

**Nepal Safer Motherhood Project**  
a part of HMGN Safe Motherhood Programme

**Improving Emergency Access to Obstetric Facilities:  
A Report on a Study of Existing Facilities**

**January – March 2003**

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**Options**

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International  
Development

## CONTENTS

Abbreviations and Acronyms	i
Background	1
Scope of the Study	2
Transport for Health Care Delivery/Emergency Referral - the Key Elements	3
Key Findings	5
Recommendations	9
Implementation	12
Conclusions	13
Annexes	
1. Terms of Reference	1/1
2. Report of Activities	2/1

## **ABBREVIATIONS AND ACRONYMS**

BEOC	Basic Essential Obstetric Care
CEOC	Comprehensive Obstetric Care
DFID	Department For International Development
EOC	Essential Obstetric Care
FSC	Friend's Service Council
HMGN	His Majesty's Government of Nepal
IA	Increasing Access
ITDG	Intermediate Technology Development Group
NGO	Non-Governmental Organisation
NSMP	Nepal Safer Motherhood Project
SDM	Social Development Manager
TBC	To Be Confirmed
VDC	Village Development Committee

## BACKGROUND

In 2002, the Nepal Safer Motherhood Project (NSMP) requested Riders for Health (Riders) to undertake a study examining ways to improve emergency referral transport in Nepal, and recommend to NSMP the best transport system for the various topographical areas of Nepal in order to enhance safer motherhood.

The DFID-supported Nepal Safer Motherhood Project (NSMP) aims to support HMGN's National Safe Motherhood Programme by contributing to reducing maternal mortality in selected districts. The project is supported by Options Consultancy Services, London.

NSMP has two main components: **service provision** which aims to improve the quality of midwifery and essential obstetric care available and **increasing access** (IA) which works with district stakeholders and local communities to promote awareness of and demand for services and to overcome the barriers to women's timely usage of emergency obstetric services.

Riders is a multi-national non-governmental organisation specialising in providing or advising on logistical support for humanitarian activities in areas in which there is poor (or no) conventional infrastructure for the technical support of vehicles. They have also developed a sidecar (the Uhuru), which transports patients to hospital in either of two modes: sitting or lying on a detachable stretcher.

Riders were requested to look at ways in which emergency access might be improved in order to reduce the delays to hospital of women in life endangering pre and post partum situations, and to consider whether a sidecar ambulance (the Uhuru or others) might be helpful in the Nepali context. This was to complement a national and comprehensive study of ambulance services in Nepal as they affect issues of safer motherhood by Dr Sri Ram Poudyal, of the Centre for Policy Studies, Kathmandu. This latter study (available from Options, UK) should, if possible, be read in tandem with this report.

The consultancy took place in January 2003 and was undertaken by Barry Coleman, Chief Executive responsible for operations.

## SCOPE OF THE STUDY

The full Terms of Reference are at Annex 1.

The purpose of the assignment was to recommend to NSMP the best transport system for the various topographical areas of Nepal. In order to do this, the consultant was requested to provide a brief literature review on international experience of emergency transport mechanisms; lead a small team to visit one hill district and one Terai district to assess transportation means and their suitability (and adaptation) for emergency medical transportation; address the particular need of Dailekh district (a hilly, remote and poor district which is difficult to access) through visiting a nearby district with the ambulance study consultant; liaise with relevant organisations in Kathmandu that address transportation issues, where information additional to the ambulance study is required; address the feasibility of motorcycle ambulances within the Nepal context; and prior to departure, present findings and recommendations to a small forum of interested stakeholders.

This report will:

- provide recommendations on appropriate emergency transport schemes developed from the ambulance study learning and from applying international knowledge contextualised to Nepal;
- provide comments on a range of options for emergency transport vehicles, with clear arguments either for or against each option;
- and within this objective, give particular attention to the feasibility of using motorcycle ambulances.

An itinerary can be found at Annex 2.

