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Book review

Engineering in Development: Transport by Robin Lovelace and Andy McLoughlin, 2014, London: Engineers Without Borders, £10 ISBN 978-0-9933631-0-8 (Paperback) ISBN 978-0-9933631-1-5 (PDF)

The book is written by a geographer and an engineer who are actively engaged with the development organisation Engineers Without Borders—UK. It is primarily intended as a practical guide for field practitioners (such as EWB-UK placement volunteers), and focuses on the application of appropriate technology to rural road transport in developing countries.

The book is 135 pages long and covers two main subjects: (1) design and construction of low-cost rural roads; and (2) affordable and sustainable vehicles for these roads (both existing and improved designs). It is written in a clear and easy-to-read style, with plenty of photographs and diagrams, and very clear headings. The book also draws extensively on nine case studies from the experiences of EWB-UK volunteers and other researchers in Africa, Asia and Latin America, and gives plenty of references to other useful reports and websites.

The book commences with three very brief chapters setting the scene on rural transport in development. It then follows with four chapters on road design and construction, which is the main part of the book. It is not intended to be a comprehensive guide but rather "an overview of the basic knowledge and principles likely to be required by a placement volunteer." For example, it discusses topics such as road materials, alignments, drainage, setting out, simple structures, road surfaces and so on, all relevant to 'low volume roads'.

The three chapters on vehicles constitute about one-third of the book and combine a general discussion of wider transport issues (such as non-motorised versus motorised transport; vehicle operating costs; transport decision-making) with specific technical case studies such as a bicycle ambulance, recycling bikes in Africa, community bike trailers, a new bamboo rickshaw, and animal-drawn carts for agricultural inputs. Interestingly, one chapter focuses specifically on mobile phones and ICT (information and communications technology) and how this may influence rural transport in future.

The book has many good points. Firstly, it is valuable to have personal experiences from actual projects recorded for the benefit of others. Too often people's experiences in development projects are not passed on, so the case studies provide some useful lessons. Secondly, the book is a good resource for people working in rural transport, with its interesting and easy-to-read style, and plenty of references. Thirdly, the approach of combining roads and vehicles in one volume is innovative and makes the book of interest to a wider audience.

However, the book also has some limitations. The attempt to cover so many aspects of road design and construction and vehicle development is very ambitious, and makes the book a bit thin on the ground in some places. This is particularly true of the introductory chapters discussing the broader context, and also some important sections such as road maintenance, which the authors acknowledge "has been the major failing of road administrations around the world", and road safety, which the authors say is 'too often considered only as an afterthought'. The three chapters on vehicles (including mobile phones/ICT) would also benefit from more supporting references and a clearer focus on the key messages.

Possibly the most important area of the book that does not receive sufficient attention is the social, cultural, economic and institutional factors that influence the development process. The book acknowledges the importance of these factors: for example, in one case study an EWB-UK volunteer in Indonesia found that a 'culture of receiving' led to local apathy in completing the road construction project on time and budget. In Namibia, a bicycle ambulance project distributed 100 ambulances over a two-year period, but many did not last because of "a lack of resources to maintain them and a lack of a well-defined structure to manage them." Generally, the book touches on the importance of institutional and socio-cultural factors—for example, an EWB-UK volunteer in Ecuador concludes that "engineers in developing countries should respect the limits of their knowledge", and are most effective "when acting as a broker of technical advice rather than a provider of solutions". But overall, the book tends to focus more on technical aspects and less on crucial human aspects such as institutional arrangements, community organisation, revenue-raising and knowledge-transfer.

The book's Foreword emphasises that the '*Engineering in Development*' series is a continuing process that will be refined as new material emerges. It would be valuable if the book, which is written primarily for EWB-UK volunteers, could be further developed and targeted at a wider audience, particularly local engineers/practitioners in developing countries. Overall, it has a great potential as an easy-to-read source book for people who are interested in transport development, both broader issues and specific practical actions at the local level.

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