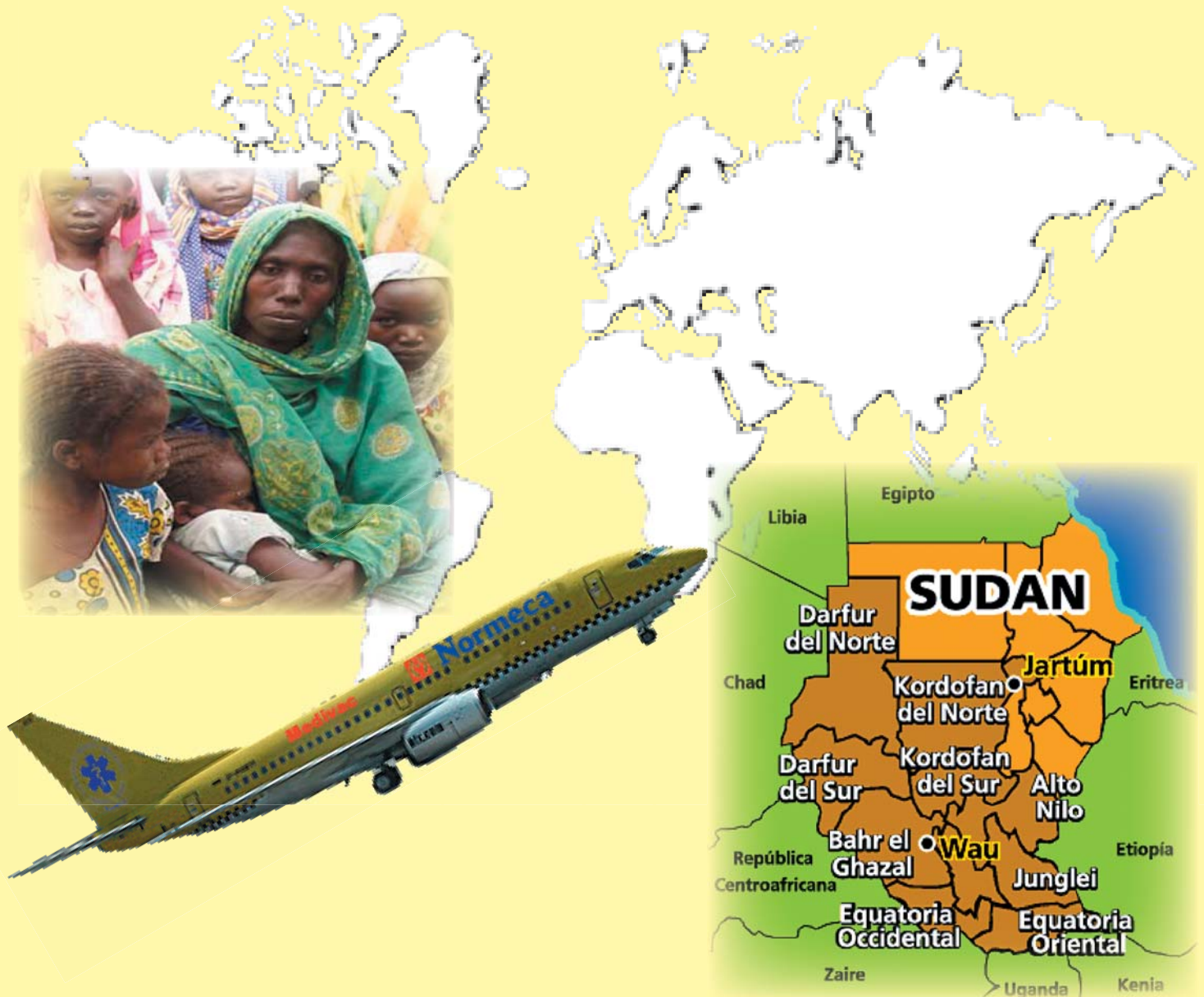


# NEW HOSPITALS FOR SOUTHERN SUDAN.

***A major increase in the health care offering to the people of Southern Sudan also contributing significantly to capacity building***



**Normeca**

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# GOVERNMENT OF SOUTHERN SUDAN (GOSS)

MINISTRY OF HEALTH  
OFFICE OF THE MINISTER

Our Ref: *M.O.H./G.O.S.S/J/32-A.5*

Date: *16.9.2006*

Your Ref: .....

To: NORMECA AS .NORWAY

## SUBJECT: AUTHORIZATION

We hereby confirm that the company Normeca AS with registered address in Mailandsveien 12, 1470 Lorenskog in Norway, company reg.no. NO-934111 931 VAT is working on behalf of the Ministry of Health ,Government of Southern Sudan, to build 10 state hospitals each minimum 100 beds including accommodation for up to 150 staff for each hospital and to implement 50 mobile clinics and two floating hospitals.

The project is a total turn key project where also Normeca AS will take care of the daily operation of all hospitals and clinics on behalf of the Ministry of Health and take care of all types of management, all kinds of staff, logistics with more. Capacity building is an important integral part of the project and over the next 24 months, the project is expected to employ more than 2 000 employees and train all categories of medical personnel.

Normeca AS has the right to use as subtitle on all stationary, vehicles and other places where appropriate, "*Working on Behalf of Ministry of Health Government of Southern Sudan (G.O.S.S)*". We will be very pleased if you can give Normeca AS all necessary support in this very important project in South Sudan.

Sincerely Yours,

**H.E Dr. Theophilus Ochang Lotti**  
Minister of Health  
Government of Southern Sudan (G.O.S.S)



Head Office: P.O. Box 88, Juba, Southern Sudan

Tel: (+249-811820678 / +249-811820134) E-mail: [mohgoss\\_juba@yahoo.com](mailto:mohgoss_juba@yahoo.com)

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# PROJECT - SOUTHERN SUDAN

## BACKGROUND

Among its many critical tasks, the Government of Southern Sudan (GOSS), Ministry of Health early identified the urgent need to provide improved health care on the ground for the people after so many years of war. More than 12 months ago, the Ministry made targeted calls for proposals and prices from a range of international suppliers. During the process in evaluating the various proposals, particular emphasis was placed on price, speed of delivery, experience and flexibility particularly with respect to constructions being used for other purposes once permanent hospitals have been constructed.

After evaluating the many international tenders, the Ministry of Health decided to enter into negotiations with Normeca AS. This process ended with Normeca AS being awarded 3 contracts all verified by the required ministries in Southern Sudan; Ministry of Finance, Ministry of Legal Affairs and Constitutional Development in addition to the Presidents Office, as follows:

1. Supply of 2 floating hospitals based on the catamaran type both is of the smallest size, 26m fully equipped and ready for use.
2. Supply of 10 hospitals each with 100 beds, based on flat-packed containers fully equipped, ready to use en self-sufficient. Furthermore, 5 mobile clinics will be supplied to each hospital, a total of 50 mobile clinics. Each hospital will in addition have living quarters accommodating approximately 150 people and will include kitchen, cantina, laundry etc.

