

3-16 April 2005  
Rustenburg  
North-West Province  
Republic of South Africa

stretcher

## ALTERNATIVE MODES OF TRANSPORT

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### the identified need

- anecdotal evidence from target area – transport within the community
- external research
- DoT strategy on special needs transportation (disabled, chronically ill, trauma).



### design determinants ... *what it must do*

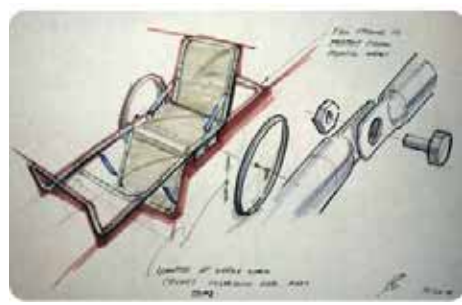
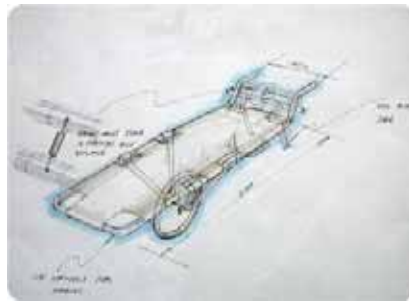
- two people loading onto stretcher
- single person operation
- transport frail and immobile people
- manufacture in rural areas (job creation)
- stable when stationery and loaded
- collapsible for stowage and intermodal transport
- aimed at short distance travel
- primarily for clinic application.

### desired attributes ... *how to achieve determinants*

- low cost
- low technology
- ease of maintenance
- robust
- use of existing devices
- comfortable.

alternative modes of transport

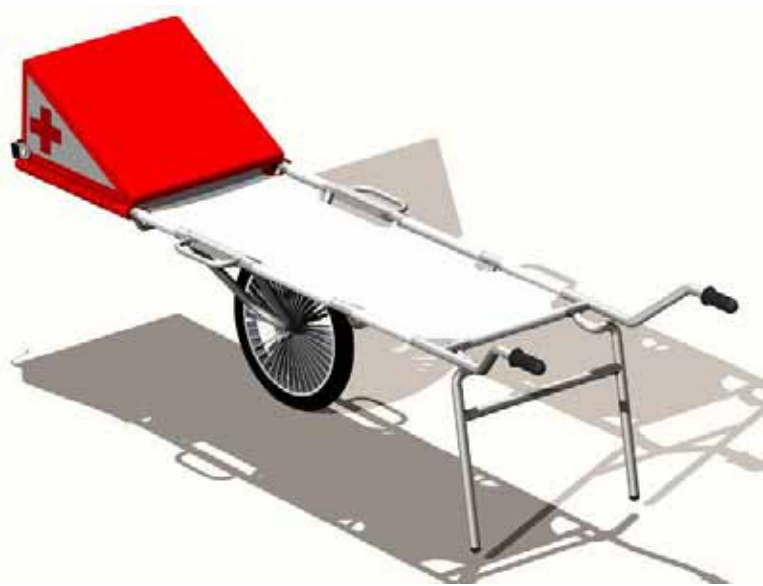
final concepts



alternative modes of transport

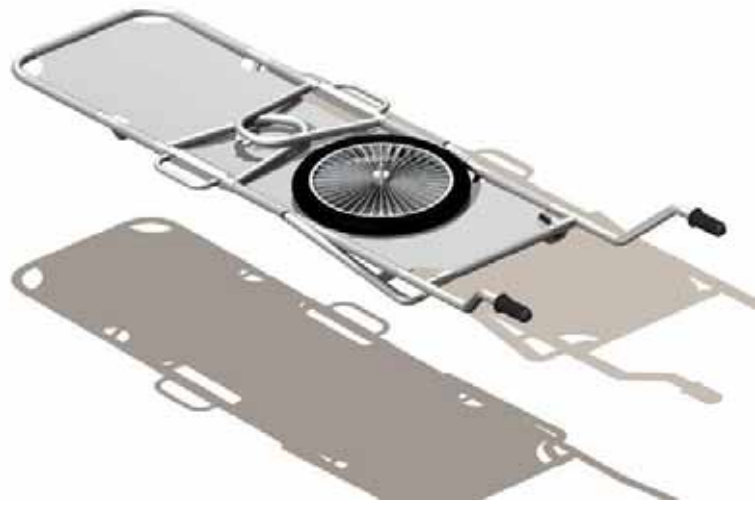
final concepts

- single wheel
- maneuvers easily on foot paths
- possible balance problems
- medical kit attached
- use of standard bicycle wheel



