

Module H. Case studies on integrating bicycle components into transport projects

A. BICYCLE COMPONENTS INCORPORATED INTO LARGER TRANSPORT PROJECTS

Case Study 1: The World Bank Non-Motorized Transport Pilot Project in Lima, Peru

Project Description

The pilot project was part of a 1994 IBRD Transport Rehabilitation Loan to Peru. The whole NMT pilot project was calculated at 4.1 million dollars, of which 3 million were to come out of the IBRD loan. The rest was to be provided by the municipality. The general objective was to promote the use of non-motorized transport in Lima. Specifically, a bicycle lane was to be built from residential areas in the Northern cone of Lima towards an industrial area so that people would save money on transport fares by commuting to work by bicycle. Since bicycle ownership was low, a \$600,000 credit facility for the acquisition of bicycles was included as part of the pilot program. The project also included a larger program of bicycle promotion in Lima.

Project partners

Responsibility for the implementation of the promotional aspects of the pilot program was given to the Non-motorized transport program (NMTP hereafter) of Lima, a special unit was created in the local government to promote bicycling in Lima. The existence of this program predated the World Bank pilot project. The program was headed by Jenny Testino, a retired female national bicycling champion who enjoyed the personal support of the mayor for her program. The construction of the bicycle lane was carried out in cooperation with local planners and engineers.

Project implementation

Construction of the bicycle lane proceeded as planned. Several promotional bicycle rides and other events were organized by the NMTP office, receiving good press coverage. However, after the official opening of the bike lane, preliminary traffic counts revealed that usage of the lane was low. Several reasons were identified as contributing to this.

The lane was separated from the road by concrete curbs, and while it was not easy for cars to cross over into the lane, it was nevertheless possible, and cars were found parked on the lane at times, blocking bicyclists' way. Other times, trash clogged the lane. Another unanticipated problem was the fact that the lane was too narrow for the many small vendors on tricycles, who should have been identified as potential users of the infrastructure. The initial width of the lane made it impossible for tricycles to pass.

Fear of traffic conditions outside the lane and fear of theft were other reasons for the low usage of the lane. Also, bicycle distribution through the credit program did not proceed as planned, so that bicycle ownership was not boosted in the manner anticipated.

The procurement of the bicycles and their successful distribution to the target population proved another major obstacle in the pilot program. The original plan was for several kinds of bicycles to be supplied from a firm in Arequipa. People should have had a choice between three bicycles: a Peruvian-built Goliath, a Chinese Five Rams, both of which were single speeds for \$100, and an Indian Hero bicycle for \$99 with 6 gears. The \$600,000 facility would have been able to give out over 17,000 loans during the first two years of the scheme. The actual number was in the hundreds.

Similar to the Mozambican case, the actual bicycles provided by the Peruvian supplier did not conform with the specifications of the contract, meaning the bike selections were of lower quality. The NMTP office did not

force the suppliers to rectify this problem.

Applicants may purchase their bikes at any cycle shop and select from the 10 models available in the project. They are given a receipt that notes the make, model and cost, which they take to the Caja Municipal, which, in turn, approves the loan. Buyers must make a down-payment of the equivalent of \$ 10, and pay the rest in 12 monthly installments (loans carry a 6% interest rate). The Caja Municipal pays the shop directly, and the applicants can then obtain their bikes. For loans approved in the first year, the repayment rate is about 95%.

The fact that so few people signed up under the credit scheme in the target neighborhoods was surprising given that preliminary socio-economic surveys at the beginning of the project had revealed that 67% of the men and 57% of the women interviewed in the target area would travel by bicycle if they had access to one. In order to be eligible for the loans, people only had to prove that they lived in the area, that they did not earn more than \$1,800 a year, and that they did not have more than \$5,000 in their accounts. The credit facility was to be managed by the Caja Municipal de Credito Popular de Lima (CMCPL), to be disbursed through its local offices, through participating NGOs, and through industrial enterprises in the project area through payroll deduction schemes. Over 80% of the businesses in the area, together employing over 50,000 workers were supportive of the program, and the larger factories had been approached about providing parking facilities.

Subsequent studies revealed that the project apparently had not been successfully advertised by the university group contracted to promote it. When asked, few people were familiar with the program. To rectify this problem, a public relations company has since been hired to promote the scheme.

Today, the pilot project is continuing with increasing success. On the positive side, a much larger network of bicycle lanes has since been built, several of them in the median green strips of major avenues. There have also been ongoing campaigns on general traffic safety and safe bicycle riding skills. Cycling in Lima has now become a viable transport option, and institutional and popular support for cycling is on the rise.

