Report on current situation in the health sector of Senegal and possible roles for non-motorised transport interventions

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Time- and Workplan: See attachment

Prepares by:

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1. Persons and Institutions interviewed:

Main NGOs and international organisations active in the country are ENDA, The Red Cross, GTZ Germany, Family Help International (USAid), SWAA, of which the following persons were interviewed:

1.1 High level

- Dr. Wolfram Hammer / GTZ Health Division / Eschborn, Germany
- Dr. M. Niechzial / EPOS Health Consultancy / Bad Homburg, Germany

- Mr. Mamadou Ndiaye / ENDA Graf / Dakar, Senegal
- Abdulaye Ba / ENDA Graf / Dakar, Senegal

- Dr. Dramé / Director of Health / Ministry of Health, Dakar, Senegal
- Ms. Aichatou Diop Diagne / Division of Primary Health Care / -“-
- Ms. Louise Seck Habib / “-“
- Mr. Ndao / Director of Prevention / Ministry of Health, Dakar, Senegal

- Ms. Sow / Project Manager / SWAA (Society for Women against Aids in Africa), Dakar, Senegal

- Mr. Manjang Diagne / SWAA (Society for Women against Aids in Africa), Dakar, Senegal
- Ms. D. Diop / Director / Intern. Red Cross, Dakar, Senegal

1.2 Province-/District-/Local level

- Dr. Hussein Fall / Director Health Post Bakjedi / Linguerre District, Senegal
- Ms. Fatama Gory Dien / Midwife / Health Centre Linguerre / Linguerre District, Senegal
- Mr. M.Diouf / Director Health Post Gniby / Kaffrine District, Senegal
- Dr. Dembe Dione / Director Health Centre Linguerre / Linguerre District, Senegal
- Mr. Mamadou Diouf / Director Health Post Boulel / Kaffrine District, Senegal

2. Situation in the health sector of Senegal

2.1 Main medical health problems

Child mortality, maternal death, malaria and sexual diseases (incl. AIDS) are the main medical health problems in Senegal. This is proved by both the statistical analysis and the information given in the interviews on the different levels of health care in Senegal. In view of the Millennium Development Goals, the health situation in Senegal reflects the global focus of the health related MDGs:

MDG No.4: Reduce child mortality
Every year nearly 11 million young children die before their fifth birthday – mainly from preventable illnesses

MDG No. 5: Improve maternal health
The risk for women of dying in childbirth is one in 48

MDG No. 6: Combat HIV/Aids, malaria and other diseases
Africa is worst among all countries

In addition to that, Aids related work, (youth-) education, sensibilisation and councilling (psychological assistance to HIV affected people and linking them to facilities for further treatment) are other prior issues, not performed in an optimal way in Senegal.

It has to be emphasised that - though prevention of diseases is on top of the national agenda - it is *treatment* that is daily reality in the country, especially in the remote regions.

Generally spoken, there is a high disparity in quality and extent of health services between urban and rural regions, which is resulting in dispare data on health indicators and also on other social indicators throughout the country and generally worsen from western to eastern districts (see map below).

According to both the statistical analysis and the discussions with the different actors in the health sector, the regions with the lowest level of health care provision and hence the greatest problems in public health are the regions in the East and in the South (Louga, Kaolack, Tambacounda) and the region of Casamanche.

Some facts for Senegal[1]:

Malaria is the primary cause of morbidity (25%)

Maternal death: Of every 10000 women who give birth to a child, 45 die in urban areas - but nearly 100 die in rural regions

The infant mortality rate is 58 per 1000, the child mortality rate is 113 per 1000 – but with significant disparities between the regions

HIV is increasing recently – but from a low basis

Malnutrition remains a public health issue: almost 1 out of 5 childs are underweight)

Vaccination coverage against the main childhood diseases remains insufficient: Only 42% of all children between 12 and 23 months received all necessary vaccinations

[1] Source: Poverty Reduction Strategy Paper. Ministry of Economy and Finance. Dakar 2002

Limited or absence of access to safe water is increasing health problems in the rural regions of Senegal – affecting mainly children's health