The MOH has furthermore an option for approximately 80 local hospitals with accommodation and with 40 to 50 beds each.

3. Furthermore, an agreement has been signed for the management, operation and maintenance of the hospitals and equipment, including staffing and all supplies.

This contract also contains state that Normeca AS is working for, on behalf of and is representing the Government of South Sudan (G.O.S.S) and Ministry of Health.

The supply of equipment/hospitals/clinics shall be concluded and installed within 2 years from reception of pre-payment. The management agreement is over 3 years from final hospital ready to be used. It is considered by the Southern Sudanese Government that Normeca AS may take over management of all existing hospitals, clinics and health care stations during the next 12 to 24 months.

Southern Sudan has been through 28 years of civil war and a lot has been damaged. The capitol for the South, Juba, has approximately 3 million inhabitants of which most live in simple clay huts. The best hotels in town are tent based and there is little to purchase in the few stores open. The roads are in extremely poor condition and in some places may not even be called roads. Nevertheless, the Juba roads are among the best in the south.



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It is assumed that the population of Southern Sudan is approximately 15 million but there are no exact figures. The Comprehensive Peace Agreement (CPA) signed more than a year ago is working even if there are challenges in the implementation and armed fractions in certain places like along the Ugandan border, that are unhappy with the situation and causing trouble. Many of the roads are still covered with mines, something that will create problems also for us.

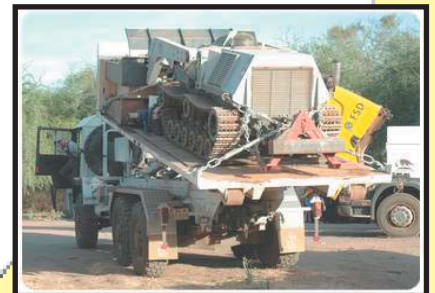
Based on our visits to Juba, the people of Southern Sudan are very friendly and hospital. English is spoken fairly well but there is a problem with finding personnel with education, experience and knowledge within our field of operation. There has for many years been a brain drain and most of the highly educated today live abroad, in neighbouring countries, in the US and Europe typically.

Sudan has a large reservoir of oil and considerable minerals. The oil exploration is increasing by the month and the sharing of wealth central to the CPA calls for Southern Sudan to receive 42% of the oil revenue. This is already a considerable amount, an amount that will increase tremendously over the years to come.

## IMPLEMENTATION

To secure a successful implementation, Normeca AS will have to establish a cohesive and total logistics and supplies system within all areas and aspects of the project. This means setting up our own transport and supply system from Kenya and/or Port Sudan for everything from pharmaceuticals, consumables, food, fuel/diesel and other necessary equipment to operate all hospitals, accommodation of personnel etc.

The distances in Sudan are formidable – Sudan is as big as all of Europe. Southern Sudan is approximately half of Sudan meaning long distances on very poor roads between each hospital. During the rain season in particular, this will impose severe challenges and consequently, we may have to consider having at least one helicopter for transport between the hospitals.



The project will also demand a considerable number of vehicles both for transport of personnel, supplies and construction. It is estimated approximately 50 vehicles in phase 1. Also, the project will demand approximately 80 to 100 people to build the hospitals, of which 5 to 6 from Norway. We assume to be able to fly in approximately 20 to 30 people from Thailand and hiring the rest locally.

Also for the operation and management of the hospitals, clinics and boats, a considerable number of personnel will be required. We calculate having close to 2 000 people employed in Sudan within 18 to 24 months. This includes doctors, nurses, engineers, kitchen and cleaning personnel, drivers, logistics and even captains for the boats and possibly pilots.

We are planning to establish several companies in Southern Sudan for the daily operations. We are considering establishing Normeca Hospital Supply & Management Co. Ltd, with the responsibility to manage and operate the hospitals and clinics. Furthermore, we are considering establishing Normeca Transport & Construction Co. Ltd, with the responsibility for all construction and transport.



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We are also considering establishing a company in Dubai in the Humanitarian Aid City that the Dubai Authorities have started to build. If so, the company will be named Normeca Middle East co. Ltd, and function as a hub for goods and equipment to Sudan in addition to being the recruitment office for personnel. In this respect, we have also mutual understanding with the Ministry of Foreign Trade at Cuba. They may be willing to provide doctors, nurses and engineers for the project in Sudan.

The Government of Southern Sudan has offered Normeca AS to have a separate security force. In addition, we are contemplating to establish Normeca Security Co. Ltd., with the responsibility for all security on site, during transport that has to be done in convoys, during construction and also the management from Norway.



As mentioned above, distances are formidable and most likely; we will have to acquire at least one helicopter for transport between hospitals. Flight connections both to Khartoum and Nairobi are very poor and the flights are operated by very old aircrafts, most of them the former Soviet Union/ East-block countries. Hence, we will consider acquiring a small aircraft for personnel transport. In this respect, we are considering to establish a company under the name Normeca Air Service Co. Ltd., to take care of the assumed considerable traffic between Juba, Khartoum, Dubai and Bangkok.

The authorities in Southern Sudan will also provide for us a property of between 15 000 to 25 000m<sup>2</sup> in Juba or just outside, where we can build a warehouse, offices and accommodation for the employees at the Juba headquarter. We are hoping that this property will be along the Nile to ensure that service and supplies for the floating hospitals can happen from the same location.

We have also proposed to the authorities that we fly in from Thailand a few teams to improve the roads between the hospitals we are to establish. If they are interested, this will be a separate agreement. Thailand has the same soil as Southern Sudan and the same problems of rain season etc. We thus believe that such teams with the right equipment could improve quite a few kilometres road each day at least to ensure the access for the transport trucks with the hospital equipment etc. At the same time, these teams could train local teams, enabling them to take over the improving of roads after a while.

Finally, we are planning a conference in Oslo as soon as the first payment has been received. To this conference we will invite WHO, UN, IRC, Norwegian Peoples Aid, Norwegian Church Aid, USAid, the Refugee Council, authorities in Southern Sudan, MOFA Norway and others, to discuss working together and make use of the total resources in a better way than today.

## **COOPERATING WITH THE NGOs**

This project will require us to put together one of the largest logistics operation in the history of Southern Sudan to make sure all elements arrive at their destination. It will include accommodation facilities, cantina, sanitation facilities and much more, all container based but also of a very high standard.

We know already that the hospitals will become focal points attracting a lot of people, relatives and others in the respective states, particularly for the city where the hospital is located. Attracting a lot of people is in itself ideal for the many NGOs actively working in Southern Sudan with e.g.



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vaccination, basic education and training. All aspects of this should be considered; could as an example, an NGO provide training in agriculture enabling the farmer to yield more from his land, the hospital could buy surplus of groceries, poultry, meat etc. Another example, in addition to give basic education, could an NGO also provide practical drivers training, people could be employed as drivers for the hospital, the transportation of supplies to the hospitals and even as drivers of the mobile clinics.

