no 2 lack disposable protective equipment. Many other different sorts of supply is urgently needed both in terms of ensuring protection for hospital and laboratory staff as well as material needed for basic nursing.

There is no reliable prognosis for the number of new cases expected. One scenario is that hospital transmission now is eliminated and that the awareness in the population now is such that people avoid being exposed in the family when caring for Ebola ill patients or preparing the bodies for funeral. If this is the case we may expect very few new cases of Ebola virus infection. A second scenario is that although the risk of hospital transmission now is very low, transmission still occur in the villages between family members. In this scenario a fourth wave of new patients can be expected in the next few days. As many as 50-200 new patients could then need hospitalization for care and isolation. Such development would put the health system under tremendous stress and make the current level of supply insufficient.

Below is an estimate of what is needed if an increase of cases occur to maintain supply for 2-3 weeks.

There are several shipment scheduled to arrive in Kikwit during the next couple of days. However, we have no data suggesting that the supply listed below are included in these shipment. We will keep WHO in Geneva posted on the development and update any change in the supply need if.

Beside the supply listed below a small support-team consisting of 7 persons with expertise in water supply, electricity and maintenance could be very useful. Such team could be sent from Sweden rapidly if the decision is taken.

Hakan Eriksson

Bo Niklasson

Anders Tegnell

List of urgently needed supplies

- X Disposable gloves for surgery
- X size 6 1500 pairs
- X size 6,5 1500 pairs
- X size 7 1500 pairs
- X size 7,5 1500 pairs
- X size 8 1500 pairs

- X Heavy duty rubber gloves 1 000 pairs

- X Rubber boots female sizes 100 pairs
- X Rubber boots male sizes 100 pairs

- X Facemask made of rubber covering nose and mouth but not eyes with H filter. Mixed sizes 50 pieces

- X Disposable facemask with HEPA filter type 3M 8835 FFPSL mixed sizes 1 000 p

- X Disposable plastic aprons 2 000 p

- X Disposable coverall type Molnlycke PRO without head-covering but with wrist-covering 1 000 p

- X Disposable surgery coat 3 000 p

- X Needle-remover and container for Vacutainer system 50 p

- X Sprayer one liter plastic 400 p
- X Sprayer 10 liter "garden-type" 50 p

- X Alcohol 70% 100x 20 litre

- X Plastic-covered matelasse standard size 500 p

- X Disposable plastic matelasse covering 500 p

- X Sheets standard size 1 000 p

- X Disposable equipment for nursing
- X Kidney-bowls 1 000 p
- X Urinaries 300 p
- X Towels 1 000 p
- X Water-resistant dressings of different sizes 200 p

Kikwit Zaire May 20 1995

Dr Torrigiani
WHO Geneva

REVISED ASSESSMENT OF THE SITUATION IN KIKWIT IN TERMS OF SHORT TERM
NEEDS OF SUPPLY.

Referring to the correspondence sent yesterday (May 19 1995) we have now revised the list of supply urgently needed to cover an expected new increase number of Ebola virus infected patients. The list is an estimate of the need for 2-3 weeks. Please observe that the numbers given below is the amount needed in addition to the list sent yesterday (May 19 1995)

List of urgently needed supplies

Disposable gloves for surgery

size 6	900 pairs
size 6,5	900 pairs
size 7	2000 pairs
size 7,5	2000 pairs
size 8	2000 pairs

Rubber boots female sizes	100 pairs
Rubber boots male sizes	100 pairs

Disposable plastic aprons 2 500 p

Disposable surgery coat 2 000 p

Needle-remover and container for Vacutainer system 70 p

Sprayer one liter plastic 200 p

Sheets standard size non-disposable 2 000 p

Disposable equipment for nursing

Bed-pants 150 p

Communication system to serve 10 units within a distance of 10 km

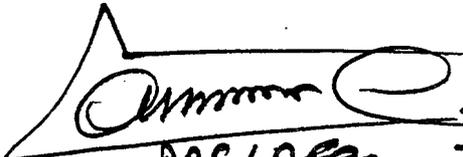
Vehicles type "pick-up" with double cabin to transport patients and corpses 1 p

Protective glasses for hospital use 340 p

Disinfection powder type VIRCON small units 1800 p

Yours Sincerely

Hakan Eriksson, Anders Tegnell Bo Nikasson


DOC/AFR
for WHO team in Kik

PROJECT PROPOSAL TO REINFORCE EPIDEMIOLOGICAL SURVEILLANCE AND HEALTH CARE DELIVERY IN KWILU SUB-REGION, BANDUNDU PROVINCE.

1. BACKGROUND

The occurrence and spread of the Ebola Haemorrhagic fever epidemic in Kikwit revealed the weaknesses of the local health system to prevent disease transmission within the hospital setting, to provide adequate health care and the lack of epidemiological capacities for disease surveillance and control. Other diseases that have the same transmission pattern (such as HIV/AIDS, Hepatitis B) and many other communicable diseases remain a threat to the health of the populations of the concerned areas.