Figure 4: Vaccination Coverage (DPT3) Trends

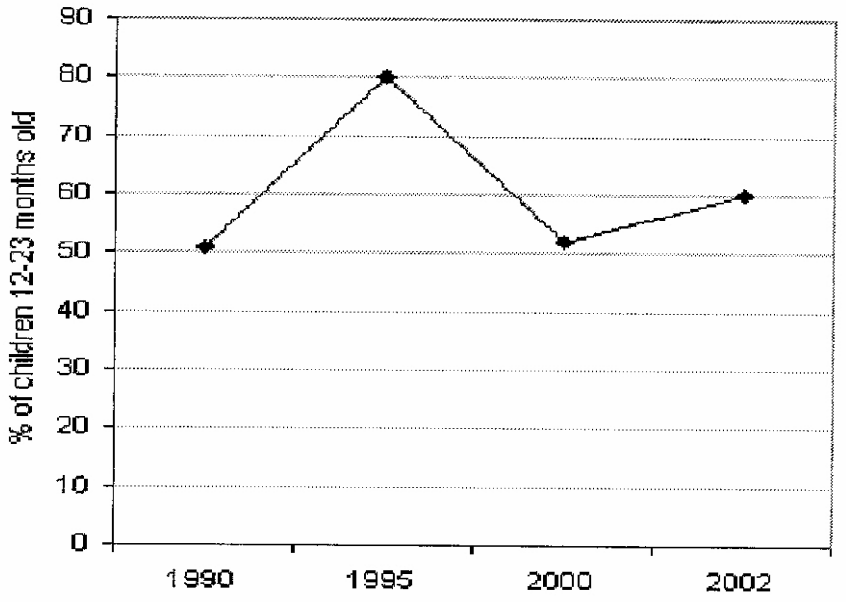
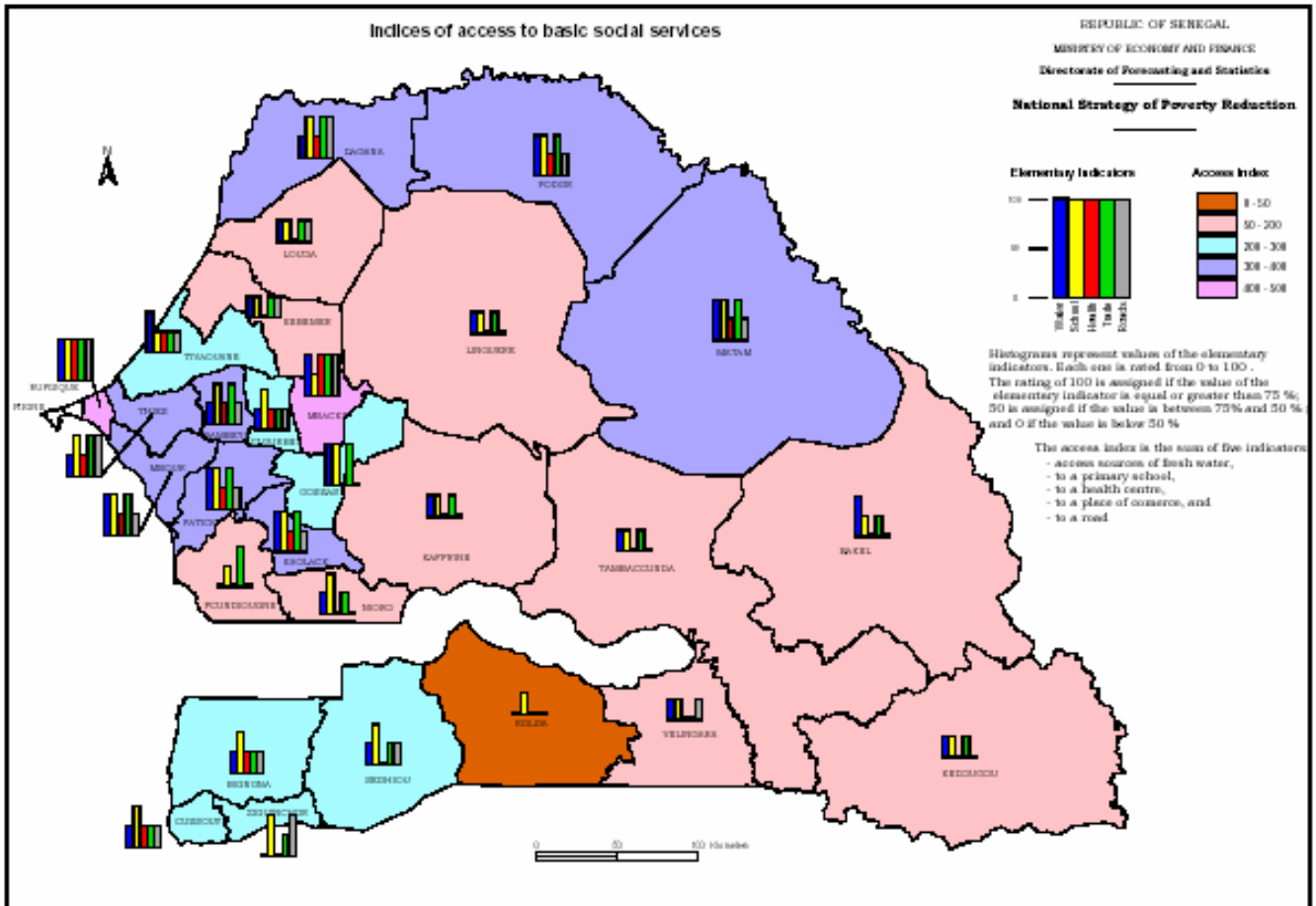


Table 4: Vaccination Coverage (DPT3) Trends

Source: WHO/Global Summary

1990	1995	2000	2002
51.0	80.0	52.0	60.0



2.2. Main structural problems

In relation to the administrative structure of the country with 10 regions (provinces), 30 departments (districts), 48 communities, 91 counties and 320 subcounties, the organisational structure of the national health care system in Senegal is divided in three levels:

1. Regional Hospitals (Hospital/Clinic Provincale)
2. District Health Centres (Centre de Santé)
3. Health Posts (Poste de Santé)

In addition to that the country has two university hospitals and a minor number of private clinics, which have no real meaning in health care for the vast majority of the population. On the lowest level there are numerous health points (Case de Santé), referring to the health posts. Due to the 90% Islamic population, ecclesiastical, church related health services provided are not playing a significant role in the country.

