

FINAL REPORT

Date:	31 st May 2002
Title of Project and Project Reference No.	WorldMade Phase 1 C1 P19
Organisation:	Motivation
Reporting Period:	1 st February 2002 – 31 st May 2002
Anticipated Completion Date:	31 st May 2002

1 Goal, Purpose and Outputs of the project:

The **goal** is to establish production and distribution of low cost wheelchairs for developing countries in partnership with local organisations in 20 countries, with the emphasis on local capacity development and training trainers in all areas of wheelchair provision.

The **purpose** is to address the demand for appropriately designed and distributed wheelchairs for developing countries by adopting new approaches to wheelchair provision and associated services.

Outputs:

- Motivation industrial designers will research and develop a wheelchair design for developing countries. Prototypes will be trialled in one global region initially (India, Sri Lanka, Bangladesh and Cambodia), and feed back from users will form the basis of the design brief. *Field trial locations modified, two tier design approach adopted.*
- Motivation's wheelchair financing work to date will be consolidated, and research into wheelchair financing will be initiated in India , Sri Lanka and Cambodia.
- Research and development of a generic training package will be initiated, and a draft plan prepared.
- Research into a potential production partner and location will be initiated, reports prepared.

2 Summary of work carried out in this period:

In Sri Lanka field trials of the WorldMade Low-Tech wheelchair design have been completed and feedback reported, in collaboration with the Spinal Injuries Association, Sri Lanka (SIA). Pre-trial questionnaires were distributed to gather base line data, and further questionnaires and interviews conducted to obtain clear results and user feedback. 4 Sri Lankan wheelchair users took part in the trials, 2 men and 2 women, to ensure against gender bias. The overall results proved that the new design is a definite improvement.

Unfortunately Mr Chapal of Mobility India cancelled his meeting with Motivation in Sri Lanka in February and was unable to observe the field trials. Our scheduled visit to India in April was delayed, primarily at the request of our local partner. In light of the political situation in India/Pakistan at this time, we have cancelled this trip until further notice. Field trials in India have not been possible within the KaR funding period. We are very keen to gain a good understanding of wheelchair users in India and build a strong working relationship with Mobility India for the future, therefore a visit will be conducted as soon as possible.

CAD drawings and digital documentation of the Low-Tech design have also been completed, however there was no need for design modifications following the field trials. From the feedback received, it is clear that the main area for improvement is wheelchair user education, to ensure that all features of the design are fully understood and made use of (for example, adjusting the back rest is an option for wheelchair users, but without adequate education the user may complain that it's too high or too low).

Full details of design development work on the Low Tech wheelchair design can be viewed via the Motivation on-line design viewer:

<http://www.motivation.org.uk/miro/wmscollab/dvindex.htm>

The High-Tech design has progressed very well over the last 4 months, with a new seating system

and cushion designed by Jamie Noon, in collaboration with Ray Mines and Pierre Willems. Details of High-Tech design progress is contained in the appendices to this report.

A final Wheelchair Financing report has been completed by Richard Frost. This document is a comprehensive and highly useful tool for the future project and covers a range of topics from the potential for micro-finance systems to 'compassionate capitalism' and opportunities available on the internet for raising money to pay for wheelchairs. Both local partners and project teams have given input, making this a most worthwhile exercise.

The final Training Package report was completed before the end of the last reporting period. However, over the last 4 months we have circulated proposed plans for the clinical side of the package (covering wheelchair assessment and prescription), for feedback internally. We now have a detailed draft of the modules to be included in the package and brief for further work in this area.

Work in the area of production research has progressed very well, solid links have been established with B&Q's India Office (Mr. S P Gupta) and further research conducted with Dyson UK, the University of South Australia and various manufacturers via the internet. The reports are available upon request, with some basic information contained in the appendices to this report. Component specifications have been emailed to Mr. S P Gupta and we are liaising with him over costings. He is an excellent contact, with a wide range of knowledge and experience in the Indian market, his quoted costs are by far the cheapest, but we will need to follow strict quality control procedures.

3 Overall Results and findings obtained by the project

Motivation industrial designers will research and develop a wheelchair design for developing countries, with participatory involvement from local partners and local wheelchairs users.



