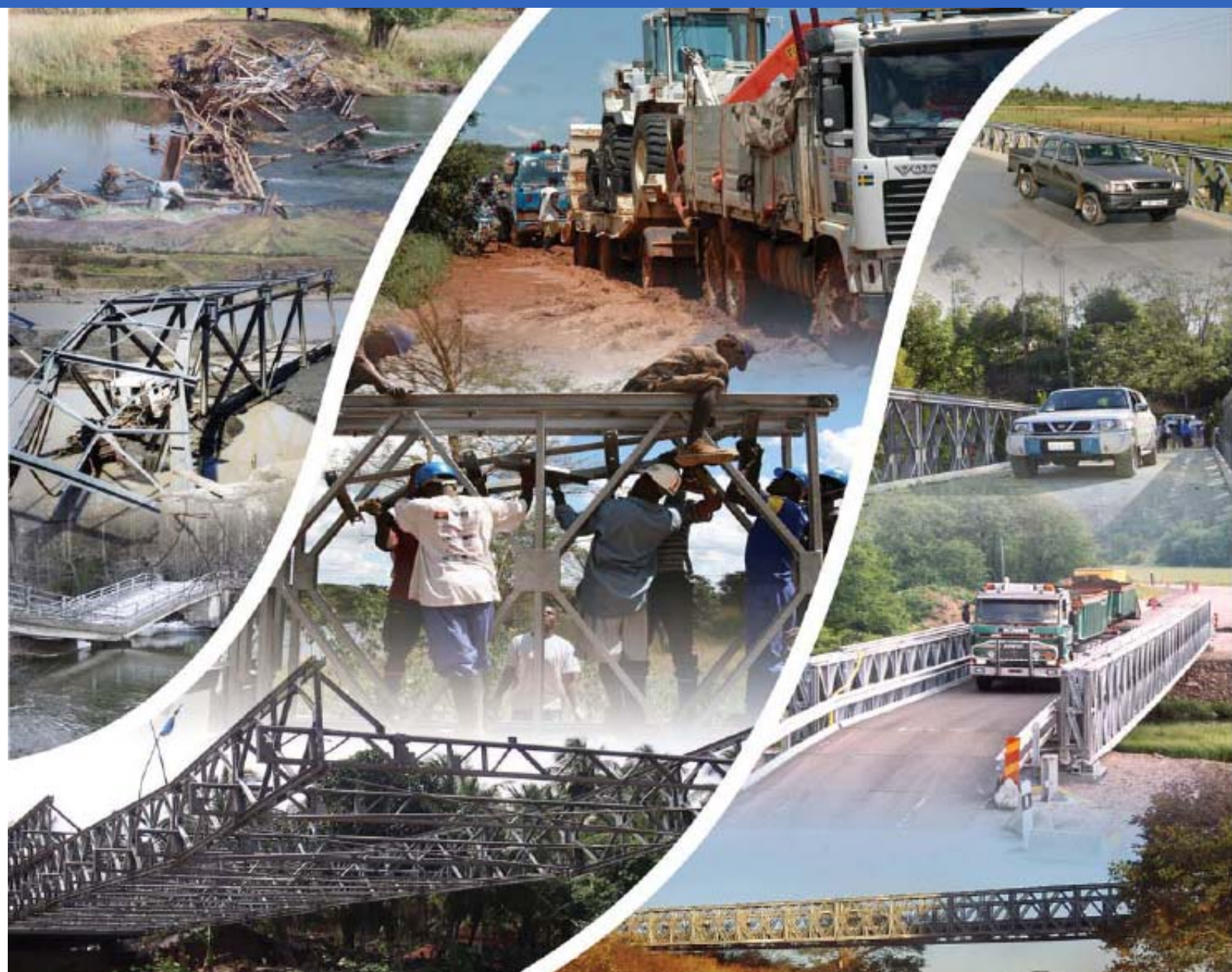




**Conférence Européenne  
des Directeurs des Routes**

**Conference of European  
Directors of Roads**

# ***Emergency Bridges***



***October 2008***



## swedish emergency bridge unit

An instant resource for emergency and disaster relief missions in Sweden and abroad

The unit is the result of a joint effort between the Swedish Rescue Services Agency, the Swedish Road Administration, the Swedish Rail Administration and the Swedish Armed Forces.