Since Normeca will already be present with accommodation, catering etc., it should be worth while for the NGOs to tap into this opportunity.

The important point for Normeca is to contribute to ensuring maximum effect and utilization of all aspects of this large scale operation for the benefit of the people of Southern Sudan. Normeca AS hereby invites your organisation to discuss how to possibly work together to increase the effects from this project.

### **NORMECA HOSPITAL SUPPLY & MANAGEMENT CO., LTD.**

This company will have the responsibility for all operation and maintenance of the hospitals, clinics and floating hospitals including staffing of all areas in addition to logistics.

The company will have a managing director from Norway or Scandinavia plus management in functions like medical (doctor), logistics, triage/paramedic, accounting, technical maintenance buildings, technical maintenance medical equipment, catering, cleaning, IT, maintenance of cars/ambulances, pharmacy, staffing/recruitment and a coordinator towards government and NGOs.

The company will be headquartered in Juba where the authorities will make available a property for the building of required facilities. The company will have approximately 40 to 60 employees who will have the responsibility for approximately 2 000 employees within 18 to 24 months. If the above mentioned option is called, the company will be responsible for a minimum of 10 000 during the next 5 to 6 years.

The Financial Officer of the company will be given the responsibility for accounting in all hospitals and clinics and in addition all other companies in Sudan including the existing Normeca Sudan in Khartoum. Consequently, it is expected that the total accounting function in Sudan alone will employ a minimum of 20 to 40 employees.

Furthermore, we have estimated a need for 50 to 60 engineers/technicians, close to 100 kitchen employees and chefs, more than 200 cleaners to mention but a few examples. It is beyond doubt that the company and Normeca AS have an enormous task and challenge ahead. Still, we perceive the task as somewhat grateful in many respects because the conditions today are so poor that it is difficult to describe. Thus, almost whatever we do, everything will be for the better and will quickly be noticed and felt.

### **NORMECA TRANSPORT & CONSTRUCTION CO., LTD.**

Cost of transportation in Sudan is extremely high; e.g. the cost of transporting one 20 feet container from Mombassa to the first hospital site Kapoete, a distance of approximately 800 km, is NOK 50 000,-. To compare, freight by boat of one 20 feet container from Oslo to Mombassa is approximately NOK 15 000,-.

The same relationship applies to rental of mobile crane, trucks, road bed shovel, excavator and so on not to mention manpower from the established companies.



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During the first phase already outlined above, we will provide approximately 1 000 containers via Mombassa in Kenya or Port Sudan. In addition we have the supply to all the hospitals/clinics of food, pharmaceuticals, consumables etc. When everything is in place, we will have to provide food to 2 000 people 3 times per week every day of the week. As an example, only in meat/chicken/other this constitutes approximately 25 tonnes per month as minimum, to be transported from Mombassa or Port Sudan and distributed all hospitals/clinics all over Southern Sudan.

We envisage that this company will be engaged to handle transport and distribution both during the construction phase and after, during operation. Furthermore, the company should have the responsibility for all ground works and construction of the hospitals in addition to improving the roads.

The company will have Norwegian or Scandinavian management and hire workers from Thailand and locally. It is estimated that the company will have approximately 100 to 150 employees depending on the road-reconstruction projects.

### **NORMECA SECURITY CO., LTD.**

This company will have the overall responsibility for security at the hospitals, guarding of all mobile clinics and the floating hospitals in addition to guarding all transports and our own personnel. The Government has furthermore agreed to provide a dedicated security unit counting 600 to 800 people under Normeca command.



We assume that this company should be managed by a person from Norway with a background from the Police or Army. We further assume a need for extensive intelligence and surveillance particularly during the first two to three years. We thus believe it to be important to find a person with extensive field experience in addition to strong management capabilities.

### **NORMECA AIR SERVICE CO., LTD.**

The distances in Southern Sudan are formidable and the road standard is very poor as mentioned above. We have to assume a very high degree of travelling and transport between the hospitals and/or Juba with respect to follow up from headquarters, replacement of personnel and more. In addition we must assume frequent travels to Khartoum, Nairobi, Dubai and Bangkok.

It is beyond doubt that we at minimum will need one helicopter possibly two or even more if the options are called. In this case, we will have the responsibility for +/- 100 hospitals with more than 5 000 beds/patients in addition to more than 10 000 employees. Supplying food to 15 000 people or more per day will require extensive logistics and follow up.

Today, there exist airports or –strips at or close to, almost all planned locations but there is great uncertainty as to the condition these are in. It is not unlikely that we soon will find that we need a small aircraft to take care of shift transportation within and outside of Sudan. Such a plane may also be rented to the authorities in Southern Sudan when they need one.



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Transportation needs will be tremendous, many of which will be urgent deliveries for one reason or other. We will hence constantly monitor if it will be profitable to acquire a C-130 or IL-76 for these needs. Also in this respect we assume it will be possible to rent such a freight capacity to UN and the many NGOs if not daily, several times per week.

Also for this company, we assume that the manager should be a Norwegian and a pilot, capable of flying the aircrafts when required. The other pilots should also be Norwegian or Scandinavian with education/training from the Air Force. We will further demand experience from a high minimum-number of hours in the air during all weather conditions.

## **NORMECA MIDDLE EAST CO., LTD.**

As mentioned above, we are considering establishing a company in Dubai for recruitment and transit of supplies to Sudan. The authorities in Dubai are planning what they call the Humanitarian Aid City where they hope as many UN organisations and NGOs will establish themselves. In addition, they are seeking a select few companies in related areas to also establish themselves.

The authorities in Dubai are offering low cost offices and tax-free warehouse and more. Inevitably, this is a good offer but we will have to take into account that accommodation and cost of living have become almost insanely high even with our yardstick.

## **SCOPE OF SUPPLY**

All hospitals will be based on flat-packed containers similar to the ones we used in Thailand for the Victim Identification Centre, plus roof, making them look more like prefabricate houses. Each hospital consist of approximately 150 containers, a total of 1 500 plus an additional 12 sanitation containers, a total of 120. In addition, the accommodation units will consist of approximately 80 containers, a total of 800 and a further 10 sanitation containers, a total of 100. We furthermore, expect to set up 60 to 70 containers in Juba for our own use as offices, kitchen, cantina, and accommodation plus sanitation containers. In total, this should be approximately 2 400 flat-packed containers and approximately 225 sanitation containers. In addition, we will need approximately 25 cooling/freezing containers.

Should the option be called, a further 10 000 flat-packed containers will be required at minimum, approximately 1 000 sanitation containers and approximately 200 cooling/freezing containers.

We are also planning to build several special containers that we will bring from site to site, containing everything we need in water/waste water, electricity, office/administration and a tools/equipment container. We will make similar containers as mobile garages/tool sheds for the vehicles and machinery.

We also plan to buy a lot of the fixed equipment and furniture in Thailand. Among other things, we will need closer to 2 000 A/C units and 1 500 beds for the accommodation units for the first shipment alone. In addition, more than 3 000 chairs and an unknown number of tables etc.