## **TRANSPORT FOR HEALTH CARE DELIVERY/EMERGENCY REFERRAL – THE KEY ELEMENTS**

### **General Points**

NSMP, working with HMGN, is working to ameliorate the very high maternal mortality rate in Nepal in two principal ways. First, it works with administrators and medical staff to improve hospital and clinic facilities available to women in labour. Secondly, it seeks to improve access to those facilities. Riders was asked to input into the access element by providing recommendations on emergency transport, and to consider ways in which existing systems could be improved.

It will be helpful to bear in mind that relatively short distances (or the ability/lack of ability to cover them at reasonable speed in emergencies) can be critical or indeed prove fatal. There are many examples in which women in complicated labour living five kilometres from a hospital have delivered safely while women in similar circumstances but living ten kilometres further away have died.

The critical issue is therefore one of speed to the health unit, and referral to hospital where necessary. The fatal element is delay: delay in organising transport, delay in transport reaching the patient, delay in getting the patient to hospital, and, in some cases, delay within the hospital itself, although that factor is beyond the scope of this study.

The key question is: are there sustainable (simple, affordable, predictable) methods by which these transport delays can be addressed, and where possible, eliminated?

### **Terrain**

Difficulties are caused throughout the developing world by the widespread assumption that the overwhelming obstacle to sustained mechanical transport is terrain. Alongside this goes another – on the face of it inconsistent – assumption, namely that there are vehicles that will deal with more or less anything. In fact, the relationship between terrain and motorised vehicles needs careful assessment.

It is the case that some vehicles do indeed cross a remarkable range of terrain. However, certain combinations of weather and terrain will halt absolutely any kind of vehicle, however well designed/adapted for its environment. Eventually (usually sooner rather than later) hills become too steep, sand too deep, mud too sticky, bumps too high and rocks too sharp. The prudent driver will understand and respect the terrain and stop before damage is done, and before lives are at risk of being lost.

Unfortunately, even the new four-wheel drives cannot conquer all terrains, and a grassy bump 30 cms high can immobilise even the most impressive-looking vehicle. The number of driven wheels is not the only critical factor in managing terrain and, for example, ground-clearance is more important.

### **Cultural Suitability**

It will be important to undertake some needs assessment on the cultural suitability of any ambulance proposals. However, it is generally thought acceptable, for example, in any health emergencies to ride pillion on a motorbike. However, there may be regional variations which will need to be taken into consideration prior to implementation.

## **Vehicles**

There is a wide range of motorised vehicles at work in the world, from snowmobiles and 10-wheeled trucks to motorcycles of every size and shape. The key element is fitting the right vehicle to the terrain and circumstances in question. This can be done very badly and the continual selection of inappropriate vehicles has undermined a great many humanitarian programmes.

## **Drivers/Riders**

Even when the correct vehicle has been chosen, it is absolutely essential that it be correctly driven. This is true even where terrain is undemanding as well as, more obviously, where terrain is difficult. A good driver can take even a slightly inappropriate vehicle across surprisingly difficult terrain. A poor driver will get often nowhere even with the most perfectly chosen vehicle.

## **Maintenance**

*Maintenance must not be confused with repair.* Most new vehicles, including the more basic models, will run for hundreds of thousands of kilometres without breaking down, provided that they are given the preventive maintenance care specified by their manufacturers. Getting this maintenance done in difficult circumstances may be hard, but this must not be confused with the qualities of the vehicle. Vehicles are very vulnerable if their routine care demands are not met in a timely fashion (and poor driving makes them still more vulnerable).

It is important to recognise these basic factors in vehicle management and to try to keep them as distinctly separated as possible when considering the question of emergency transport for Nepal.

## **Cost**

There is some discussion of cost within this report. However, in addition to this, an extensive study is planned for 2003, researching the real cost of accessing EOC services by community members in the project districts. Results will be fed into any future transport pilot schemes, and consideration given to locally preferred and cost effective options.