2. OBJECTIVES

- Prevent and control the major communicable diseases that are prevalent and likely to occur in the sub-region.
- Prevent disease transmission in the hospital.

More specifically,

- Improve the quality of health care delivery at all levels.
- Establish a reliable surveillance system for epidemic prone diseases.
- Strengthen the regional laboratory capacities.
- Improve procedures at the hospital both during routine work and during epidemics.

3. STRATEGIES

- Development of epidemiological capacities in the sub-region.
- Improving hygiene standards in all health facilities.
- Provision of basic equipment and supplies for health institutions, including hospital, health centres.
- Establishment of a sub-regional laboratory.
- Establish procedures to interrupt epidemics of highly infectious diseases.
- Provision of equipment and supplies needed to fight epidemics.

4. AREAS INVOLVED

The initial area to cover is the area affected by the recent Ebola epidemic. The following would be the starting centres:

- Kikwit town: Hospitals and health centres
- Following Health zones:

Bulungu, Djuma, Feshi, Gungu, Idiofa, Kahemba, Kasongolunda, Kenge, Kungandu, Kisandji, Masimaniba, Mokala, Mosango, Vanga, Yasa/Bonga, Bagota, Falundu, Bandandau.

In a second phase an extension to more health zones should be considered.

5. ACTIVITIES

5.1 DEVELOPMENT OF EPIDEMIOLOGICAL CAPACITIES

- Training of trainers (health zone supervisors) and health centre workers in field epidemiology.
- Development of tools and reporting systems.
- Establishment of a monitoring system and a centralised database in Kikwit.
- Updated conferences for health zone supervisors
- Production of simple feed back bulletin.
- Develop procedures that would allow a rapid detection of the spread of some important diseases and upcoming epidemics.
- Establish a system of communications between the different units and also with Kinshasa.

5.2 IMPROVEMENT OF HYGIENE PROCEDURES IN HOSPITALS AND HEALTH CENTRES

- Develop procedures for an improved hygiene in health facilities.
- Training of hospital and health centre personnel.
- Daily management at one or two hospitals with assistance by UNVs and APs.
- Establishment of criteria for proper monitoring.

5.3 EQUIPMENT AND SUPPLIES FOR HEALTH INSTITUTIONS

- General upgrading of electricity and water supply of the hospitals establishing procedures or waste disposal.
- Initiating a reliable system for sterilising hospital equipment.
- Supply hospitals with basic reusable supplies needed for the procedures undertaken.
- Prepare hospitals to be able to deal with epidemics of highly contagious disease i.e. to prepare plans, train staff and store necessary equipment.

5.4 DEVELOPMENT OF A SUB-REGIONAL LABORATORY

- Restore basic laboratory services.
- Improve safety in the laboratory.
- Train staff.
- Establish procedures for epidemiological surveillance of some important disease.
- Establish rapid diagnoses for necessary diseases.
- Work out routines for collecting and sending samples to reference laboratories in Kinshasa and abroad.

6. NEEDS

Personnel (\$ 350.000)

6.1 TECHNICAL CO-ORDINATOR

- Epidemiologist, International expert, with good knowledge and experience in epidemiology of infectious diseases and control of nosocomial infections, for at least one year assignment in duty station Kikwit. (\$ 80.000)

6.2 SHORT-TERM CONSULTANCIES FOR (\$ 60.000)

- * laboratory services development;
- * epidemiological surveillance
- * hospital hygiene
- UNVs/APOs to work in hospitals to support development of hygiene procedures (\$ 30.000)

- Secretarial and administrative support + 2 drivers (\$ 60.000)
- Local salary subsidies for medical doctors and nurses involved in the new strategies app 10 people (\$ 70.000)
- Local salaries for laboratory staff 4 people (\$ 50.000)

6.3 TRANSPORT EQUIPMENT (\$ 200.000)

- Two vehicles
- Ten motor-cycles
- Two hundred bicycles

6.4 OTHER

- Laboratory equipment (\$ 75.000)
- Equipment and supplies (\$ 375.000)

7. PROJECT SUSTAIN ABILITY

General

The project will provide basic equipment and vehicles (cars, motor-cycles, bicycles), including maintenance funds and spare parts for one or two years. Initially there will be a need to pay local staff who gets new responsibilities but at the end of the project these costs should be taken over by the government and other (e.g. community) revenues.

Laboratory

At the end of the project, the cost of the public health laboratory would be included in the activities funded from the WHO country funds. The laboratory could be linked with the referral laboratory in Kinshasa and other laboratories abroad and funds could be requested from these sources.

Epidemiological surveillance

The surveillance should be integrated within the framework of the health zone. It is understood that the project only partially will provide funds for the health zones operations.