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We are also talking about a considerable number of medical equipment. According to the agreement, the hospitals shall be equipped with Scandinavian standard. In this respect, we already have most manufacturers in place.

Independent of us potentially improving the roads or not, we will need a number of trucks and machines to prepare the ground, for water pipelines etc. In this respect we are planning to buy used trucks and machinery either in Dubai or Saudi Arabia. There are regular auctions in Dubai for such equipment and we may get very good equipment at favourable prices.

## CONCLUSION

It is an honour to be selected by the G.O.S.S MOH for this project. We are both proud but also humble with respect to the immense task ahead. At the same time we are confident we can deliver a significantly improved health care service to the people of Southern Sudan on behalf of the Ministry.

Our extensive field experience from a variety of projects around the world will be made to good use. Our partner network is on high alert and personnel profiles have been made ready for the soon to start recruitment process etc.

Once the final signal from the Ministry has been received, the project will start ensuring the first state hospital ready for use by the people in Eastern Equatoria early 2007.



Oslo, September 25, 2006.

**NORMECA AS**  
Jan Karlsen

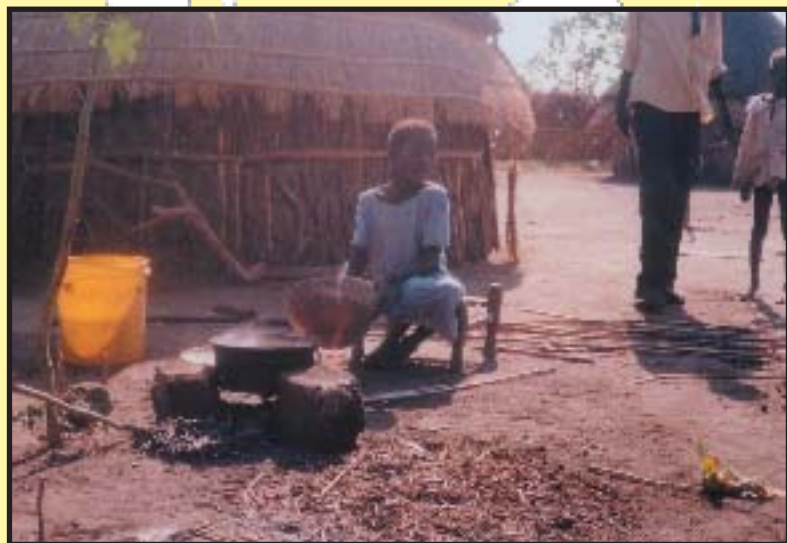


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# SUDAN PICTURE GALLERY



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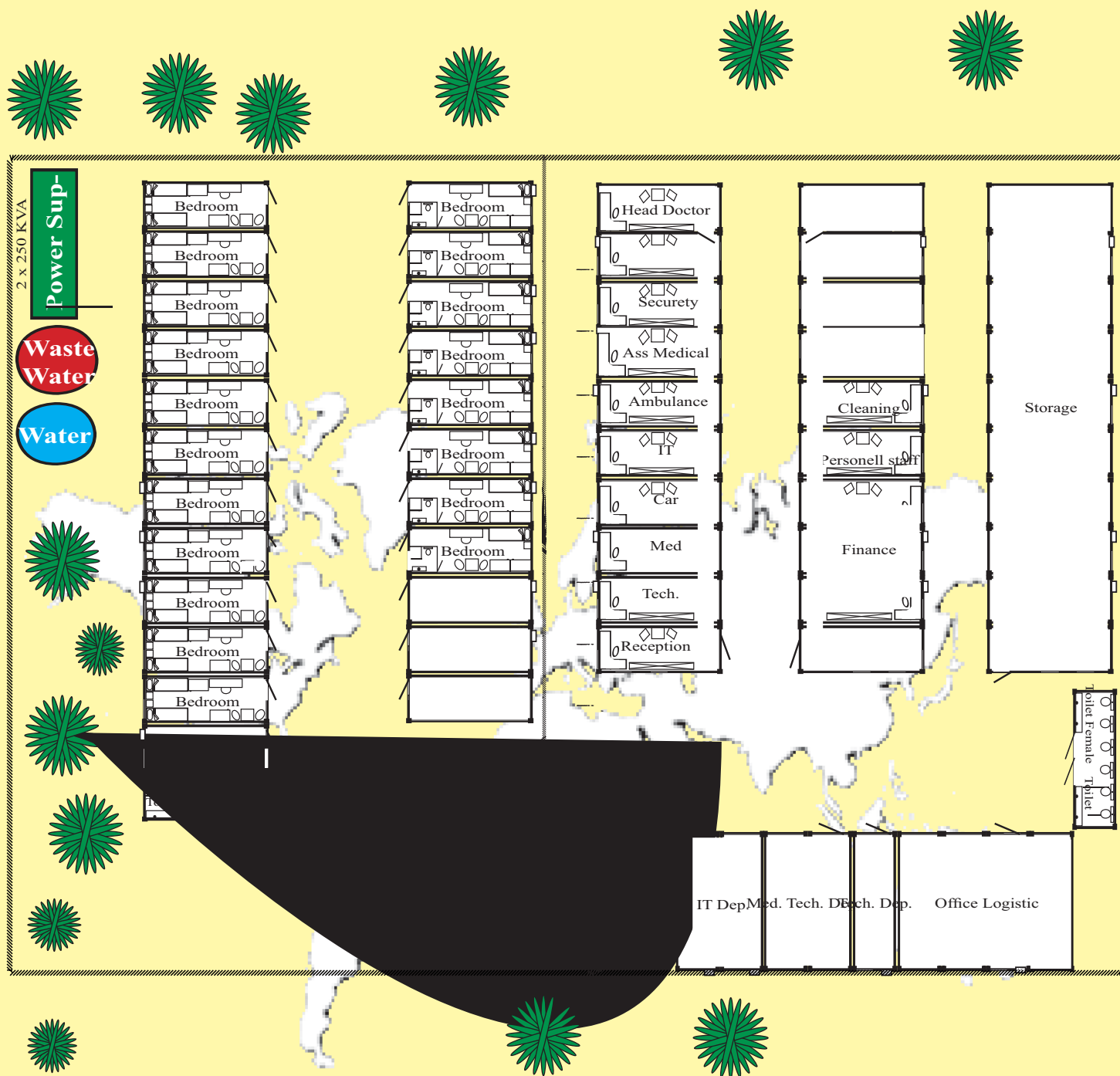




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# Accommodation & Office



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# **100 BEDS HOSPITAL IN FLATPACK CONTAINERS**



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# SEMI-MOBILE EMERGENCY HOSPITAL

## Concept Outline

Every disaster and emergency situation has two main phases; emergency relief immediately after the disaster and aid for reconstruction. For perhaps obvious reasons these two have been separated clearly in terms of aid provided. However, Normeca would argue that it is not only possible but also highly recommendable to see these two connected ensuring a longer-term horizon in midst of the emergency situation. This should be of particular interest to NGOs, governments providing or paying for aid and support in an emergency situation and other aid institutions.