## KEY FINDINGS

### Ambulances

#### *The ideal*

It is easy enough to posit an 'ideal' ambulance service for women experiencing a potentially life-threatening labour. Ideally, there will be:

- a means of rapid communication near to the patient (telephone, vehicle etc);
- the ambulance operator, whose ambulance should be at the hospital and thus not be more than an agreed 'ideal' distance from any given potential patient within its area of operations, responds immediately;
- the ambulance, well-driven by a competent, safe, professional driver, goes directly and without delay to the location given;
- the patient is transferred quickly, safely and with appropriate para-medical support to the hospital at which the ambulance is based;
- each district in Nepal has a district hospital located in the District Headquarters;
- one final point – as only those families within a certain radius of the district hospital will get the ambulance service quickly if ambulances are based at the hospital, the ideal situation would be to base ambulances at a number of strategically-chosen points throughout the district.

Delay at all these stages could be life threatening.

#### *The Nepali reality*

##### Terai

There are in fact a number of ambulance operators working in the Terai. They are generally humanitarian organisations and there can be absolutely no reason to doubt their good intentions.

In spite of this, we did not encounter a single example of the ambulance operators being able to provide a service that even remotely to the ideal outlined above. Generally, there was no fast, reliable way (e.g. telephone) to contact the ambulance operator; the ambulance was not always available at its base (which was not usually the hospital in question); ambulances might be out of service awaiting repairs or might be on another mission (often perfectly legitimate, but also often unauthorised). Once the ambulance has picked up the patient, the hospital destination will vary according to a) patient preference (possibly based on hearsay) and b) the patient's ability to pay for the journey.

The roads in the Terai are in general good. There are some important metalled main roads and a good network of gravelled feeder roads crossing flat terrain, although these latter roads pose problems in the rainy season when some rivers and streams swell and cannot be forded.

##### Hilly areas

There are very few ambulances working in the hilly districts and people facing health crises such as complicated labour use public transport which is only sporadically available

Where they existed, an ambulance would be restricted to low-gradient metalled or otherwise hard-surfaced roads; would not be easily summoned; and could only be deployed at

extremely high cost, a cost-per-journey far higher than any patient could be expected to pay. E.g. Surkhet, where it was noted that ambulances had a very limited range and all referrals from Dailekh, the neighbouring district, were undertaken by public transport.

Review of issues to be addressed:

- Ways to contact ambulances;
- Availability of ambulances (maintenance, managing missions etc);
- Where the ambulance is based (eg preferably at a hospital);
- What type of vehicle is best for hilly terrain.

## **Existing Ambulance Operators**

Dr Poudyal's initial study on existing ambulance services is comprehensive in scope and covers every material aspect of ambulance management in Nepal. It will be helpful to summarise his key findings and add some additional technical detail.

Among operators currently working in Nepal are the Red Cross Society, Rotary International, Lions Clubs and Reiyuki. One hospital in our survey owned and ran its own ambulance, but otherwise the ambulances were based at non-medical locations.

## **Availability**

All the operators we talked with (see Annex 2) experienced difficulties in running their ambulances. The Red Cross in Bhaiwara provided a particularly useful insight since their ambulance, a Mahindra, was sometimes under-used. It is well maintained and often rather regrettably available (though sometimes also fully utilised for days at a time). In the view of the administrator, the biggest obstacle to providing an effective service is the lack of a good communications system, e.g. a telephone. It was very common, he said, for patients to use any means available in an emergency (private car, taxi, walking, being carried etc) rather than try to get an ambulance to visit them. Indeed in Pokhara Vinda VDC, only 12 kms from the nearest hospital, it was confirmed by the technical assistant in the sub health post that no ambulance had ever been seen in that village.

## **Charging**

There is a great deal of confusion over the question of charging for referrals. Red Cross and Reiyuki in Bhaiwara had never discussed between them the level of charges and Red Cross were charging R15 while Reiyuki were charging R8, although their ambulance (perceived by all parties to be superior because it is Japanese) was unavailable following an accident. Reiyuki were aware that their rates were heavily subsidised but regarded this as part of their humanitarian mission. Red Cross believed, though without apparent evidence, that some operators were charging up to R25 for referrals over metalled roads, and adding a supplement of R10 for driving on gravelled roads.