Hygiene in hospitals

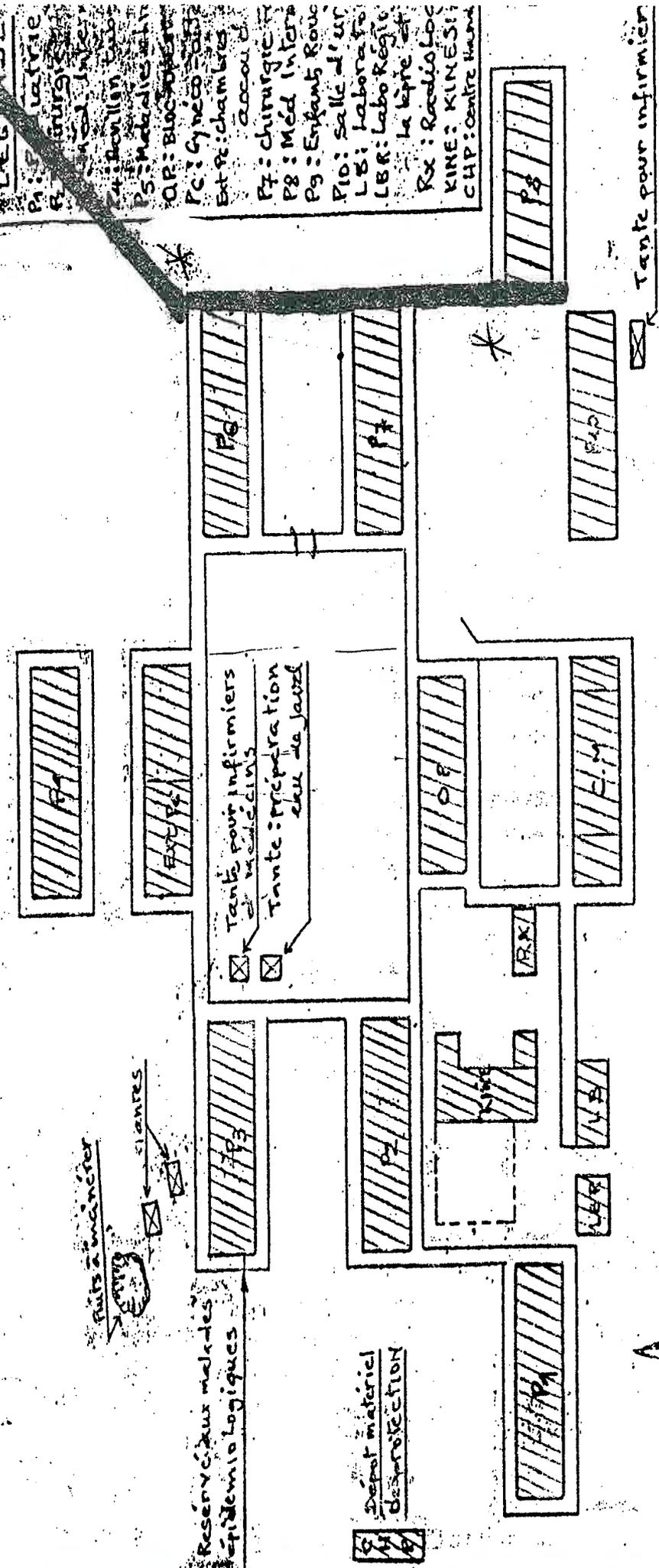
The initial investment will be made by the project and mainly reusable supplies should be used. In the future local revenues would have to be used to renew these materials. For specialised equipment to be used in epidemics stocks would be purchased for all hospitals. When they are used, external funding would have to be sought to renew them.

HOPITAL DE
KIKWIZAZAIRE
PLAN D'IMPLANTATION
AU TEMPS DE L'EPIDEMIE
DRESSE PAR
L.E.B.E.L.C.