Lessons learned

1. The general project objective of promoting cycle use was achieved despite several problems with project design and implementation. The existence of a special non-motorized transport program in the local government structure proved crucial to rooting the pilot project in a larger program of NMT promotion that is ongoing until today. World Bank support to the project clearly meant increased recognition of cycling as a viable transport option on the part of local government officials.
2. The procurement of the bicycles did not proceed as smoothly as hoped, but the bigger problem was the subsequent distribution of the bicycles through the credit facility. There was not a close enough liaison with people in the target communities, a factor that may have been rectified through the involvement of a local NGO.
3. Bicycle usage among the female population remains low. There should have been special promotion activities to target women for increased bicycle use. The fact that the director of the NMT program was a national celebrity female national bicycle champion certainly helped to bring prominence to female cycling in the eyes of the general public, but without special targeting this was not enough of an incentive.
4. An effective publicity campaign is very important and it is important to contract an agency with experience in this field and with commitment to the project. A professional public relations agency may be more effective than an agency committed to cycling but without the required expertise.

Case Study 2 : The World Bank Non-Motorized Transport Pilot Project in Beira, Mozambique

Project Description

The pilot project was designed as part of the Urban and Environmental Management Component of the Local Government Reform and Engineering Project (PROL-Project) funded by IDA. The general project objective was to promote the use of bicycles. Specifically, the project aimed to improve the mobility of the local population through provision and distribution of 2,500 bicycles. The project implementers were to introduce and establish mechanisms for the acquisition of bicycles by local low-income people, to increase the receptivity to non-motorized transport and improve the awareness of decision-makers and the public of the benefits of bicycle use, and to create basic capacities for planning and managing non-motorized transport at the local government level.

Project partners and consultants

The IDA PROL credit had been assigned to the Ministry of State Administration, and their local office was responsible for project implementation. The office was to procure the first set of bicycles for distribution among the target population. It was also planned to procure several pedicabs for use in and around the city.

A local NGO, the Mozambican National Association for Rural Women Development, AMRU, was hired to carry out the project. A non-motorized transport specialist was to be supplied by AMRU's international partner organization, the New York-based Institute for Transportation and Development Policy (ITDP). The two NGOs had a record of close cooperation on past bicycle projects in Mozambique and had jointly delivered several containers of used US bicycles to rural areas in Mozambique and distributed them through a credit scheme.

Project Implementation

From the early phases, there were problems with the implementation of the project. In late 1997, the local PROL office requested the help of AMRU and ITDP in preparing the tender for the bicycles and the pedicabs. A list of specifications was assembled, calling for high enough quality bikes to endure rough outdoor conditions in rural Mozambique. The World Bank officers in Washington issued a no objection to issuing the tender by January 1998 provided that some minor changes were made. Subsequently, there were extensive holdups with procurement, however.

The company that eventually was considered for procuring the bicycles did not comply with the specifications that the project consultants asked for. Specifically, the bicycles were not of appropriate quality and without the fat tires requested. There were also some more serious questions about the tendering procedures.

The tendering process had been further complicated by the fact that the procurement of the bicycles was handled by a different government agency than the overall pilot project. The lack of a sense of ownership for this pilot project jeopardized its success from the beginning of the project. In early November, the Washington World Bank officers still had not received the draft purchase contract for no objection, and there was not enough time left to complete another competitive bid for bicycles. Having committed to an extensive program of bicycle promotion and training without being in control of the procurement process put the NGO consultants for the project in an awkward position. Five months before the official termination period for the larger project, there were still no bicycles to work with, and the only alternative left would have been to start the educational aspects of the project without the supporting bicycle distribution project component.

In early December, the consultants requested advice from the supervising World Bank task manager on how to proceed with the project. They also pointed out that by then substantial time commitments had been made by all parties involved without any remuneration and with decreasing prospects of project success.

The consultants were eventually offered a substantially reformulated terms of reference that proposed to only complete the educational aspects of the planned pilot project. However, by the time this offer was relayed to the groups the non-motorized transport specialist for the project, assuming that the project was canceled, had already made other commitments. At this point, the pilot project was canceled altogether.