The detail of these charges and beliefs about charges is not critical. What is critical is that there is no understood and agreed basis for the per-kilometre charge. Since no one knows what the cost really is, myths about over-charging and 'unfairly' subsidising are bound to develop. From the users' point of view, it means that they avoid using ambulances since they a) believe the charges to be exploitatively high and b) fear they may get into on-the-spot wrangles about charges and distances to hospitals etc. This also helps to explain (among other factors) the success of Reiyuki in building its membership, to whom ambulance travel is free.

## **Distribution**

The Red Cross ambulance and others may be underused because with so many ambulances in the area, they are in effect competing for business. This is an issue of the spatial distribution of ambulances. Desirable as it may be in itself, the whole answer to the question of how ambulances should be distributed and managed is not simply that they become hospital-based. The broader issues must incorporate appropriate management for non-hospital-based ambulances.

## **Vehicles**

Japanese ambulances are the most expensive but have the potential to last longer than their Indian equivalents, although – again - this is of absolutely no significance if they are not correctly maintained and not driven well. If these factors are attended to, a well-maintained Indian vehicle will prove very cost-effective.

All the vehicles used by the operators we saw can comfortably cope with gravelled roads with no significant impact on running costs.

## **Ambulance Operators**

No ambulances provide para-medical support, they are simply a means of transport. Any service offered is well meant but confused and is of no real help in providing support to safer motherhood.

## **Current Best Practice**

The best, and most apparently sustainable of the ambulance services studied was at the AMDA<sup>1</sup> hospital in Butwal. They have two ambulances, including an old one which is regarded as vulnerable and does only very local runs despite the fact that it has better ground-clearance and could access more inaccessible areas. The cost is R20/km, which is viewed a high but realistic by the hospital. It is likely that this is nonetheless an unwittingly subsidised rate, not least because the new ambulance is regularly serviced in Kathmandu.

The Red Cross in Bhaiwara also looks after its ambulance well and after 80,000 kms it had suffered no breakdowns. However it is inevitably less efficiently used and harder to manage because it is not hospital-based.

Among Dr Poudyal's conclusions he notes:

*'The successful operation of ambulances does not only depend on money...It is the foresight, progressive attitude, honesty, discipline and entrepreneurial ability of the organisation members and the driver that makes the ambulance operation a success.'*

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<sup>1</sup> N.B. AMDA is an exceptional case as it is an NGO-managed hospital with Japanese support. The staff, including the ambulance drivers, are better paid. Higher salary may be a factor to motivate the drivers to maintain the ambulance in good working condition and carry out their duties more responsibly.

## **Alternatives to Ambulances**

### ***Operational alternatives to ambulances***

#### **Private cars**

Private cars are very rarely available for safer motherhood referrals in rural areas, in part because of limited availability cars in general, and also superstition surrounding birth and pregnancy, and this is seen as bad luck.

#### **Taxis**

Taxis are not quickly and easily available in the VDCs served by gravelled roads.

### ***Non-operational alternatives to ambulances***

#### **Bicycle ambulance**

We examined a bicycle ambulance developed by the Intermediate Technology Development Group (ITDG) and used in the village of Makrahar, Rupandehi. It had only been used once, and was abandoned largely because it was felt that the trailer was not long enough to provide a comfortable journey for the patient. However, the effort of pedalling had not in itself proved to be a decisive factor in its use and it is possible that if ITDG's local partner, Friends Service Council, were to press ITDG to revisit the technology in consultation with users in Makrahar, a modified version could still prove useful in emergencies.

#### **Motorcycle ambulances**

There are no motorcycle ambulances operating in Nepal though it was at one time considered by ITDG, who were proposing to construct a sidecar for a 90cc Honda. It is clear that a well-designed motorcycle sidecar could operate very effectively in the flat part of the Terai. In the rainy season, rivers and streams would present an obstacle (as to any vehicle) but otherwise they would be able to operate on the gravelled roads. Furthermore, given appropriate design and management of the financial aspects, they might be able to be community-based.