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**Edited and published by: CEDR's Secretariat General**

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# **Report of the Swedish Road Administrations contribution at international crises**

## **2. Background**

During many years bridges have been built under the management of SRSA (Swedish Rescue Services Agency) in among other countries Angola, Honduras and Afghanistan. These operations have been appreciated by the UN, Sida (Swedish International Development Cooperation Agency), and the countries where the bridges have been built. As a result there have been inquiries about continuous bridge building operations, not the least after the damages caused by the Tsunami on 26 December 2004.

In order to meet future operations need of staff a Standby force has been created. From this Standby force it will be possible to recruit competent people to bridge building operations all around the world including Sweden. Training to become a member of the Standby force has been carried out as a coordinated project by the Swedish Rescue Services Agency (SRSA), Swedish Road Administration (SRA) and Swedish Rail Administration (BV, rail administration) with support from the Swedish Armed Forces.

## **3. Distribution of roles and responsibilities**

### **3.1 Overriding responsibility**

Swedish Rescue Services Agency, Swedish Road Administration and Swedish Rail Administration have a joint responsibility for the Standby force. However, the Swedish Rescue Services Agency has an overriding coordinating responsibility.

## **4. Objectives for the Standby force**

### **4.1 Objectives**

The rescue initiative can be divided in four central phases:

#### **Phase 1**

The first phase has focus on that cautious life. Everything exits on saving as many lives as possible with small or no thought of costs.

#### **Phase 2**

The second phase demand that as soon as possible, probably with limited resources, to investigate and to plan for as good, sustainable solution as possible. Infrastructure must be prepared for the people that have survived the disaster and that are forced to stay in or for different reasons want to go back to the disaster area.

The second phase can also include competence and resources that can collect information and start the work with establishing e.g. enquiry documents for a permanent long term solution of what the disaster has destroyed.

### Phase 3

In the third phase there is built and/or repaired infrastructure in order to get so good sustainable temporary solution as possible.

### Phase

4

The fourth phase covers enquiry documents, purchasing, implementation and possible control of the execution of the permanent solution. Phase 4 can also contain education and experience retransfers.

## 4.3 Standby forces

SRA and BV can assist SRSA with competence and resources within all phases.

In the first phase, generalists are included that can decide which specialists that are needed in order to investigate and to suggest sometimes also to implement solutions for the second and the following phases.

In the second phase, specialists are included that investigates, project, suggests and estimates costs in what will be implemented in the third phase.

In the third phase, contract works are monitored and is carried out probably also own works for a sustainable temporary solution of the specialists that are in phase 2.

The third phase can also contain competence in order to investigate, suggest and cost estimating permanent solutions.

The need of a permanent good solution can last the biggest help in order to get a society function, which has been hit by a disaster.

Phase 4 can also contain education in order to evaluate how the work with the disaster has been implemented and lessons learned for future operations.

## 4.3 The bridge building force

The Standby force is supposed to, with short notice, be able to take part in national as well as international operations.

During an operation the following tasks should be solved:

Plan and supervise the building of Compact 200, VV Truss Bridge (Railway bridge 3), VV Heavy Girder Bridge, VV Light Girder Bridge, Military bridge 4 and Military bridge 2 (Bailey bridge).

Train locally recruited labour on materiel and machines as well as assembling a bridge under primitive conditions.

In order to solve tasks of disastrous nature it's necessary that the staff:

- are ready to leave at a short notice, including a principal permission from the employer to participate in the Standby Force
- has basic and additional vaccinations
- has basic knowledge about international work especially in developing countries

## 4.4 Comments

During operations, national as well as international, the Standby force will be limited in numbers of staff. The main part of the labour force will consist of locally recruited workers who mostly lack previous experience of bridge building work. The task for the Standby force will be to instruct and supervise.