### Introduction

Normeca AS objective with this concept is to fulfil both short term and immediate needs for medical treatment in a disaster area or areas with immediate need for relief for other reasons, while at the same time securing longer-term need and interest being taken into account.

Mobile and primarily tent-based hospitals have become state of the art wherever medical relief is needed after a disaster and in an emergency situation. They are quite inadequate for longer-term operation and were of course never intended for this.

Normeca AS is introducing a hybrid model: A central hospital unit and smaller medical clinics all based on flat-packed containers that may be connected and designed according to the need and purpose with a very short building period. The concept was tried and tested in Thailand after the Tsunami. Here, the victims' identification centre was built using 64 flat-packed containers and built in 10 days including an extensive infrastructure. Containers of this kind may have a lifetime up to 20 years or more dependent on satisfactory maintenance.

Another key ingredient in this flexible concept is the use of local resources to prepare all infrastructure and build the semi-stationary hospital. Also, emphasis has been placed on using standard material and equipment of various kinds that may be purchased locally. Furthermore, medical and other equipment may be moved to an ordinary hospital upon closing, assuming such a hospital has been built during the reconstruction phase.

The smaller medical clinics or satellites are based on the same principles and should be placed in an area around the central hospital unit i.e. in a radius of 50 to 150 km depending on the emergency situation and population etc. The concept also includes ambulatory communication between the satellite and the central unit. This way, the turnkey solution will provide relief to a large number of people in a very short time. Also, a large number of people that would not require the services offered by a hospital may still get their medical support at the medical clinic and thus not overburdening the central unit more than need be and increasing the capacity to focus more on the more severely injured people.

When the units are to be disassembled and moved alternatively split into smaller units, this is easily done in this flexible and modular solution.

On the following pages, we have briefly described the many modules and functions included in this flexible solution.



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# The Central Hospital Unit

The hospital unit consists of 12 different departments fully customisable to the various needs and customer preferences. The number of beds may be increased or reduced according to the usage. Based on more than 20 years of experience in the business of medical equipment, Normeca AS has prepared standard inventory for these departments and all equipment meets Scandinavian standards for hospital equipment.

Equipment lists may be altered and adjusted according to the customers' preferences. Normeca AS has an extensive network of manufacturers and suppliers of medical equipment all over the world. We can thus meet any requirement in any price range and quality.

Liste # 01- A		Pre. Op.						Equipm					
Project No.:	F-051193	Ref. no.:	Formeca/kundenormeca2005/F-051193	Date:	22-10-2005	Project:	100 beds hospital						
Indexcolor:	Yellow	Ref.:	01-01-3-AL1	Page:	see left margin	Project:	0						
Customer:		Code:	05-0170/150/765100	Prices:	40.117	Agent:	Normeca						
Executive Officer:	Jan Karlson	Valuta:	EUR	Value:	EUR	Container No.:							
Pos.	Equipment Name	Art. No.	Manufacturer	Col./Ref.	Country of Origin	No.	Pos.	Net Weight	Gross Weight	Volume	Consum	NATO Stock No.	Container No.
1	Defibrillator	LG-AED	MRL		USA	1							
2	Mattress for surgery	36507E	Medifa		Germany	2							
3	Trolley w/ drawers		Audica		Italy	1							
4	Suction ejector (including cable)	42517-000901	Danmed		Denmark	5							
5	O2 flowmeter (including cable)	23015-000901	Danmed		Denmark	5							
6	Ultrasonic heater (included stand, cable)	4001-000901	Danmed		Denmark	5							
7	Cup, stainless steel, 1 liter	1305-000901	Danmed		Denmark	5							
8	Tray (including cable x2)	32145-000901	Danmed		Denmark	5							
9	Inhalation pump	vac model 59	Alaris		USA	1							
10	Camp Bed w/ head and foot tilt	84-9045	Normeca		Norway	5							
11	Mattress for oto	84-31090	Vestmed		Norway	5							
12	Oxygen cylinder 2.5 liter	502193	Norsk Hycro		Norway	5							
13	Oxygen regulator	109175	Norsk Hycro		Norway	5							
14	Oxygen mask, adult		Gima		Italy	5							
15	Oxygen mask, child		Gima		Italy	5							
16	Oxygen special bag		Bostard		Italy	5							
17	Laryngoscope	34203	Gima		Italy	1							
18	Resuscitation Kit	34202	Gima		Italy	1							
19	Patient monitor	PM 5000	Mindray		China	5							
Total								0	0	0			



## Operating Department

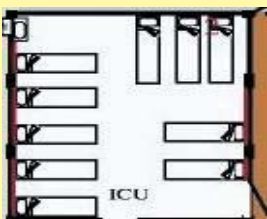
The operating department consists of 2 operating theatres and 2 pre-operating rooms. Hence and under normal conditions, the hospital has a capacity for 12 to 60 operations each day depending on type of surgery. In addition, the pre-operating rooms may be converted to operating theatres if needed, increasing the capacity to 24 to 120 operations per day. Limiting factors are only instrumentation, sterilization unit and medical personnel.

The department is well equipped with state of the art equipment within anaesthesia, ventilation, operating tables and –lamps, diathermia, vacuum pumps, instrumentation and monitoring.



## Intensive Care Department (ICU)

The ICU department is fully equipped to meet any situation with up to date patient monitoring, respirators, infusion pumps, rail mounted suction, oxygen flow meters and other required equipment for 5 beds that may be extended with a further 2 or 3 if necessary.



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## Post-OP Department

This department has 5 beds and is intended for patients awakening after operation and not in need of particular monitoring and care. The department is still well equipped with the relevant and required equipment.

### Bedpost

Two bedposts are included; one for men and one for women, a total of 100 beds. All necessary equipment and inventory to run the department is included like mattresses, bed linen and simpler medical equipment necessary for this unit.



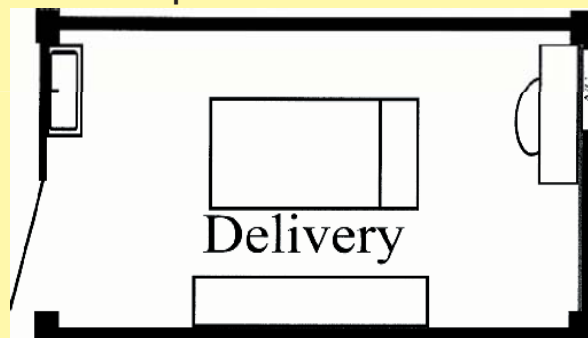
### Delivery Room

A simple delivery room is included and placed in connection with the operating departments. It contains the required delivery table and equipment and the possibility to provide N2O.



### Gynaecological department

A separate room for gynaecological examination of patients is included with all necessary equipment.