## RECOMMENDATIONS

### 1. Improvements to Current Ambulance Service

The ambulance service providers are in fact very close indeed to being able to provide a useful, and more importantly, reliable service.

Their positive attributes include:

- Motivation (they see the problem and want to help);
- In general, the support of larger organisations (Red Cross Society, Reiyuki, Rotary, Lions etc) who have a long term commitment and funding;
- Familiarity with their local conditions and communities;
- The possession of vehicles;
- Relatively good maintenance support close at hand.

### ***Recommendations for the future***

Additional support needs to be given in:

#### Training and management

- training drivers correctly;
- controlling and disciplining drivers;
- managing the maintenance of the vehicle correctly;
- understanding the nature, dynamics and requirements of vehicles (more myths here, causing more trouble);
- policies/procedures on vehicle replacement;
- coordinating and linkages between the ambulance operators.

#### Costing

- informing/training on calculating real costs of running the vehicles (so charges can be correctly made, without creating a chaotic market full of myth and resentment);
- expert accountability.

#### Patient care

- reliable policies/procedures for deciding on which hospital to refer patients to;
- a system for deciding on subsidisation based on ability of patients to pay – especially in emergencies;
- policies for developing para-medical support.

The ways in which operators might be encouraged to take advantage of relevant training (all of which is available, though it may need to be sourced from outside Nepal) will need to be thought through carefully, as they are independent operators and have no formal obligations to patients, hospitals, society at large or each other.

Perhaps, if offered training and some administrative support, they could be invited to come together in some sort of forum to discuss a) their mutual problems and challenges and b) the ways in which they could (probably at less cost than they are currently experiencing) make a better offer to the communities they are aiming to serve.

Also leaders of the ambulance operators' community could be invited to come together for a one-day workshop to discuss the issues, possibly be guided towards a regular or permanent, consultative and information-sharing forum with a small secretariat. Each operator should be willing to contribute a small subscription towards the running costs.

To help the operators, HMGN should re-visit the import duty concession rules so that out-of-service ambulances can be economically disposed of, duty-free.

## **2. Development of New-Technology Stretchers for Hilly and Mountain Areas**

In hilly areas women in complicated labour are often carried down to roads in baskets borne on the backs of male porters. This is only justifiable inasmuch as it is better than nothing. In some hilly districts, some villages have acquired conventional stretchers which seem to be valued more highly than the baskets (which are sometimes burned if the woman carried in them dies in childbirth, which does not happen to the stretchers - so even the conventional stretcher represents a small but valuable and acceptable step forward in technology).

Using simple transport technology, it will be possible to develop a one-wheeled stretcher carrier, with brakes, that can travel (mainly) downhill guided by one 'driver' (or even a two wheeled carrier in some cases). The stretcher-carrier would be designed in such a way that it would be supported on the wheel/s where the descending track was fairly smooth and rock-free and lifted around obstacles as they arose. This would possibly be a little more expensive as more 'carriers' would be required, but the reduction in delay would make this worthwhile.

The design, building and testing of a carrier of this kind would be challenging, but well within the bounds of normal, everyday engineering.

## **3. Deployment of Motorcycle-and-Sidecar Ambulances**

There are versions of motorcycle ambulances now available and in use in many of the poorer countries that would operate effectively in the flat part of the Terai, subject to the usual constraints mentioned above.

However, it is important to think carefully about precisely *why* one would use such a vehicle when other possibilities exist, for example a pick-up truck.