PS

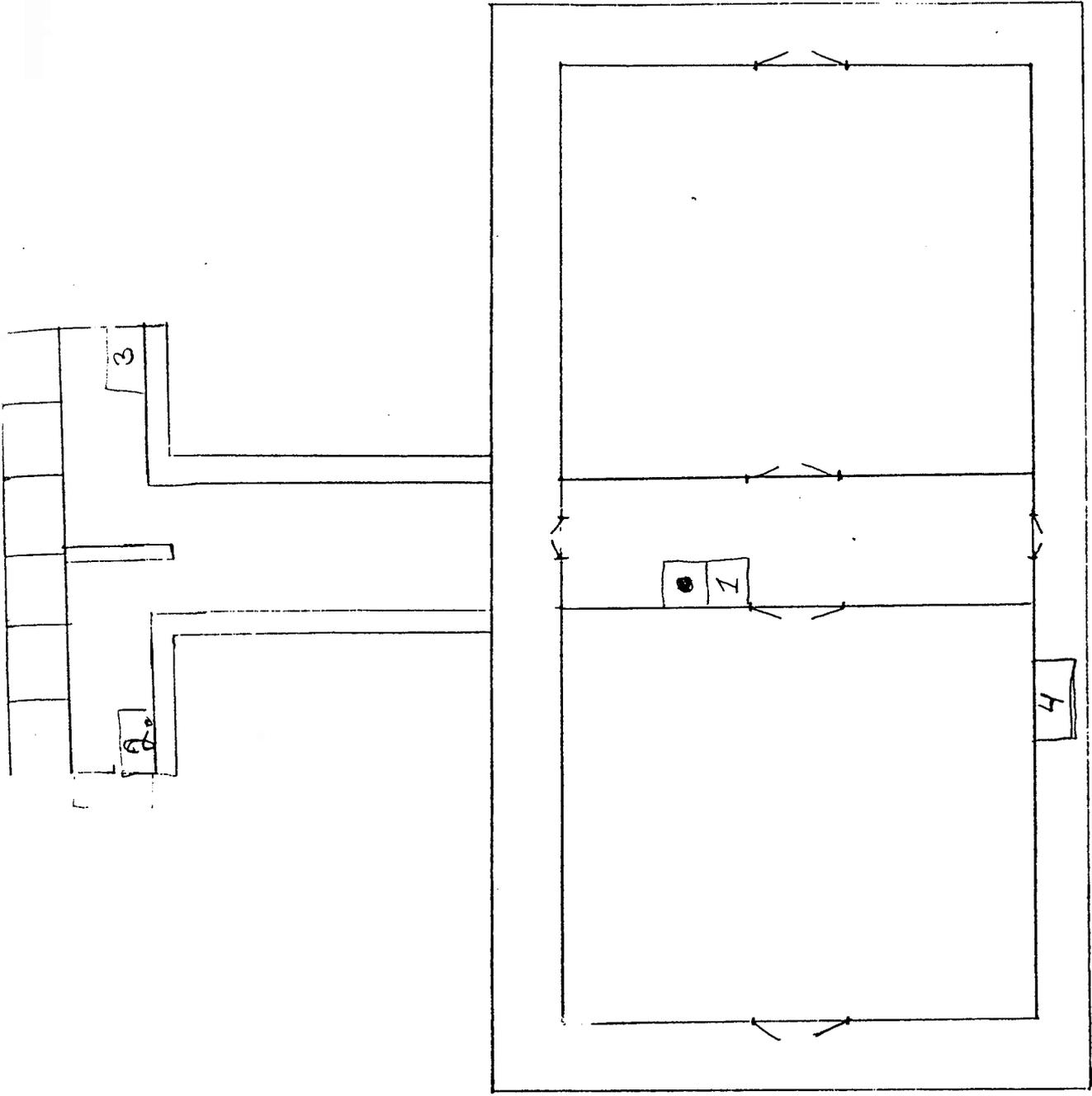
DAVRES / NERSA [] vague

- ALLEGADE
 P1: Pharmacie
 P2: Chirurgie
 P3: Laboratoire
 P4: Pharmacie
 P5: Maternité
 P6: Bloc opératoire
 P7: Gynécologie
 P8: Chambres
 P9: Accueil
 P10: Chirurgie
 P11: Méd. Intern
 P12: Enfants Rouc
 P13: Salle d'ur
 P14: Laborato
 P15: Labo Régie
 P16: La typie
 P17: Radio Labo
 P18: KINESI
 P19: Centre thera