The health budget of Senegal of 23,2 Mrd. CFA in 1999 was composed of 53% by government, 11% by the population, 6% by communities and 30% by international partners[2]. Each community is contributing to the communal budget by paying fixed fees for consultancy, vaccination, immunisation, child-, pre- and postnatal services.
In service delivery and organisation of the rural health sector the following problems were prioritised[3]:

- **lack of adequate health service provision due to poor infrastructure of health facilities:**
  1 Hospital per 545800 inh. (WHO: 1/150000)
  1Health Centre per 175000 inh. (WHO: 1/5000)
  1 Health Post per 11500 inh. (WHO: 1/1000)

- **lack of personal:**
  1 medical doctor per 17000 inhabitants (WHO: 1/10000)
  1 Health Worker per 8700 inh. (WHO: 1/300)
  1 Birth Assistant per 4600 inh. (WHO: 1/300)

- **lack of training and education**

- **lack of motivation of staff to work in rural regions**

[2] Source: „Santé pour tous“. Enquete Senegalaise sur les indicateurs de Santé 1999. Ministere de la Santé 2000
[3] Source: „Santé pour tous“. Enquete Senegalaise sur les indicateurs de Santé 1999. Ministere de la Santé 2000

Reasons for the lack of rural personell and especially for the low motivation are that many doctors are coming from military medical education and send to rural areas. They have learnt to treat with modern equipment and do not know or accept to improvise under rural poor situations and capacities. Doctors and medical personal from Dakar do not like to work in rural regions far from their families. They often do not understand local people and their culture and vice versa. These circumstances and the absence of continued training on medical issues after university education result in a very low motivation and effectiveness of their work.

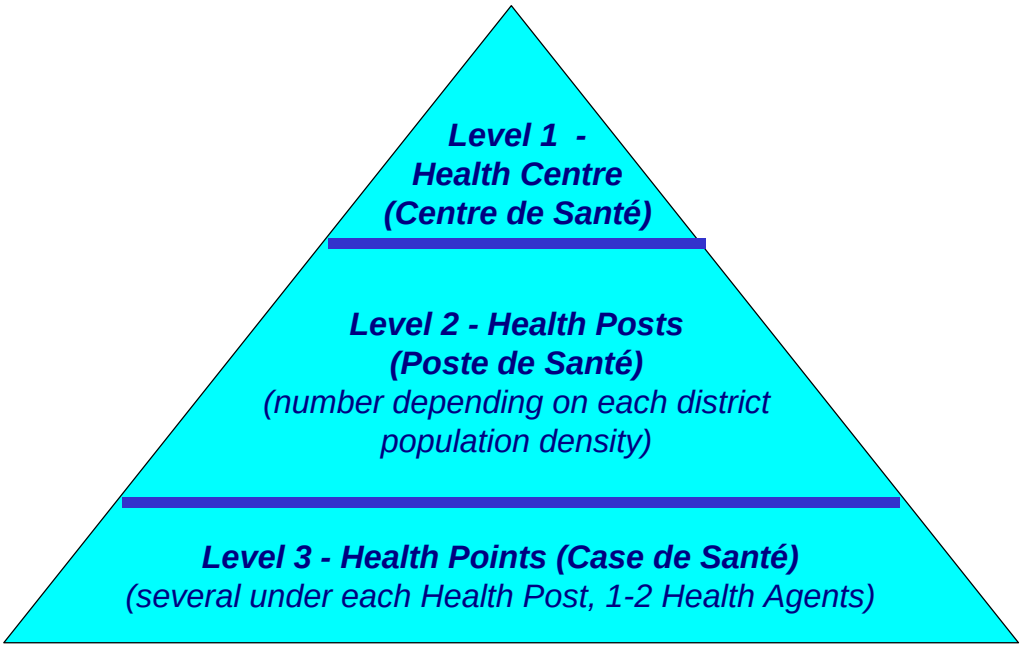
In addition to that, there are two categories of employers in the health sector of Senegal: The administrative governmental contracts and the workers employed by the National Health Committee. Latter have a lower salary and a lower position with less power in the province they work and are therefore discouraging, but due to financial constraints the National Government has not contracted personal since 10 years.

The low level health workers (midwifes, health workers at health points and voluntary workers) are more or less working without any salary and therefore are low motivated to increase their working area and be more efficient.

2.3. Rural health care structure

Thee are three levels of rural health services. The high level health centre/health clinic (Centre de Santé) with some few operational facilities and of about 1 to 2 medical doctors and 15 to 20 people health staff. The health posts (Poste de Santé) have about 4 to 5 health workers. There is no medical doctor working. The number of health posts per health centre is depending on the size of the district and its population density. Under each health post there are numerous health points (Case de Santé) with 1 or 2 health agents and a midwife.

Rural health care structure in Senegal



For the vaccination campaigns, non-paid voluntary health Workers (of DISC (Decentralise Initiative Sante Communale) and low-paid workers of VASC (Voluntary d'App. A la Sante Communite / Ministry of Youth) are assisting the health work periodically on the level of health post and health points.