In order to maintain a high operational readiness for international operations also in primitive surroundings it requires the staff to have basic and additional vaccinations as well as a principal permission from the employer to participate in the Standby Force.

Normally are operations in developing countries linked to the demand of transferring the knowledge so the receiving countries in the future themselves shall be able to handle the material and equipment that has been handed over.

## 4.5 Short description of the type of bridges

### Compact 200



Compact 200 is a modern development of the classic Bailey bridge material and is a part of the Swedish Road Administration's crisis emergency materiel. A heavier version is the Maybey Universal which also exists as Swedish replacement bridges.

Both types of bridges exists internationally and are among others bought by World Food Programme (WFP) and other UN organisations to be used in developing countries as more or less permanent bridges.



## Truss Bridge



Truss Bridge was originally a military bridge, Railway Bridge 3. Swedish Rail Administration uses it as a replacement bridge for their railway bridges. The Swedish Road Administration has developed a road version of the bridge with road surface made of steel plates. The bridge allows two-way traffic in the road version.

## Heavy Girder Bridge and Light Girder Bridge



*Heavy Girder Bridge*



*Light Girder Bridge*

These are two older models of replacement bridges. They are made in Sweden and are stored by the Swedish Road Administration. The Heavy Girder Bridge and the Light Girder Bridge can be built to a length of up to 36 m and 24 m respectively. They are both built as one lane bridges.

#### **Military bridge 4 and Military bridge 2**



*Military Bridge 4*





*Military Bridge 2*

These bridges have been included in the prescribed equipment for some parts of the Swedish Armed Forces and have also been stored as crisis emergency materiel. The bridges are out of date and are being phased out by the Swedish Armed Forces. Despite that the bridges are of great importance for relief operations in developing countries. The bridges have a good weight capacity and they are simple to build, even with untrained workers under the supervision of trained staff. The bridges can be built without machines.

#### **4.6 Organisation and aim for the bridge building unit**

The aim is that the bridge building unit shall consist of 15-20 bridge technicians. When the numbers of bridge technicians falls below 15, recruitment and training will be carried out in order to retain the number of technicians in the force.

At the recruitment to the Standby Force, basic demands as per below shall be made on the applicants:

- good technical skills within the area of bridge- and road building
- great deal of experience from supervising practical work within the area of bridge- and road building
- good ability to speak, read and write English
- health profile as per "SRSA guidelines for international service" is applicable
- SRSA will keep a register over the staff included in the Standby Force

The register shall include information as per "SRSA guidelines for international service" with some additions:

- The staff must inform SRSA about changes of address etc.
- The staff must agree in writing that they accept that they are included in the register
- Information from the register is after notification to SRSA available to each respective authority in the working group

## **5. International operations with staff from the Standby Force**

Request for support through an international bridge building operation is made to the International department at SRSA. Such request can come from hidden country, Sida, UN or another international relief- or disaster help organisation.

Once decision has been made by either the Swedish Government or SRSA that an operation will take place, the person within SRSA who is responsible for the Standby Force will inform the members of the Standby Force.

As soon as the financing of the operation has been granted, bridge technicians and if possible the operations manager are recruited, this in order to as soon as possible begin reconnaissance in the operation area. A demand is that the reconnaissance party shall take part in the operation.

Selection of staff, recruitment, contract signing as well as preparation and equipment before the outward journey is lead by the "Responsible for the Standby Force" at SRSA, in consultation with the working group.

Bridge technicians are recruited from the Standby Force.

## **6. National operations with staff from the Standby Force**

Recruitment of and contract signing with staff from the Standby Force is made by the authority who is responsible for the operation.

**Ref: CEDR report 2008/06    TDConstruction2008 / Emergency Bridges**



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