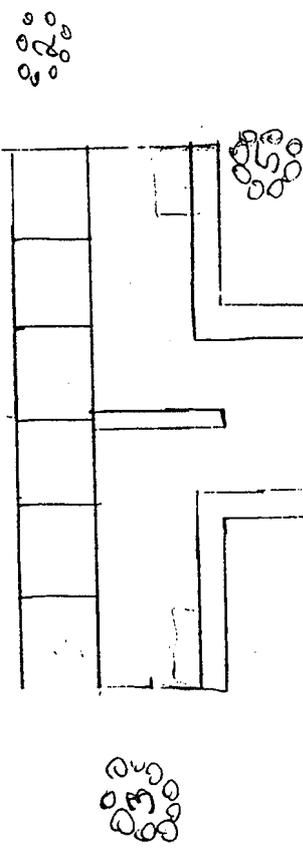


ENTREE P. [] Guichet

* Road into PS

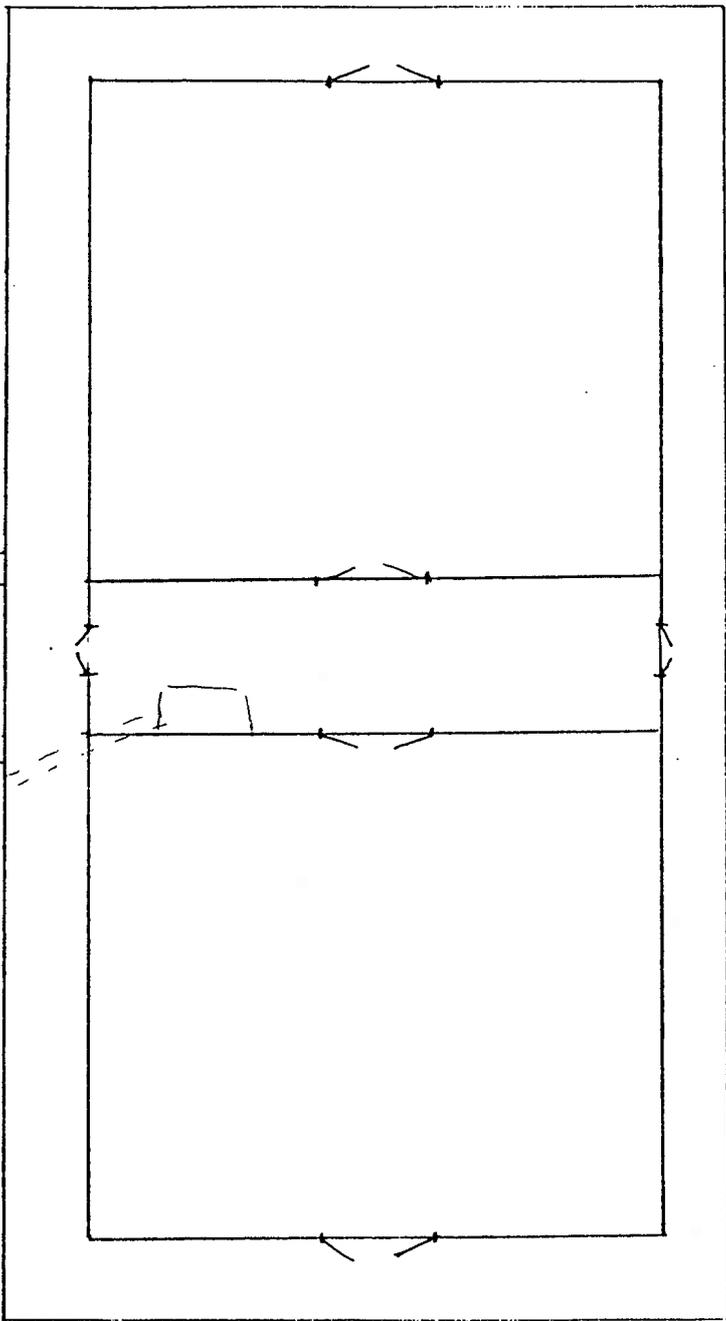


1. water.
2. water wash Relatives
3. water. wash personnel
4. water tank

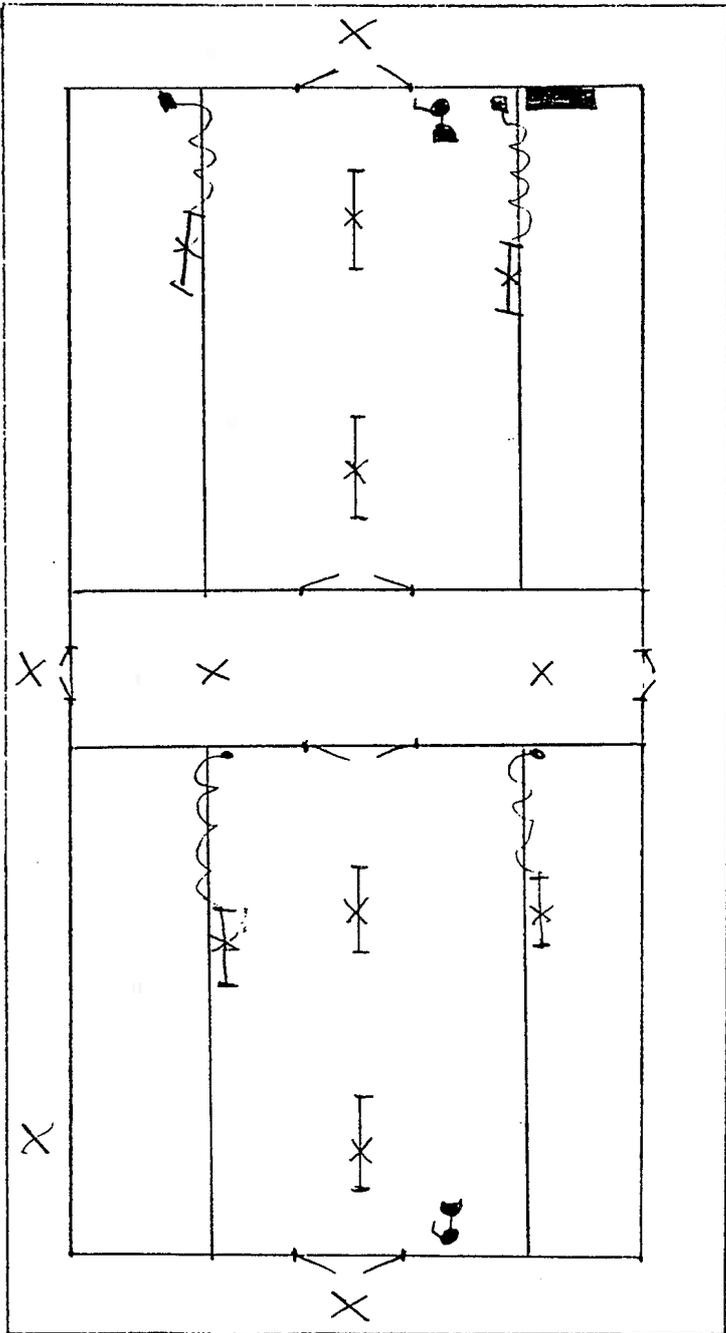


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1. Drainage for sink
2. Personnel toilet
3. Patient toilet
4. Relatives toilet
5. Drainage