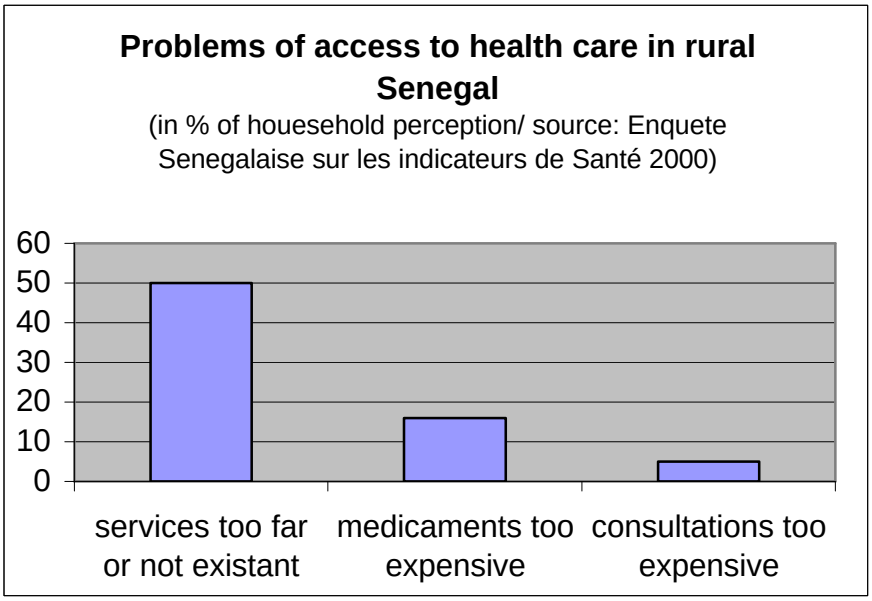
2.4. Rural access to health services[4]

Asked for the most urgent problems concerning transport in rural health care, the statistical analysis says that due to extreme distances and environmental conditions (sandy or muddy roads) only 32% of rural households have regular access to a health centre[5]. Prior problem are the limited means for bringing the sick or injured to health facilities and therewith insufficient options for emergency health care. The above mentioned poor health infrastructure in rural Senegal results in long distances for households to travel to health services. In addition to that nearly 60% of rural communities are only accessible via murram roads or sand pistes, which is worsening travel conditions and expanding travel time and costs in rainy seasons or during harmattan (sand storms from the Saharan desert during dry season).

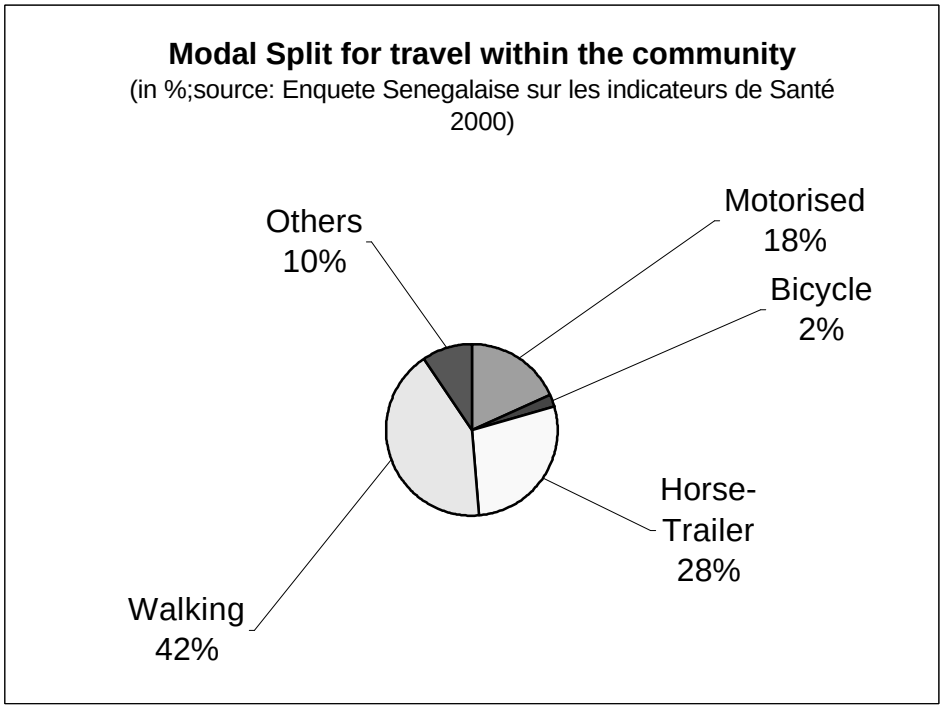
[4] Source: „Santé pour tous". Enquete Senegalaise sur les indicateurs de Santé 1999. Ministere de la Santé 2000
[5] Source: Poverty Reduction Strategy Paper. Ministry of Economy and Finance. Dakar 2002

For 80,5% of the households the (poor equipped) health post is the only accessible health facility in a average distance of 4,3km and an average travel time of 30 minutes. The next health centre is in an average distance of 23,5km, the next hospital is more than 30km far[6].

This results in low frequency of visits of health facilities of higher level (health centre, hospital).