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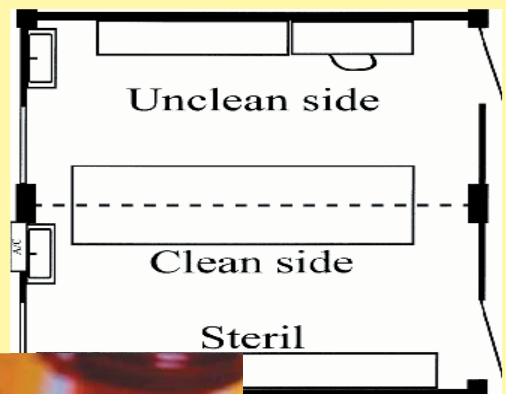


## Sterile unit

The hospital is equipped with a very good sterile unit fully equipped with necessary autoclaves, equipment for packeting and other inventory.

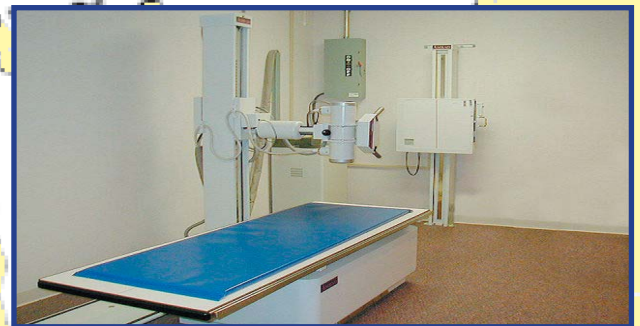
## Pharmacy

Room is also available for and equipment included for a Pharmacy. This will have all necessary inventories with dedicated cooler for medicines etc.



## X-Ray Unit

The X-Ray unit is very well equipped with a fixed digital x-ray machine in addition to a more simple mobile x-ray machine that may be moved around in the hospital.



## Laboratory

The laboratory is equipped with the most necessary equipment but is excluding the more advanced equipment for various analyses etc.



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## Doctors' Office

The hospital includes a total of 6 doctor's offices or examination rooms; 3 for men and 3 for women. They are all equipped with relevant medical equipment and other inventory in addition to PC and printer.



## Emergency Reception

Two emergency rooms; one for men and one for women are included. In addition there are two resuscitation rooms also here, one for men and one for women. All rooms are equipped with the necessary emergency equipment.



## Endoscopies room

A separate room for endoscopies has been made available with equipment for gastro-endoscopies including monitors and the possibility to watch duo.



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## Dentists office

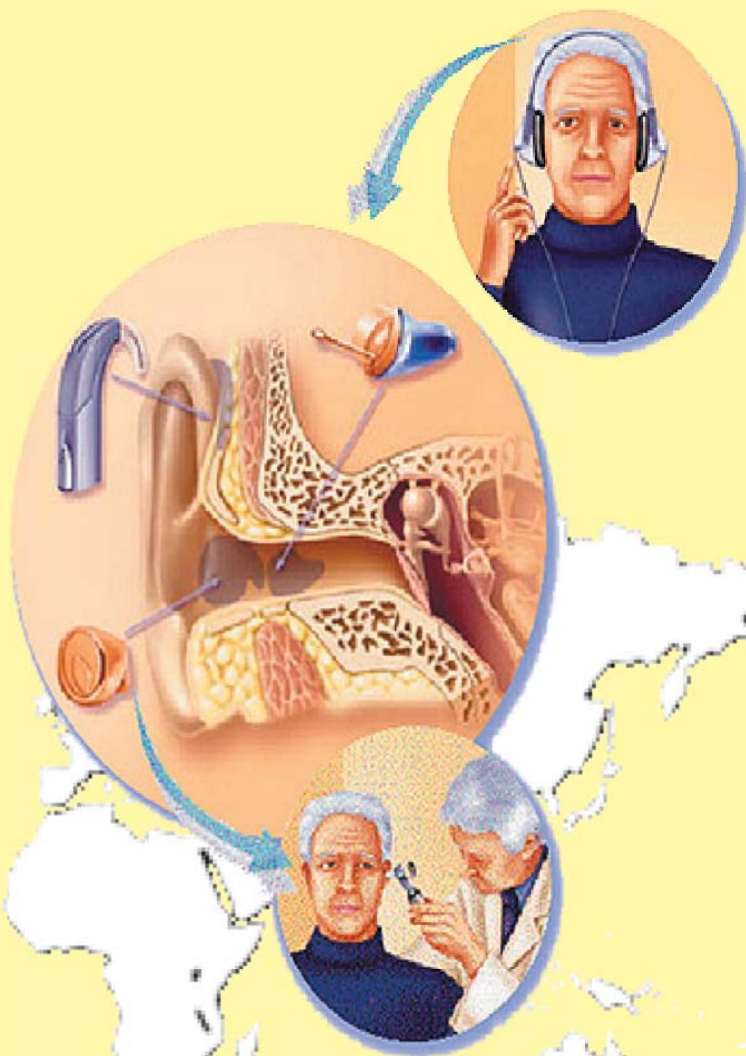
A dental room is included with necessary equipment including a dental unit, instruments and other related equipment.

## Oral Department

A department for examination of ears, nose and throat is included in the hospital with all necessary and required equipment.

## Eye Department

The hospital has a good department for eye examination with relevant inventory and equipment.



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## Staff Quarters

A separate wing for staff is included with 10 beds that easily can be increased to 20 beds by converting the rooms to double rooms. These quarters are for security personnel and visiting professionals.



## Kitchen

The hospital is equipped with good and modern kitchen facilities for preparing food to 100 patients and all staff. In addition, there is a canteen with room for approximately 50 people. All relevant inventories from cutlery to dishwasher are included. There is also included a 20" freezing/cooling container for food storage.



## Laundry

The hospital has its own laundry with large professional washing machines and dryers in addition to ironing facilities.



## Maintenance Department

A separate workshop with necessary equipment for servicing medical equipment and the rest of the hospital is included.



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## Administration Offices

Four offices for administration is included. These are equipped with necessary office inventory including PC and printer.



## Meeting Room

A meeting room is included with relevant inventory e.g. chairs and table, projector, flip-over etc.



## TV – Restroom for staff

Two restrooms for staff are equipped with relevant inventory including TV; one room for men and one for women.



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## Cleaning

A number of smaller cleaning rooms has been distributed across the hospital equipped for cleaning of the hospital.



## Logistics/Warehouse

The hospital has a sufficient capacity for storage of supplies, consumables etc. with office space including PC and printer.

## Personal Hygiene

A module for personal hygiene is included both for patients and staff. The module contains everything from soap and shampoo to towels and other relevant material.



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## IT and Communication

The hospital has its own switchboard that connects to the local telephone cables in the area. This enables telephone- and data communication from every office and department where this is needed.