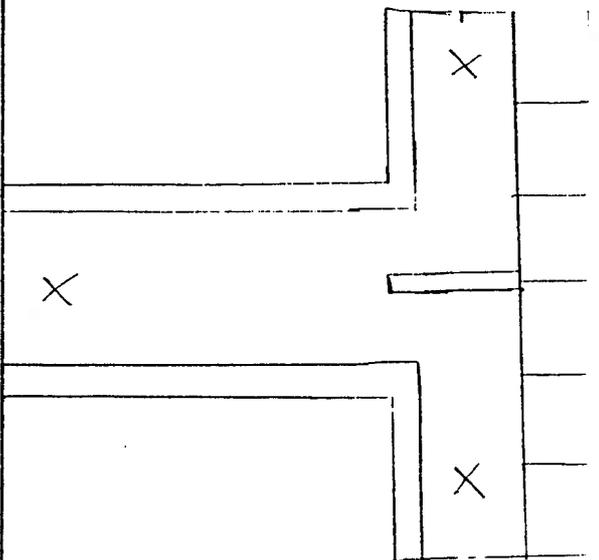
● Outlet

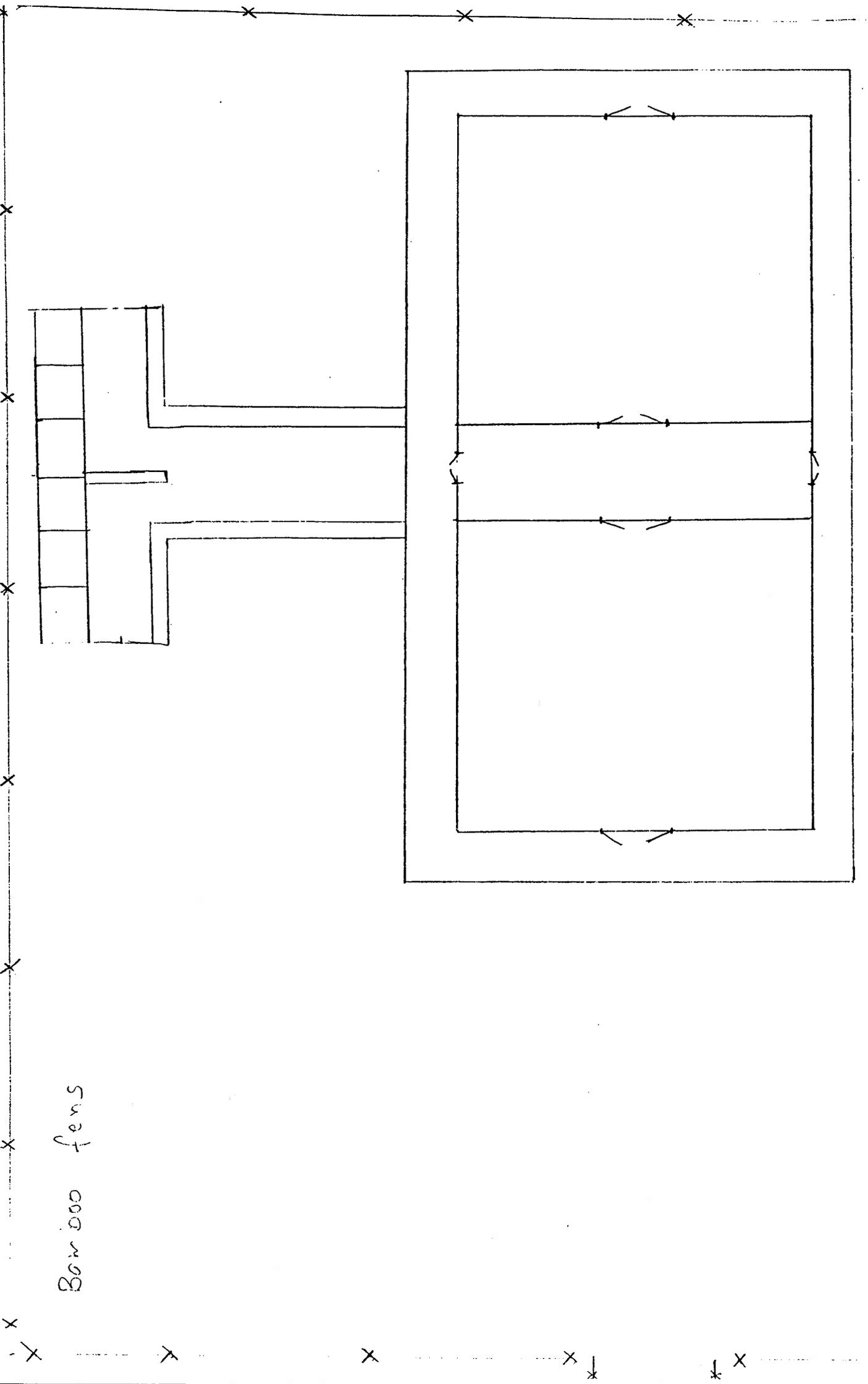
⌋ Switch

X Lamp

⌋ Neon Lights

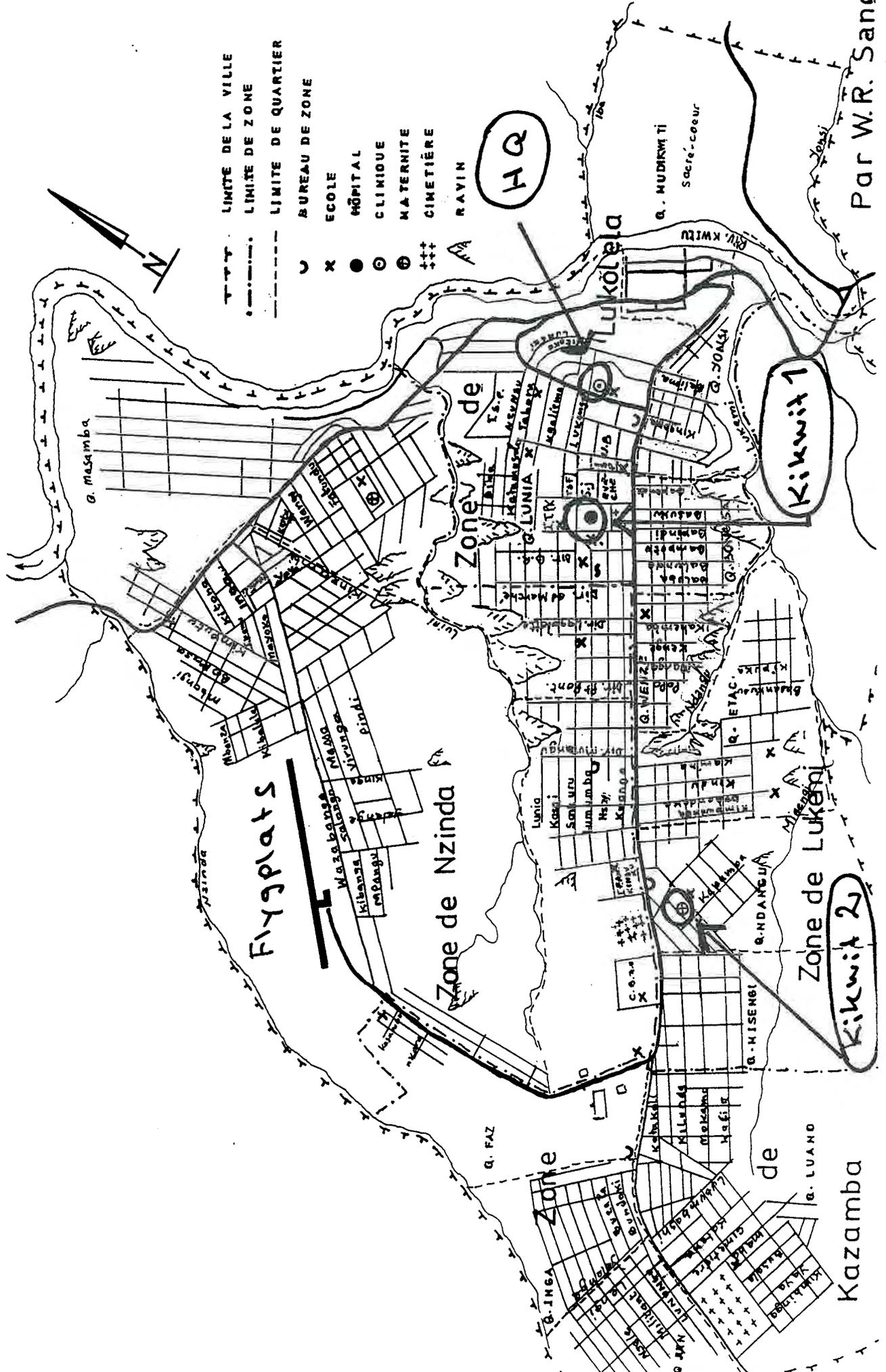
○ / AXI Neon Light on wire





Bamboo fence

KIKWIT



- LIMITE DE LA VILLE
- - - LIMITE DE ZONE
- - - LIMITE DE QUARTIER
- BUREAU DE ZONE
- ⌋ ECOLE
- HÔPITAL
- CLINIQUE
- ⊕ MATERNITE
- +++ CINETIÈRE
- AA RAVIN