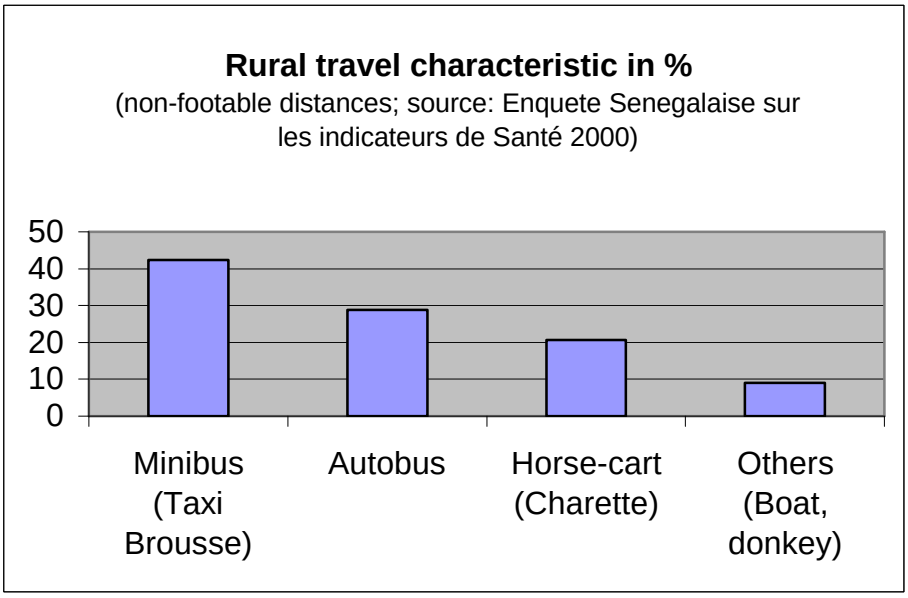


As in most other African countries, the rural population is relying on walking as the dominant mode of transport-however the horse drawn trailer plays a significant role especially in the agricultural production and marketing. The modal split is shown below.



[6] Source: „Santé pour tous“. Enquete Senegalaise sur les indicateurs de Santé 1999. Ministere de la Santé 2000

The primary mode of transport for longer communal and non-footable distances is the horse- and donkey trailer (28%) and sometimes motorised transport (18%). However, for the motorised transport it has to be pointed out that the statistics above and below show the average situation which differs from district to district: The more remote the region the less the meaning of motorised transport.



Most common low-cost mode of transport in rural Senegal: Horse- and donkey-trailers

2.5 Experience of other organisations

In order to get an overview about the experience made with transport in health care by relevant actors in the health sector of the country, some highlighting facts are listed below. To summarize the experiences made with different means of transport are not homogeneous. It can be concluded that it will be very difficult to estimate the effectiveness and impact of purchase of bicycles, motorcycles or cars on the different health care levels.

- ✍ The organisations interviewed, often are facing financial constraints and have limited budgets to cover health work related transport. With regard to their transport fleet, even the main offices of some NGOs in Dakar have problems to cover costs of maintenance and repair of the transport fleet. It was stated, that the number of vehicles is not sufficient to cover the work in the numerous projects in the countryside, which results – especially for NGOs in an irregular but frequent need of renting vehicles.

- ✍ Experiences with motorised transport in some country wide projects (SWAA, Red Cross) showed that the purchase of 2-wheeled motorised vehicles were out of order after a short time of usage or do not fit to the transport demand due to the road conditions, which would require 4-wheeled driven cars (which however are of extremely high costs and fuel consumption and therefore not purchased).

- ✍ The same experience was made with World Bank and UNICEF donated Suzuki motorcycles to Health Posts for vaccination and nutrition programmes, which were not all-terrain-bikes and made for use on roads with a solid surface and by this did not fit to the local environmental circumstances.

- ✍ The offer from Red Cross to health posts in Senegal to receive mopeds for supervision was refused. Only stronger motorcycles have been accepted.

- ✍ More successful was the purchase of motorised boats for health post, intensively used for transport of patients in the south (Kolda District) in the Gambia river region.

- ✍ The Red Cross (in cooperation with the Danish Red Cross) provided Health Points with (60) French made “Peugeot” Bicycles and also with horse drawn trailers. The vehicles remain property of the Red Cross and are maintained by the organisation. An evaluation will be available in October 2005. However it was stated that in one of the projects the bicycles were not used due to the difficult riding conditions (soil, sand / Diourbel District). Other Districts were more successful and workers are yet asking for more bicycles, though a cycling culture is not existing there. The durability of the bicycles were 4 years on average.

- ✍ Administrative workers in all rural provinces of Senegal faced severe problems to do their preventive work 4-6 years after they received cars from the World Bank (each Province received one car): Due to high maintenance costs and the lack of an adequate management of the transport fleet, all (!) of the vehicles are out of order now.

- ✍ Experience from GTZ with motorcycles in Zaire/Dem. Rep. of Kongo shows that it is not efficient to take motorcycles for daily health care provision in regions with bad road conditions. Main constraints were the risk for the driver of having an accident as well as the high maintenance costs, absence of spare parts and high fuel consumption in the project areas. Hence the donated vehicles were only used for supervision of the health work.

3. Selected districts to start with an intervention

Beside looking for options for improving health care services from a more general perspective it was also the aim of the study to test the California Bike in rural health care. The question, whether cycling is part of the culture of the rural population or can be introduced is crucial for success of this part aim. Cycling in Senegal is not common countrywide. There are only the southern provinces of Diourbel, Kolda, Zigiunchor and partly Kaolack, where a cycling culture is existent and the climate, road conditions and distances are acceptable. However the southern provinces in the Casamanche were seen as not favourable due to the political insecurity and unsafe situation to work there.

As a kind of compromise, the provinces of Kaolack (here: Kaffrine District) and Louga (here: Linguerre District) were selected. These regions have a high demand in improvement of the health service delivery according to the structural and medical problems of these both regions. However, interventions with (California) Bicycles are underlying the risk of failure and will be a real test if a cycling culture is possible or not.