The characteristics that distinguish the sidecar ambulance are:

- Its relatively low cost (purchase and running costs);
- This low cost means that it can be based in rural communities, and under community management and ownership;
- Being community-based means that it can respond very much faster than ambulances based in towns or cities;

Other factors to be taken into consideration are:

- The procurement and delivery process;
- The need for operator training (at least two people per vehicle);
- The need to locate and manage maintenance support;
- The need to ensure secure funding for running costs (which must be available for preventive maintenance and not only – and often reluctantly - when a breakdown has occurred);
- The arrangements to be made for community care/ownership;

- Performance monitoring;
- The need to make arrangements for replacement.

Costs: There are two sidecar ambulances available.

1. The LifeCycle, manufactured in the UK by the Ranger Company

Latest costs are available from Mike Norman. Running costs will vary with the kind of motorcycle used to power the LifeCycle.

CONTACT:

[MikeNorman@RangerLifeCycle.co.uk](mailto:MikeNorman@RangerLifeCycle.co.uk)  
[www.LifeCycle.co.uk](http://www.LifeCycle.co.uk)

Telephone: +44 1327 300813

2. The Uhuru, manufactured in Zimbabwe by Riders for Health, Community Transport Division

The current cost of an Uhuru is around US \$4,200, plus shipping. Using a Yamaha AG200, the running costs (depending on fuel costs) are around 18 US Cents a kilometre. Although the precise cost of running a conventional ambulance in the Terai is not yet known, a Mahindra diesel of the kind used by the Red Cross probably costs around 30 US Cents.

Training for either option will probably involve a visit to Nepal for at least a month by a training/maintenance consultant.

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#### 4. **Development of 'Side-Saddle' Pillion Seat**

It is very common for women to ride on the pillion (rear) seat of small-capacity motorcycles in Nepal, side-saddle, particularly common in Kathmandu, and this technique could well be adapted for use in the Terai, possibly even for relatively hilly areas.

The addition in this case is a small item of new but basic technology, namely a seat that allows women to sit sideways on the motorcycle *while having their backs protected/supported*. The seat would also have a firm partition between the woman's side and the driver's back. With this arrangement, the motorcycle could perhaps even tackle reasonably demanding slopes, both up and down - although tests would be essential.

If this approach were to be adopted, this would be extremely cost-effective. Many villages already have motorcycle-owners as residents. In any event motorcycles are very common and reasonably cheap. A motorcycle with a safer-motherhood pillion seat could be community-based at very low cost. Since it is a development of an accepted travelling technique, it should be compatible with existing habits and expectations. It cannot be stated enough, however, that special training for the driver would be essential.

## **IMPLEMENTATION**

### **1. Improvements to Current Ambulance Services**

This work would consist mainly of talking with service providers in turn and then bringing them together to form a consensus on operations (modus operandi). This mini project could be undertaken very effectively by NSMP staff, together with a local technical consultant.

### **2. Improved Stretcher**

A number of engineering firms could be asked to tender for this project. Once the design was approved and a prototype tested, the stretcher carrier could be manufactured in Nepal. At a later stage, if required, Riders for Health will supply the names and contact details of appropriate engineers. Riders would be happy to do this as part of this consultancy.

### **3. Motorcycle Sidecar Ambulance**

The two organisations known to be offering vehicles of this kind can be contacted directly and asked to tender. They should be asked for their proposals for maintenance/management training and their recommendations for long-term maintenance and replacement.

### **4. Side-Saddle Pillion Seat**

As in (2) above, engineering firms should be asked if they would like to tender for the work. At a later stage, if required, Riders for Health will supply the names and contact details of appropriate engineers. Such work will be considered part of this consultancy.

### **5. Advice/Training on Technical and Managerial Aspects**

There are two or three organisations with experience in advising on the management of existing or new technology in its early stages. Riders for Health will be happy to discuss which organisations could be most useful. Such work will be considered part of this consultancy.

## CONCLUSIONS

Across much of its area, Nepal suffers from extremely difficult terrain. There are areas that are not practically accessible by any conventional ground-based transport other than walking.

On the other hand, the terrain of the Terai is accessible and ordinary vehicles can address the needs of safer motherhood, provided they are correctly managed.