HQ

Kikwit 1

Kikwit 2

Par W.R. Sangibala

Flygplats

Zone de Nzinda

Zone de Lukela

Zone de Kazamba

Zone de Kikwit

de Kazamba

Q. MUDIKWI TI
Sacre-cœur

Q. SONGI

Q. ETAC

Q. NDANGUA

Q. HISENGI

Q. LUANO

Q. MASAMBA

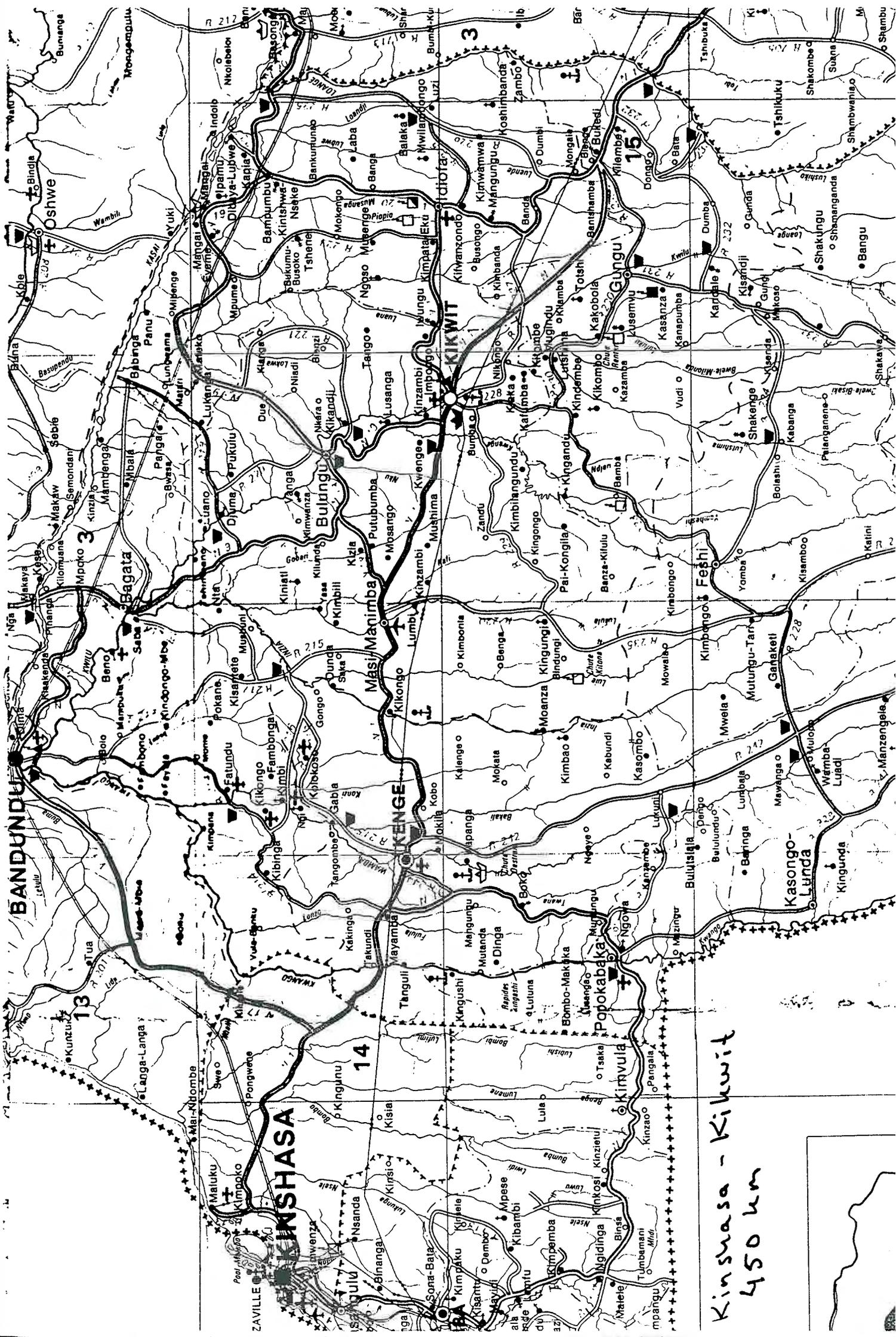
Q. LUNIA

Q. KAZAMBA

Q. KIKWIT

Q. NGANDA

Q. KAZAMBA



Kinshasa - Kikwit
450 km