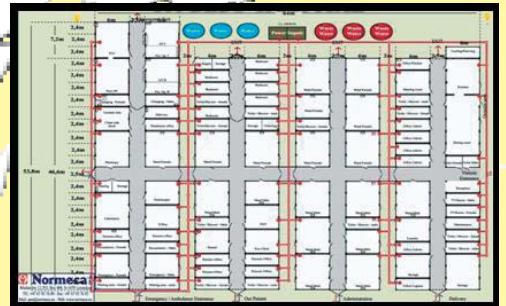


## Electricity and Water

The hospital can connect to the local net for electricity and water. If this does not exist, the hospital will be configured with two 200 KVA generators. This should be sufficient also for heating and A/C. In addition, the hospital comes fully equipped with necessary piping for water and drainage. In areas where the temperature gets below 0°C, the piping is provided with heating cables and elements for use in the water tanks. The water system includes tanks for clean water inclusive of filters, pumps and septic tanks.

## Heating and A/C

All containers are equipped with wall mounted heating panels and A/C for every room. All corridors are tiled.



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## Consumables

The hospital is provided with consumables for 2 to 3 months operation. These include medical consumables, consumables for dentists in addition to necessary washing powder, paper towels and more.



## Management

If required, the hospital may be supplied with management for a shorter or longer period. This may even include professional staff like doctors and nurses.

Standard management includes project manager, logistics manager, medical manager (doctor or senior nurse), a medical engineer and a responsible for maintenance of buildings and other installations (preferably electrician).



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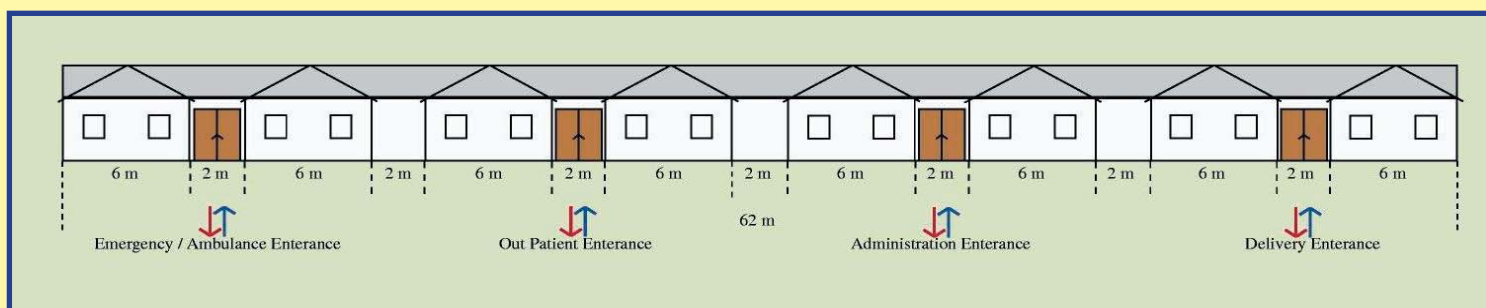
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## Satellite Clinics

Each satellite consists of 22 containers (to be reduced according to need). The clinic includes 2 doctors' offices or examination rooms, a simple pharmacy, a combined outpatient/operating room/delivery and emergency room. In addition, the clinic contains 2 beds for post op and 6 beds for patients (3 for men, 3 for women). It includes also a simple kitchen and restroom. The clinic is equipped as the hospital but related to the departments.

It is recommended that each clinic is set up with an ambulance. Both new and used ambulances may be supplied.



## Guarantee

The hospital with all equipment and material is supplied with a 1-year guarantee against malfunctions from manufacturing. All malfunctions and errors will be corrected within 72 hours if other is not agreed from situation to situation. Proviso is made for local circumstances and possibilities for transport of both personnel and equipment/parts.

Included with the hospital, are a set of spare parts that based on experience will be most in demand.

**NORMECA AS**  
**21.10.2005.**

**NORWEGIAN DISASTER MANAGEMENT.**



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# NorCat Floating Hospital

## General

The NorCat Floating Hospital is a fully equipped and functional hospital. It is based on a catamaran hull thus providing an exceptional amount of available floor space. With its shallow draught it is very well suited for use in all types of navigable waterways.

The Floating Hospital will be based on a new type of catamaran who needs less than 1 metre deep water.

*This description is based on 42 metres catamaran. The actual catamaran for South Sudan is approx. 30 - 35 metres long and approx. 9 metres wide. The layout inside will therefore be different from this description.*

**The NorCat Floating Hospital is consisting of:**

- Sea Lord Catamaran
- On-board reception area
- Triage
- Pre-Operating room
- Operating room
- ICU
- Recovery
- X ray facilities
- Laboratory
- Sterilization
- Ward for patients
- Pharmacy
- Dental
- Wards for crew and staff
- Dining facilities
- Laundry



**Medical modules (with all necessary specialty instruments) that can be included are, amongst others:**

- General surgery
- Various categories of specialty surgery
- Ophthalmology
- Gynaecology
- Delivery
- ENT

## Optional equipment:

- Helicopter pad helicopter landing platform
- Landing ramp for various types of vehicles
- Ambulance

The modules can be supplied in any configuration wanted and the NorCat can be delivered in different sizes from 20 m long up to 42 m long.



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## Sea Lord Catamaran

The Sea Lord Catamaran is designed with symmetric hulls and optimized for low hull resistance, sea keeping properties comfort.

The vessel to be built of aluminium, all welding to be in conformity with approved drawings from DNV rules. Welded construction in structural parts.

Shell plating to be strengthened by way of sea chests, drain plugs etc.

Drainage holes to be made in all frames/ supports where appropriate.

### Main Dimension

Length overall	41,77	meters
Beam overall	13,47	meters
Beam moulded	13,17	meters
Draught (propeller)	2,30	meters
Draught moulded	3,90	meters