Unusual vehicles such as the motorcycle sidecar ambulance can be useful, mainly because they are inexpensive enough to be community-based.

New but simple technology can enhance the usefulness of stretchers and solo motorcycles.

There is no reason why addressing the current transport situation with appropriate management and other techniques should not significantly improve access and therefore contribute to a much-needed improvement in the current maternal mortality figures.

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Our thanks to Melissa Cole, Susan Clapham and their teams at NSMP and Options, to all the people who were kind enough to be interviewed for the report and above all to Hom Nath Subedi of NSMP for his advice and insights and for his simply faultless organisation of the study trip in what were at times, testing circumstances.

## **ANNEX 1: TERMS OF REFERENCE - ASSESSING EMERGENCY TRANSPORT SYSTEM FOR NEPALESE CONTEXT**

### **Background**

The DFID-supported Nepal Safer Motherhood Project (NSMP) aims to support HMGN's National Safe Motherhood Programme by contributing to improved maternal health in selected districts. It has two components: *service provision* under which systems to manage services for women of reproductive age will be established - including improvements to the physical infrastructure of hospitals, equipment and supplies, and training of personnel; and *increasing access* which seeks to improve the social context for and access to midwifery and obstetric services within the supported districts in order to enable women to utilise services.

NSMP works to improve referral systems from community-level to the level of the required services. This may involve referral via community level health worker to a facility providing basic essential obstetric care (BEOC) services and, if this is not sufficient, from the BEOC centre refer to comprehensive obstetric care (CEOC) service. In line with international learning, NSMP works to support the provision of BEOC services, with links to CEOC services in some hospitals. Utilising this approach increases the availability of good quality services within limited resources.

Whilst the project has some experience in supporting the development of transport mechanisms to allow self or community referral to the hospital, less emphasis has so far been given to developing intra facility transport mechanisms (i.e. vehicle transport) to transfer women in need of caesarean section or blood transfusion from a BEOC to a CEOC facility.

In June 2002 NSMP commissioned a Nepali consultant to head a small team to provide recommendations on ambulance services. The purpose of this currently ongoing consultancy is to explore the following:

- What is the most appropriate vehicle to be used as a referral ambulance in the hill districts of Western Nepal? (Taking in to account durability, local maintenance opportunities and topography, including seasonal landslides, exploring the different options of car, bus, motorcycle etc).
- How can the vehicle be efficiently managed and maintained?

This ambulance study will explore best practises and potential pitfalls in current ambulance management (management structure, maintenance practice, charging practice, exemption schemes for poor patients, alternative schemes when the ambulance is unavailable and ambulance replacement procedures) in Nepal. The study is due for completion by the end of July 2002.

To complement this ambulance-based study, NSMP wish to broaden its exploration of transportation schemes by deepening its understanding of non-ambulance systems drawing upon international learning of motorbike "ambulances" and other potential forms of emergency transportation.

NSMP require an international agency with expertise in transportation systems in other low resource countries to make recommendations to NSMP on transportation utilising the results of the current ambulance study and applying international learning to the Nepal context.

## **Purpose of the Assignment**

To recommend to NSMP the best transport system for the various topographical areas of Nepal.

## **Tasks**

The consultant will:

1. Be given an overview of NSMP by the Options (the UK-based management agency) Project Manager.
2. Be briefed by NSMP's Project Director and the Social Development Manager (SDM) to ensure a comprehensive understanding of the project's approach regarding increasing access.
3. Provide a brief literature review on international experience of emergency transport mechanisms.
4. Lead a small team (interpreter, plus one/two of the following: a Social Development Officer, the consultant who undertook the Ambulance study, TBC) to visit one hill district and one Terai district to assess transportation means and their suitability (and adaptation) for emergency medical transportation.
5. Address the particular need of Dailekh district (a hilly, remote and poor district which is difficult to access) through visiting a nearby district with the Ambulance study consultant (TBC).
6. Liase with relevant organisations in Kathmandu that address transportation (SDM will arrange appointments) where information additional to the Ambulance study is required.
7. Address the feasibility of motorcycle ambulances within the Nepal context.
8. Prior to departure, present findings and recommendations to a small forum of interested stakeholders (NSMP to arrange).