- easy stowage when not in use

final concepts



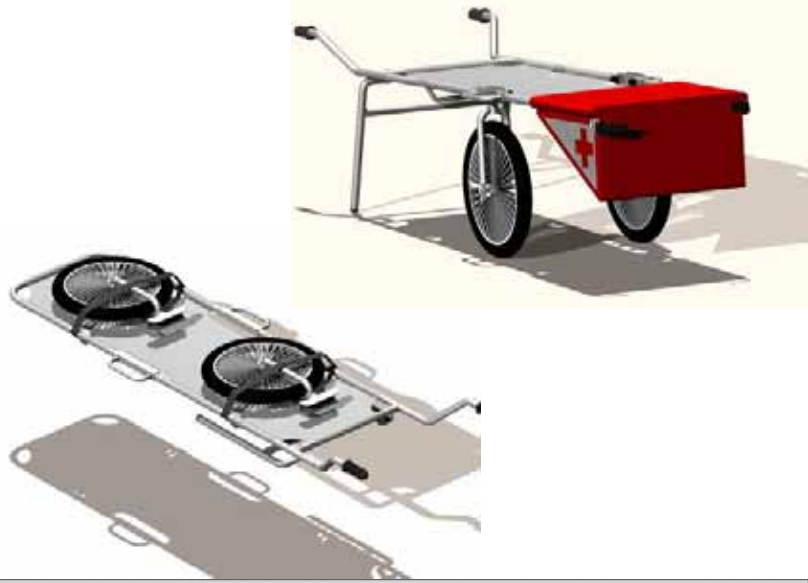
- double wheel
- balances easily for single operator
- possible foot path restrictions
- re-use of bicycle forks and wheels