### Speed and Performance

Max speed 18 knots with 2 x 1050 kW

### Upper deck

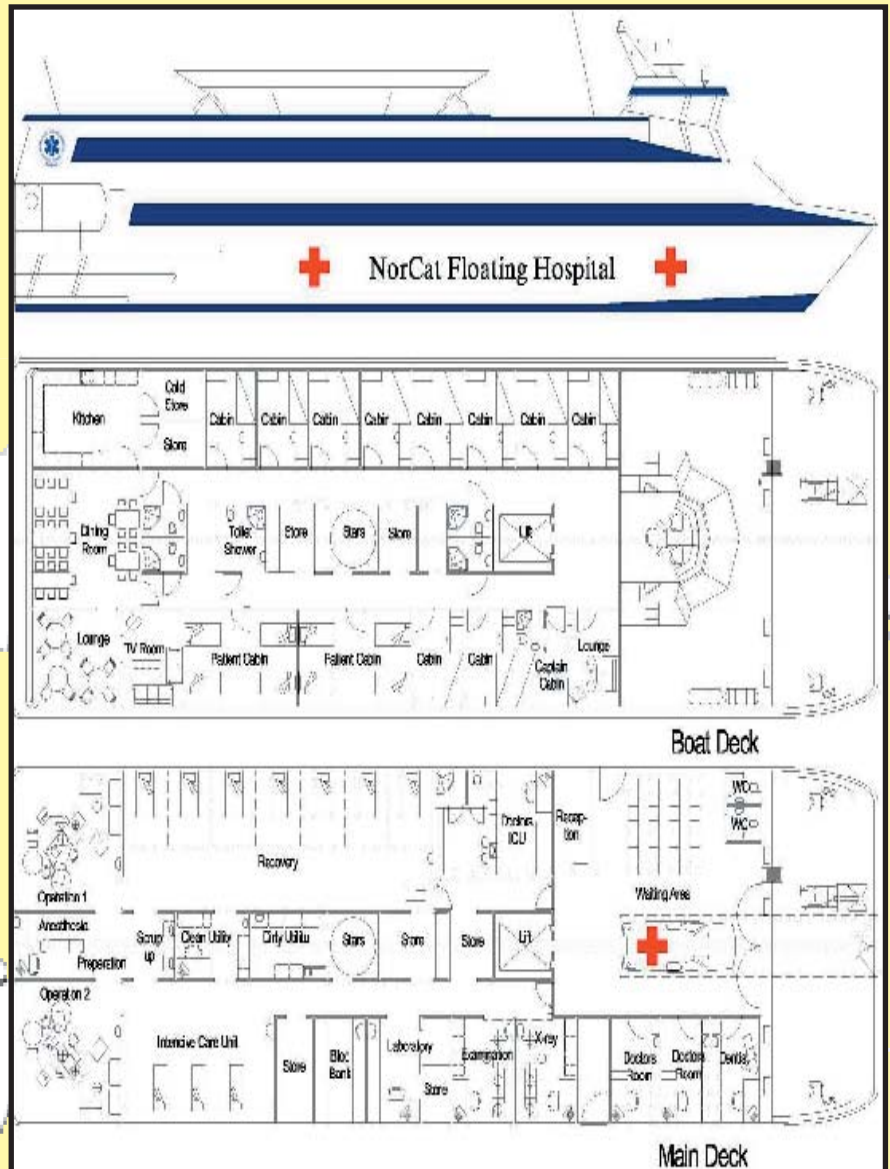
Small helicopter landing area  
Stretcher lift to boat and main deck  
Communication office  
Wheelhouse

### Boat Deck

Gallery with cold storage and storage  
Dining Room for 31 people  
TV Lounge  
Cabins, 4 beds 2 cabins  
Cabins, 1 beds 10 cabins  
Captains Cabin & Lounge 1 cabin  
Toilet & Shower 5 cabins  
Storage 2 cabins  
One special fast pick up boat with arrangement for stretcher

### Main Deck

Two Operating Rooms with common Anesthesia and Scrub Up area  
ICU with 3 beds  
Clean Utility  
Dirty Utility  
Recovery with 7 beds  
Storage, 3 Rooms  
Blood Bank  
Laboratory incl. storage  
Locker incl. toilets & shower  
Doctor ICU  
Resuscitation / Examination  
Resuscitation / X-ray



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Reception and Waiting Area for 28 people, incl. 2 toilets  
Arrangement for ambulances with hydraulic ramp for beach landing

Under main deck  
Morgue  
Medical stores  
Refrigerated/freezing stores for food

### **Equipment**

To equip each of the above mentioned rooms the floating hospital may include – amongst others – the below mentioned modules:

#### **Surgical module**

Each surgical module contains sufficient medical equipment to establish an operating theatre with two operating tables.

This is the only module containing lighting equipment, two operating- and two examination lamps.

Two autoclaves allow for continuous sterilization of instruments and textiles. The autoclaves can be heated either electrically or with kerosene, gas etc.

The module also contains electrical suction apparatus, microscope and centrifuge.

#### **Nursing module**

Each nursing module contains all the necessary nursing equipment to establish and maintain a surgical ward for 50 inpatients.

#### **Medical Officer module**

Each medical officer module contains equipment for establishing a simple outpatient department for diagnostics, and where triage and emergency treatment can be provided.

#### **X-ray module**

The X-ray module contains a complete X-ray department including X-ray machine, manual developing equipment, darkroom equipment, chemicals, films, light boxes and protection equipment.

#### **Sterilization module**

The Sterilization module includes equipment for Clean and Dirty Utility such as steam autoclave, working table, heat sealer and instrument table.

#### **Operating Room module**

The Operating module contains a complete Operating department including operating table, ceiling light, diathermy incl. trolley and acc. Electrotom 640, anaesthesia machine w/ respirator, ECG – monitor, defibrillator, supply of O<sub>2</sub> and N<sub>2</sub>O, etc.

#### **Intensive Care Unit module**

The module contain equipment for treatment of three patients with volume respirators, defibrillator, ECG monitor, trolley w/ drawers, infusion stand, suction ejector, O<sub>2</sub>-flowmeter, catheter holder, infusion pump.



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### **Emergency and Triage module**

The Emergency and Triage module include equipment to perform clinical assessment that determines the time and sequence in which patients should be admitted. Equipment include portable consultation lamp, examination table, small mobile table for prescriptions, set of otoscope / ophthalmoscope, administration desk for arriving patients, portable pulseoxymeter, external cardiac defibrillator, portable ventilator, portable 3 channel ECG, emergency kit, etc.

### **Pharmacy Module**

This module will contain drugs and other pharmaceutical items. The contents will be adjusted to reflect the geographic areas of operations of the NorCat, as well as its intended use.

### **Dental Unit**

This module consists of three modules:

- Dental Tools
- Dental Equipment
- Dental Consumables

### **Office Module**

The module contains general office supplies

### **Maintenance Module**

Equipment includes necessary tools and spare parts to maintain the medical equipment.

### **Laundry Unit**

The module contains equipment for washing, drying and ironing.

### **Kitchen**

The module contains general kitchenware.

### **Dining Module**

The module contains general dining tools.

### **ENT**

The module contains equipment for examination of ear, nose and throat.

### **Eyeclinic**

The module contains general equipment for eye examinations.

### **Laparoscope**

The module contains instruments for minimal invasive surgery and examinations.

To make a complete an installation with Power Supply, water and sanitation will have following optional equipment:

### **Optional Supply**

Helicopter pad helicopter landing platform  
Landing ramp for various types of vehicles  
Ambulance



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**NorHosp ®**

Norwegian Mobile Hospital and Disaster

**NorAid ®**

Norwegian Medical Aid Unit

**DentalMan ®**

Mobile Dental Unit

**NorCat ®**

Norwegian Floating Hospital

**MultiSpace ®**

Mobile Medical Clinic

**HeatPac ®**

Personal Heating System

**Surgical Supply Kit 100 - 10**

**NorFor**

Norwegian Mobile Forensic Medicine

**NorBase ®**

Norwegian Mobile Container Hospital

**Chrifa ®**

Camp Beds and accessories

August 2006\_gk



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