Low-Tech WorldMade Design

High-Tech WorldMade Design

Low-Tech design features:

Adjustable backrest height (3 positions), folding backrest for compact storage, durable and breathable upholstery, solid side guards for increased protection, latest Motivation seating technology backrest design, 3 rear axle positions (improved axle beam location system), improved low-tech quick release axle mechanism, one-size easily replaceable bearings on front and back axles, 3° camber (for improved directional control), durable chrome pushrings (now with Tetra 'grip-surface' option), 3 brake positions with fine adjustment (upgraded brake design), improved footplate ergonomics, simple rigid steel construction, durable powder coat paint finish.

Field trial results proved that this design is an improvement on existing low-tech wheelchair technology available in Sri Lanka. Example questions:

1/ You have mentioned that the seat and backrest upholstery is better on the trial wheelchair than your usual wheelchair. Can you explain why it is better?

Its because the trial chair has only two back straps and one bottom strap which allows me to sit back more comfortably. My usual chair has four straps. (Hemanthe Rubasinghe)

2/ You have mentioned that the brakes on the trial wheelchair are better. Can you explain why they are better?

The break has a good grip and its large enough to hold the tyre firmly. (Tusitha Mahindarsiri)

High-Tech design concepts for development:



Low Position Backrest



High Position Back rest



Cushion and cover

The idea is to eliminate the need for maintaining an inventory of backrests, cushions, and covers of different sizes. One size fits all. Further modification isn't necessary but can be done in the field in special cases.

Please also see Appendix 1 for further details of the High-Tech design developments.

Research into a potential production partner and location will be initiated, reports prepared.

Please see Appendix 2, 3 and 4 for details of the work carried out on production and material sourcing.

Motivation industrial designer and occupational therapist to research a generic training package for Regional Centre training.

Further development of the clinical side of the training package (wheelchair distribution issues).

Suggested modules to include:

- Wheelchair users – the different user groups and disability groups and their specific requirements for a wheelchair
- Health care issues - an introduction to the common health issues that may affect wheelchair users and identifying how these will affect wheelchair prescription and use.
- Wheelchairs and cushions – wheelchair types, wheelchair parts and cushions.
- Assessment and Prescription – how to.
- Independence and mobility – active wheelchair skills, independence issues, self esteem.

Full report on the Clinical Training Package available upon request, please see Appendix 5 for the outline of suggested modules.

Research sustainable wheelchair financing systems.

Report completed, available upon request.

4 Implications of the results or findings for achieving outputs&purpose of the project:

The results of the first Phase of WorldMade have proved very positive overall. We have developed a

two tier approach to our wheelchair design development, as pictured above. The WorldMade Low-Tech design which has undergone field trials in Sri Lanka (Phase I) will be used to pilot the WorldMade distribution process in one country (Sri Lanka, funded by USAID), helping us to prepare for regional scale distribution in Phase III. The High-Tech design has taken longer to develop, and was not finalised during this funding period, however we have made significant progress towards meeting our overall goal for the project.

Research in the areas of wheelchair financing and training package development have established a good basis for future work. We have achieved our objectives of consolidation and planning, developing working documents for Phase III. For example, the clinical side of the WorldMade training package now has a clear brief and recommendations for teaching methodologies, and we have a comprehensive document outlining past and potential future wheelchair financing strategies. Our local partners have been involved in all aspects of this research, and we have developed strong links with organisations to become future Regional Training Centres (RTC's).

5 Priority activities for follow up in order to meet the goal:

Our main focus for Phase II will be further development of the WorldMade High-Tech wheelchair design in preparation for full production in Phase III, including further liaison with manufacturers and B&Q. This will involve ongoing design work and user trials scheduled for July – November 2002. As mentioned above, the Low-Tech design will be used to pilot the WorldMade distribution process in Sri Lanka later this year.

We will be carrying out detailed planning for the establishment of the first four WorldMade RTCs with our local partners in preparation for implementation in Phase III, as well as focusing on the further development and preparation of the Training Package.

During Phase III we will work closely with each RTC partner to identify key wheelchair financing strategies which can be applied to their country and region, drawing from proven strategies used by Motivation in the past.

Fundraising for the future project is well underway, and an application to the European Commission has been submitted. We aim to initiate the project implementation phases of WorldMade in January 2003.

6 Summary of Financial Expenditure to date and forecast through to completion:

Total expenditure at 31 st May 2002	£98,724.83
Total Cost	£99,913.79

7 Name and signature of author of this progress report:

Ms Indi Gavin

Project Manager