4. Options for interventions and possible role for NMT

It should be mentioned that the project and its approach to support transport in health care was welcomed in almost all meetings and discussions we had. On the local level it was even mentioned, that the rural communities…

"…always waited for something like this with a focus on our transport problems in health care".

The mentioned prior medical problems in the project areas are sampling the national situation and are maternal and child mortality as well as malaria epidemies in rainy season. In the interviews it was pointed out that the water supply is insufficient for a lot of households, which worsen the public health in some regions periodically (in dry season). This issue should be taken into account when thinking about transport and public health in the second phase of the project.

Original Idea of intervention

Of the two options to either improve the mobility of the rural population and their direct access to Health Centres (by e.g. bicycles, boats (!), donkey- or (more common) horse trailers) or improving the mobility of the health workers to follow up their patients, the latter option was preferred. Reason for this decision is the assumed health related cost effectiveness of the tested vehicles and also that the performance of health programmes increasingly rely on the work of nurses, outreach workers, AIDS educators etc. - due to the decentralisation process on the national health sector of the country.

At this level, non-motorised vehicles could be an efficient and appropriate transport alternative. Bicycles could be used for the work in the health points (see below), especially for:

- vaccination and immunization programmes (voluntary workers)
- more frequent prenatal care and prenatal care in more remote villages
- consultancy, therapy and medication within the village region
- campaigns in family planning and Aids education

It is generally assumed that a motorcycle would be appropriate for health care activities with a spatial radius greater than 20km and a 4-wheel-drive-ambulance for areas in a distance greater than 30km.

Bicycles in view of the specific rural travel conditions

However under the specific environmental and cultural preconditions in Senegal, where travel conditions are often extreme and rural cycling is only practised in the southern provinces, the impact of bicycles to health care provision is not yet clear to foresee. Travel conditions in most regions of Senegal (except Casamanche) are characterised through:

- Heat (between May and August more than 40°C)
- sand storms (Harmattan) are making movements impossible to certain periods
- great distances (up to 55km between village health points and the next health facility)
- sandy or muddy road conditions would make cycling uncomfortable and tiresome
- cycling among women is absolutely unknown, riding skills are not existing
- female health workers are elder, (more experienced) women in most villages

Hence, the best technical bicycle related intervention is the California Bike, because gears and a light frame will ease cycling. However, the CaliBike should be equipped with as big tires as possible – like the Sahelia Bike has.

The California Bike was identified as the first possible intervention.

Transport fleet, fleet management and transport needs

Health centres

For the transport fleet it was found out, that health centres normally own one or (seldom) two 4-wheeled cars and motorcycles (often Yamaha or Honda all terrain). Low budgets and extreme road conditions makes 4-wheeled cars necessary, which led to high maintenance and repair costs, limit especially the number of (4-wheeled) motorised vehicles in the visited health centres. Vehicles are driven until the repair costs are higher than the costs of purchase of a new second hand car. In all visited health centres their were several ambulances visible but only one or two were in order.

1 out of 8 ambulances is working in Linguerre

In general the municipality and the ministry of health decides on the vehicles purchase for the district health centres. In some cases, vehicles are directly purchased by NGOs (e.g. Red Cross or UNICEF). The transport fleet is managed by the overall manager of the health centre. There is no specific vehicle inventory available. Vehicles are just listed in the assessment and the budget. Vehicles are repaired by the local private sector and there is no specific company related to the repair of the ambulances and motorcycles.

There is also no planning for vehicle maintenance and replacement existing. As a consequence, there are no saved funds for the replacement in case of a broken vehicle. There is also no transport officer in the health centres responsible to manage transport issues in health service provision and controlling vehicle utilisation and performance. For safety and for the control of the vehicle use there is only the board book on each ambulance and motorcycle to be kept by the user. However there is nobody in charge to monitor them.

Decisions to allocate funds for greater repairs or to buy a new ambulance are taken by the communal health committee, consisting out of representatives from the district, the municipality, the health centre and the rural communities.

Health posts

Health Posts usually own motorcycles, but in a not specified number of cases not all-terrain-motorcycles, what makes their use sometimes very difficult or even impossible. The limiting factor here again are the very different road conditions in the country - especially the composition of the soil. It was stated that a significant but not specified percentage of these motorcycles are defect and out of order after only two years of usage.

Sometimes, health posts have only access to mopeds with a weak engine and little power. These vehicles do not fit to the road conditions and long distances and are often criticised and rejected by the staff. In some cases even all-terrain motorbikes are not used for trips to the rural areas due to the rough travel conditions.

During vaccination campaigns, health posts have access to car-ambulances (1-2 times a year).

Responsible for the health of 14500 inhabitants:
Health post Barkjedi (Linguerre District)

Health points

At the lowest level of Health care in Senegal, the health points, there are no means of transport available though this is the level where sick people have to be brought to the next health facility as the health post has no own treatment possibilities. In case of emergency, the staff can get access to the motorcycle of the health post. However this takes often too much time and e telephone network in remote regions is not existing. All in all, health point staff is mainly depending on walking and on the horse drawn trailer in case of necessary transport of patients.

Minimal equipment and unpaid health workers:
Health point Mogare (Linguerre District)

Target groups for interventions
Because health centres and health posts already have access to (motorised) vehicles, the lowest level of rural health care, the health points were identified as one of the main bottlenecks of service delivery and the best niche where bicycles would fill a gap in transport needs of rural health care provision.