final concepts

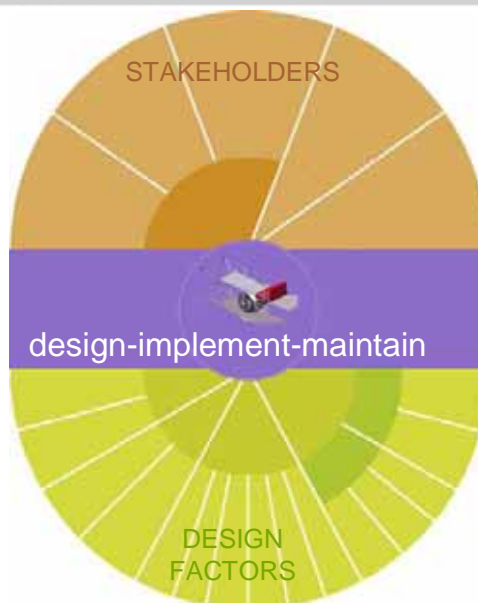


- easy stowage when not in use
- medical kit attached

final concepts



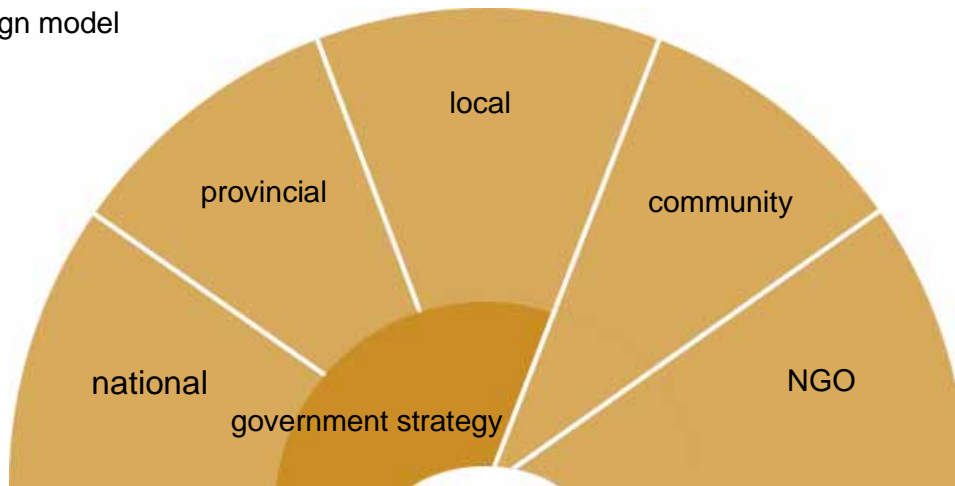
design model



alternative modes of transport

STAKEHOLDERS

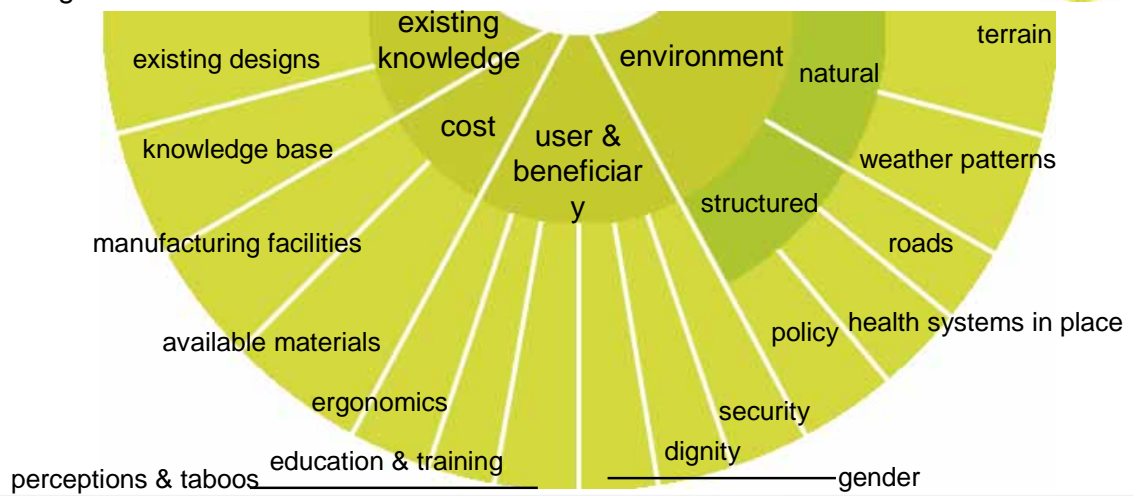
design model



alternative modes of transport

DESIGN FACTORS

design model





examples

- taxi recap programme
- disliking to ride in wheel barrow
- malawi bicycle ambulance



existing products





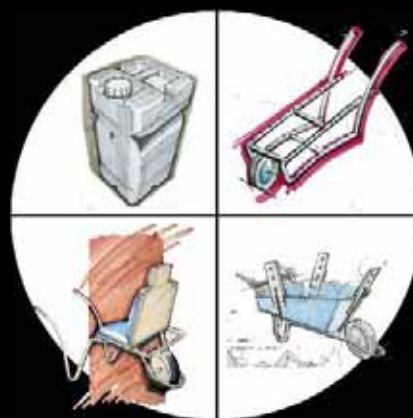
## the road ahead

some design consideration for further development

- validity of the assumption of single person operation
- the single/two-wheel configuration question
- the need for child/female operation
- the need for a shelter/cover

## other ideas

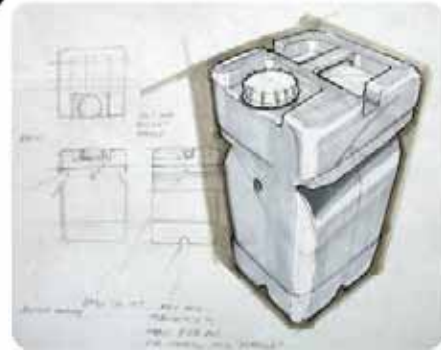
- Use of recycled product
- Goods/people transport
- Wheel barrow arrangement
- People barrow





## embedded recycling

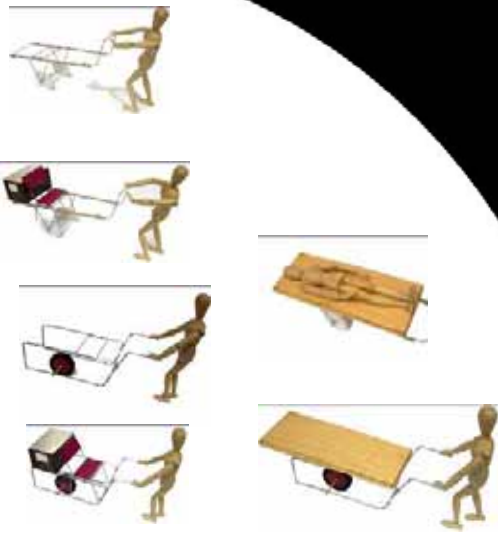
- primary use by industry for liquid packaging
- containers re-used after primary use
- install secondary features to containers



## container for second-hand use

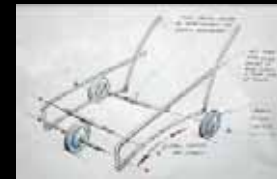
- embedded features may include attachment to poles or axles
- a large mouth allows for powder dispensing or ladelling





## goods/people transport

- adaptable chassis allows for attachment of domestic
- user adaptation of the vehicle



- accessory kit to extend the functionality of the wheel barrow
- headrest, shelter
- attach chairs for prone position

## wheel barrow attachment





## people barrow

- transport for frail or chronically ill
- single person operation
- similar to wheel barrow semantics