## **Outputs**

Produce a report that:

- provides recommendations on appropriate emergency transport schemes developed from the ambulance study learning and from applying international knowledge contextualised to Nepal;
- Provides comments on a range of options for emergency transport vehicles, with clear arguments either for or against each option;
- Within this objective, to given particular attention to the feasibility of using motorbike ambulances.

## **Location**

The consultant will ideally visit at least two districts including one hilly district. Due to the security situation in Nepal a decision on whether and where to visit will be made at the time of the consultancy upon advice from the British Embassy and DFID.

## **Timing**

The consultancy will be for a total of 11 days plus travel and will take place as soon as possible:

- |    |  |                 |
|----|--|-----------------|
| 1. | International travel                   | = 2 days        |
| 2. | Project briefing and preparation       | = 2 days        |
| 3. | Study time (including internal travel) | = 7 days        |
| 4. | Reporting                              | = <u>2 days</u> |

**Total: 13 person days**

## ANNEX 2: REPORT OF ACTIVITIES

The study began with a briefing at NSMP offices in Kathmandu on January 20<sup>th</sup> 2003. The team (Barry Coleman, Sri Ram Poudyal, Hom Nath Subedi of NSMP) left Kathmandu for Rupandehi and Surkhet on January 22<sup>nd</sup> and returned on January 26<sup>th</sup>.

### Itinerary

The objectives of the discussions in Kathmandu and the field trip were to find out what experiences communities had of the use of emergency transport and to investigate the constraints and successes experienced by the providers (if any).

The table below outlines the people the study team met, where they met them and broadly what was discussed.

Location	Organisation	Person	Position	Topics
Kathmandu	NSMP	IA Team et al		General briefing
Kathmandu	Family Health Division			Briefing on study
Kathmandu	Rural Access Programme	John Cunningham		Future of new road access
Kathmandu	Red Cross Society	Umesh Prasad Dhakal	Director, Health Service Department	System of managing ambulances
Kathmandu	Livelihoods and Forestry Programme	Gail Allison	Hills Forestry Advisor	Needs of forestry communities
Kathmandu	Livelihoods and Forestry Programme	Meena	District manager	Needs of forestry communities
Rupandehi/Chiliya VDC	SHP	Keshab Dhakal	Incharge	Emergency referrals from clinic
Rupandehi/PokharVinda VDC	VDC	Raj Kumar Mishra	Technical Assistant	Availability of ambulances to community
Rupandehi	Red Cross		Administrator	Local management of ambulances
Rupandehi	Red Cross	Shailendra Tuladhar	Section Officer	Co-operation between operators
Rupandehi/Makrahar	Friends Service Council	Ved Giri	Manager	Role of FSC in supplying bicycle ambulances
Rupandehi/Makrahar	Community Groups	Giri Raj Gaire	Member	Experience of bicycle ambulance

Location	Organisation	Person	Position	Topic
Rupandehi	District Hospital	Dr. Arjun Shrestha	Medical Superintendent	Need for hospital-based ambulance
Rupandehi	AMDA Hospital	Dr. Gopal Thapa	Director	Use of hospital's own ambulance
Rupandehi	Reiyukai	Mrs. Tulachan	Chief	Supply of ambulance services
Surkhet/ Jarbuta VDC	Mothers' Group	Mrs. Bimala Ghimire	Chairperson	Management of obstetric emergencies by community
Surkhet/ Jurbuta VDC	Local Political Person	Bhoj Prasad Chapagain	Former Vice-Chairperson	Need for ambulance to be included in development
Surkhet	RAP/Dailekh	Krishna Dhungana	Technician	Referrals from Dailekh
Surkhet	Bus Ticket Counter/Surkhet-Dailekh Road	Ranga Bahadur Katwal	Counter Staff	Methods of self-referral from Dailekh