All of the health agents working at the health points and also all the voluntary health workers have no access to own means of transport and generally rely on walking as the only mode of transport. In addition to that the motivation to work for the health of the local population is very low due to fact that almost all health agents are working without any salary and they could use the donations for other private purposes after work.

Main activities within health posts
The main duties carried out by health workers on the level of health posts are:

- consultancy and treatment of patients within the health post, covering appr. 80% of the work and including no spatial activities of the health worker
- supervision of the health points in the villages with the motorcycle once a month (distance 5-20km)

- supervision of patients in near villages once or three times a week with the motorcycle (distance up to 20 km)
- purchase of medicaments from health centre once a week or twice a month with the motorcycle (distance up to 35km)
- administrative work, meetings

Main activities within health points

The main duties carried out by health workers (predominately the health agent) on the level of health points are:

- *health agent* (daily trips up to 5km by walking):
    - monitoring of children's and babies health
    - first aid
    - malaria-, parasites- and diarrhoe-treatment and minor/simple treatments with medicaments (if available)
    - organisation of medicaments from health post (seldom, up to 35km to reach health post)
    - advise/decision for transfer to next health facility/health post
    - organisation of transport (horse or donkey trailer if available or very seldom motorised vehicle)

- *midwife*:
    - assistance in birth giving in unproblematic cases (20 times a month on average with a walking distance of up to 5 km)

- *village health volunteers*:
    - vaccinations and sensibilisation (during national or regional vaccination or sensibilisation campaigns; twice a year; distance to cover: up to 14 km, depending on trailers and walking)

Transport of equipment

On all levels health workers carry only minor, light equipment on the motorbike or by foot as there are vaccination sets (5kg) or small boxes of medicaments and medical equipment. Often a health worker is carrying a college on the rear seat of the motorcycle, which is worsening travel comfort significantly.

Transport of patients

Patient transport is one of the most affecting problems in health care provision in both selected districts. The bottleneck is the transport from the village to the next health facility – in most cases from the health point to the health post and in cases with complications from the health post to the next district health centre.

For emergency motorised transport of patients it is only possible to hire private car because the only working ambulance has to stay near the health centre and would generally not come to any far health point, spending a lot of fuel and risking damage on these long distances (up to 52km one way). The speed for patients transport with the horse-trailer was estimated onsite wt 7,5kmh.

In the working area of health points in the villages it was stated that a better mode for appropriate transport of sick people is absolutely necessary as the usual way by carrying patients on a trailer, drawn by a horse (*Charette*) is very uncomfortable and can take two days to reach the next health facility. Due to the need of the trailer and the horse in agricultural production and marketing or water-/firewood collection it is often not available.

Suggestions to use a bicycle ambulance were rejected as it is the culture to go with a sick relative or friend together and never let him go alone. Hence a bicycle ambulance would not be appropriate for this.

The horse trailer was identified as the second possible intervention.

Option of paving rural roads and tracks?

For increasing the speed of trailer, motorcycle and bicycle related transport in rural regions and reduce their costs for repair and maintenance it also could be effective to improve the surface of rural roads between the health centres and the health posts. This would make it also possible to use 2-wheeled cars instead of expensive 4-wheeled cars and would lead to improved access for emergency transport and patients with needs for further treatment.

Due to long distances, combined with a very low population density (10-25 inh./squ.km – and even below 10 inh./squ.km in eastern regions of Senegal), pavements between health posts and health points are more than unlikely to be cost effective and not sustainable in terms of maintenance. Sand storms during dry season and periodical floods during rainy season would lead to frequent devastations and need to extensive repairs which might be too much for the involved and responsible local population. The low traffic volume on these roads and tracks would not justify this. Even on the more frequent road between the health post and the health centre we counted only 6 trailers with about 15 passengers in one hour.

Lack of communication

In some regions of rural Senegal, a telecommunication network is existing and mobile phones play a role in health consultancy and emergency calls. In these regions (Kaffrine but not Linguerre), health workers could be equipped with mobile phones to improve service quality in the remote villages by:

- calling medical doctors or nurses for further advise
- contacting the next ambulance or person with access to motorised transport (esp. emergency cases)
- organising purchase of medicaments
- for information about medical campaigns, educational events for health workers, meetings and other need.

The mobile phone was identified as the third possible intervention.

Ownership
It was critically mentioned that in case of having access to a (California) bicycle or even to a motorcycle might not be motivation enough for go out for outreach due to the rough road and driving / riding conditions. The assumption was made that the health centre/post management would have to allocate new or reallocate funds for a supplement salary to motivate these workers (e.g. by raising consultancy fees for the patients), which would raise some complications.

To motivate the workers the idea of a promised ownership of the test-vehicle after a certain period of time of debreviation (e.g. 3 years for a bicycle, 3 years for the mobile phone and 4 years for the horse and trailer) was judged as effective. Until

A convention about the scope of work and ownership would be necessary, made between ITDP, the health worker (beneficiary) and the director of the health post (as the supervisor of the health worker) and of the health centre.

