

MODULAR SOCKET SYSTEM

THE MSS AS RURAL SOLUTION IN INDONESIA

INTRODUCTION

The majority of the people in low-income countries, who need assistive technology do not have access to prosthetic devices. Instead of these people having to make a long



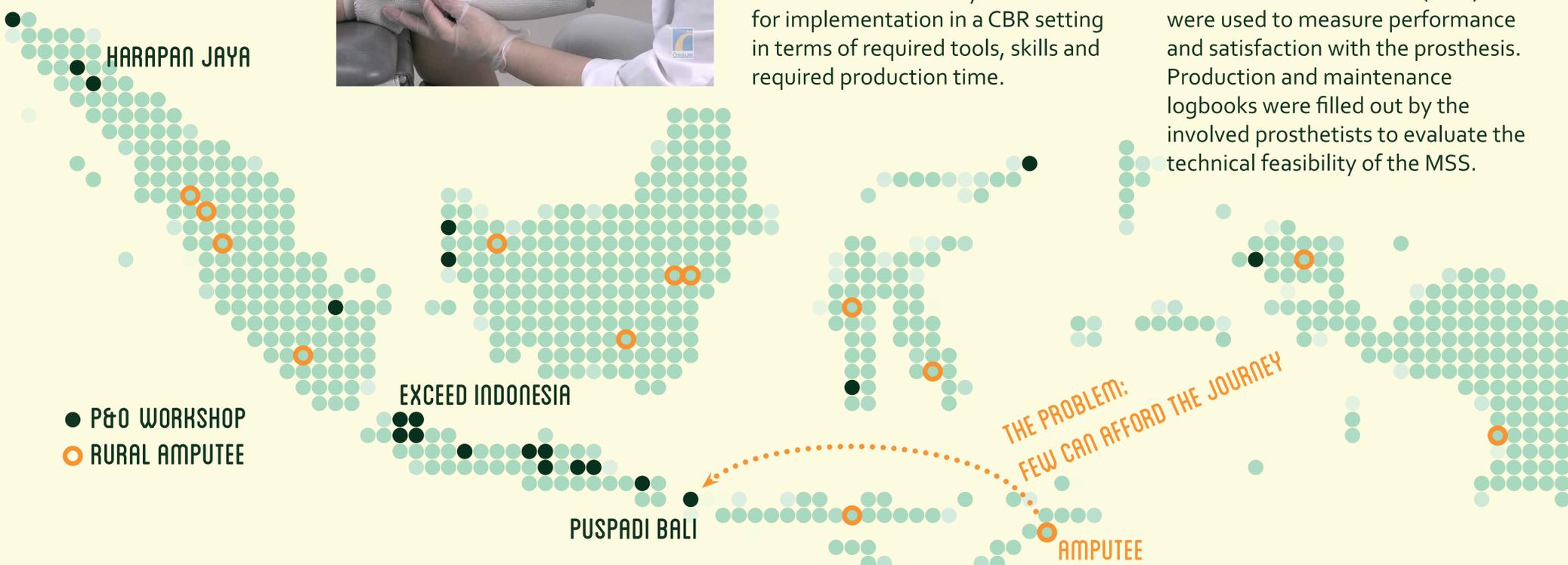
journey to one of the few prosthetic workshops, solutions like the Modular Socket System (MSS, Össur®) may be useful. Potentially they could be delivered and manufactured on site, at the location of the person. This could make it suitable for application in a Community Based Rehabilitation (CBR) setting.

The aim of this study was to evaluate the technical feasibility of the MSS for implementation in a CBR setting in terms of required tools, skills and required production time.

METHODS

The study was performed by Exceed Indonesia. Four prosthetists received a three days training in manufacturing of the MSS. Trans-tibial amputees were recruited to participate in this study from the region of Jakarta (n = 5) and Bali (n = 10).

A set of standardized instruments including the two minutes' walking test (2MWT) and Prosthesis Evaluation Questionnaire (PEQ) were used to measure performance and satisfaction with the prosthesis. Production and maintenance logbooks were filled out by the involved prosthetists to evaluate the technical feasibility of the MSS.



RESULTS

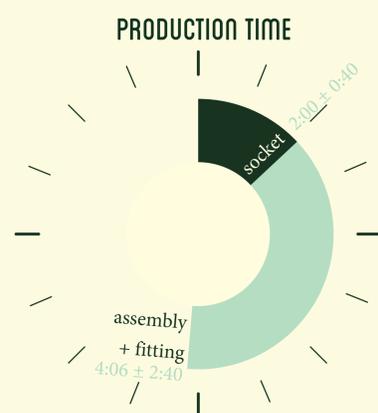
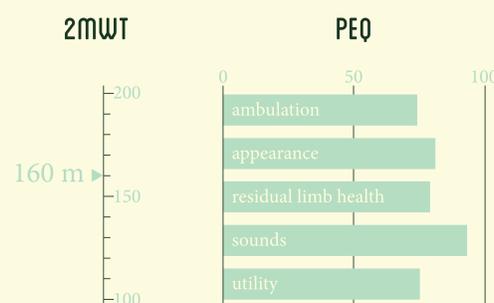
15 AMPUTEES
5 FROM JAKARTA
10 FROM BALI

23 - 58 YEARS OLD
1.2 - 38 YRS SINCE AMPUTATION
0.2 - 35 YRS PROSTHESIS USE
1 - 12 PREVIOUS PROSTHESES

15 PROSTHESES
4 GRADUATE STUDENTS
3 DAYS TRAINING

Performance (2MWT) and satisfaction (PEQ) scores were comparable to that of similar studies with other lower leg prostheses. Both measures did not decrease significantly over time. This suggests that the prosthetists were able to reach sufficient quality.

It took the prosthetists 3.5 to 10.5 hours to fit an amputee with a MSS prosthesis. Mean socket production time was 2.0 hours and mean prosthesis assembly and fitting time was 4.1 hours. The only non-portable machine needed for the production of the prosthesis was a grinding machine (router). Smaller portable machines used were cast cutter/jigsaw, Icecast® Compact and resin injection tool.



DISCUSSION

Patients who normally have to travel long distances to access prosthetic services were only required to make one visit to the health facility in order to receive a prosthesis. If in the future the grinding machine will be replaced by a handheld tool, production of the MSS could be performed on site, making it suitable for use in a rural setting.

From a technical and quality perspective the method seems feasible, although, high costs remain an issue.