Agreements (to be signed by the health worker in a contract) would be:

- The donation will be mainly used for health work duties
- The donation stays at the health workers house
- The health worker has to keep a Logbook for the activities made
- The LogBook has to be shown to the health post official on demand
- The donation can be used for private purposes of the health worker
- The donation has not to be sold or rented out to others
- The donation is owned by ITDP Senegal
- The donation will be transferred into ownership of the health worker after a period of 3 years (horse-trailer after 4 years) after the day of delivery
- The health worker is responsible for maintaining the vehicle and covers all running costs
- The health worker is obliged to report any problem to the health post official
- In case of misuse or selling the health worker has to refund the full value of the donation
- Signature of health worker / Signature of ITDP Senegal / Signatures Director of health post /health centre

It would also be of high need to supply the health worker with typical spare parts to be stored at the health point and given out to and paid by the health workers when needed. Due to local availability of tires, tubes and spokes (demand from wheelchair owners and owners of local made trailers), only specific parts have to be provided and should be handed over together with the bicycles.

A Workshop for ”Bicycle Repair and Maintenance” should be carried out on the official day of bicycle hand over. Content of this workshop is:

- *memorandum of understanding about ownership, use (duty and private) and maintenance costs*
- *introduction in vehicle technology*
- *introduction in repair and maintenance*
- *discussion of gender specific aspects of vehicle use and maintenance*
- *introduction in logbook-keeping*

Gender related aspects
The proposed regions would also be pilot areas for introducing the bicycle as a mean of transport to the local population through both male and female health- and community workers.

Gender related cycling has to be tested as religion and culture don't forbid the use of a bicycle for women generally. The design, frame and size of the California Bike was judged as appropriate to involve female health workers in the project. Precondition would be that the female health workers are not too old for cycling, like the traditional birth assistants and midwifes of health centres, who would have to be excluded of the potential female users.

The latter was proofed by several interviews with health staff on different levels. According to informal interviews with midwifes in the selected regions we could find out:

- the prior problems for the female health workers in rural Senegal are availability of medicine for children's and mother's care (due to limited budgets)

- prior constraint is also the lack of transport options for sick pregnant women

- the only means is the horse-drawn trailer, but women, babies or both sometimes die during the tiresome and long lasting trip to the next health facility

- within the activity space of a maternal aid assistant, the need for transport of pregnant or sick mothers is approximately twice a week

In order to examine if a female cycling culture can be developed in rural Senegal and to find out if the California Bike is appropriate to be used by muslim women, it was suggested to carry out a riding seminar for a group of younger women in Barkjedi (Linguerre District) and equip them with bicycles, tools and spares. If successful, education and integration of young female health workers into the rural health care system of the country could improve child and maternal health services in remote regions.

5. Interfering projects on improving health care in the selected regions

There is only one activity that could interfere with the project in Kaffrine District, which is the construction of 4 new health points within the years 2005/2006. These health points will reduce the distances of the local population to their next health facility. However it was not clear when the new facilities will start their work. They will also not directly touch the targeted population of the planned intervention.

6. Selected Interventions by District

The Identification of levels and areas for interventions is based on the transport needs assessment done during the site visit. According to this and also the above mentioned partly positive experience, Red Cross made with the distribution of bicycles among health workers, we selected to test 16 California bikes to give out to health workers on the level of health points. In addition to that and especially to meet the demand of patient's transport, 5 horse-drawn trailers should be tested. As well as 3 mobile phones to improve emergency health care issues:

Kaffrine District

Health Post Gniby: 3 California bikes and
2 horse-drawn trailers

Health Post Boulel: 2 California bikes
2 mobile phones
2 horse-drawn trailers

Health Post Mbos: (?) 2 California bikes
(?) 1 mobile phone
(?) 1 horse-drawn trailer

Linguerre District

Health Post Bakjedi: 9 California Bikes

Test: Riding Seminar with younger women (appr. 10 California Bikes)

In both districts we could establish a project team, motivated to cooperate and consisting of

1) The director of the district health centre
2) The directors of the selected health posts
3) The health workers (health agents at the health point and midwifes)
4) ITDP Senegal representative
5) ITDP Europe representative

The project teams have agreed to communicate any problem during the project phases to each other and inform the ITDP team members. Telephone-numbers and email-addresses were exchanged.

7. Next Steps (2d Phase)

The next visit to Senegal is planned for end of 2005 to do the final evaluation and also to start to design appropriate methods to access the problem better, based in the experience made within the first pilot phase. This will include the involvement of the private sector vehicle industry, where there are ongoing talks between ITDP Senegal and Kaolack Bicycle Factory on assembling California Bikes, which would come CKD and with unpainted frames.

For the second phase of the project it is also foreseen to discuss possibilities to construct appropriate (lighter, safer, faster, more comfortable, low-cost) prototype-trailers for horse-drawn transport of patients. Technical specifications as well as communal agreement and system for ownership, maintenance and management for these “Trailer Ambulances” have to be found out in the second phase of the project. In this context, talks to the SISMA trailer factory (near Thies) should take place.

A second technical specification could be the construction of specific trailer for the transport of water, which was found as one prior problem in rural Senegal, affecting health of the population.

Very rare but effective in rural water supply: Specific trailers for water transport

The evaluation itself will imply informal and formal interviews with the users of the intervention. This is the most important part to raise data for qualified and quantified results. The collection and analysis of the LogBooks, distributed among the users at the beginning of the project will support this. We also will have a direct investigation of the donations we gave to see, if the user still owns them and how intensively the donation has been used to date.

An evaluation report will be written and - basing on this - we will finally discuss wit the relevant stakeholders (esp. Ministry of Health, NGOs) further steps of how to support the partners with a full fleet of “redesigned” means of intervention. Possibilities to improve access and health service provision through infrastructure measures have to be discussed with the national health sector officials and international partners.

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