Lessons Learned

5. A pilot project of relatively small size needs a firm and uncomplicated organizational structure. Finding a committed focal point inside the local government agency responsible for implementation seems most crucial to project success. As an alternative, the NGO contracted for project implementation could have been made directly responsible for the procurement of the bicycles, thus avoiding the extensive administrative holdups that seem to have eventually caused the death of this promising pilot project.
6. The extensive problems in procurement were obviously not anticipated by the project partners. Such possible holdups and administrative difficulties need to be well researched in the feasibility study phase of future pilot projects.
7. Improved guidance from the World Bank in Washington regarding actual project setup, financial structure and staffing commitment could also have improved the prospects of project success. However, due to the pilot character of the project, there was obviously little experience to draw from.
8. If a project were to be replicated according to the Mozambique project format, the involved NGOs need to be better protected from the danger of the project not succeeding due to procurement difficulties.

B. SELF-STANDING BICYCLE PROJECTS

Case Study 3: ITDP's Afribike South Africa Project

Project description

The objective of the project was to improve the low-income majority's access to non-motorized transport, particularly among the women residing in central Johannesburg and the nearby townships of Alexandra and Winterveld. Appropriate and affordable cycling is not accessible for most South Africans. Existing bicycle distribution networks cater to affluent recreational cyclists, and bike shops are virtually nonexistent in the townships and semi-rural areas. The low-cost bicycles that are available are usually of poor quality, not suitable for utilitarian tasks, and overpriced. The project aimed to make bicycles and work-bikes accessible to the target populations through an integrated program of training in riding and maintenance and through organized distribution of cycles. In particular, cycles were to be used for income generation and commuting purposes, thus promoting sustainable economic and community development.

Project partners

The New York-based Institute for Transportation and Development Policy initiated the project with US private sector foundation financial support. The main in-country project partner is the Afrika Cultural Center (ACC) in downtown Johannesburg's "Newtown Cultural Precinct." The UK-based Re-Cycle project was also enlisted to provide support to the project.

This project was wholly non-profit sector initiated and was not part of any larger internationally financed project. However, the project implementers have extensively discussed their approach with World Bank staff. In April of 1999, ITDP representatives were invited to the World Bank's annual "Transport Expo" in Washington DC to present the Afribike project to the Bank's transport personnel. The Bank financed and produced a documentary video about the Afribike project, the primary purpose of which was to inform Bank staff of future project possibilities. The Bank's response to the video has been overwhelmingly positive, and significantly increases the hope that the Bank will soon pursue similar strategies in other developing contexts.

Project implementation

In the fall of 1998, using free shipping space from the US Department of Defense, ITDP staff and volunteers shipped a container of used US bicycles to go to South Africa. Shortly after the arrival of the about 700 bicycles, plus accessories and tools in South Africa in December, ITDP's team arrived to set up the Afribike

center. The team consisted of ITDP's project director, two work-bike designers from California and the executive director of the UK Re-Cycle NGO.

The Afribike Center Workshop (ACW) was set up on the grounds of the ACC, using six donated shipping containers that were converted into workshop, storage and classroom spaces. An Afribike office was set up in the ACC main building. An in-country staff of four mechanics and a project director was hired, and supported by additional in-country volunteers.

At the outset, Afribike offered a forty-hour program consisting of three courses: Basic Maintenance and Repair; Advanced Maintenance and Repair; and Earn-A-Bike, through which students receive a bicycle that they repair. The program was to last ten weeks, or four hours per week divided into two two-hour courses. Prior to the April start date, few students signed up for the course. The project partners attributed the initial low enrollment to lack of marketing and the nominal fee charged for the classes. By early June, only about 40 people had participated in the training program and received bikes. About 35 additional bikes and some tools were sent to a rural school near Bloemfontein to capitalize their "Earn-A-Bike-To-Get-To-School" program. Though few, the trainings conducted with several artisans affiliated with The Afrika Cultural Center (where Afribike is housed) and members of the Gauteng Self-Employed Women's Association were particularly useful in helping the project implementers modify the course to better suit the needs of the participants. The hours were made more flexible to accommodate problems with transport and work schedules, and the cost was brought down a bit. Still, enrollment was not as high as hoped.

It turned out that, most of the demand for the Afribike course and Afribikes came from the peri-urban township areas surrounding Johannesburg (i.e. Winterveld and Alex), which had difficulty accessing the facility. In order for Afribike to meet this demand, Afribike acquired a truck to bring Afribike courses and Afribikes to these areas, and also established an "Afribike Satellite Center" in Winterveld, where access to cycling goods and training is sufficient to sustain such an operation.

The economic impact of owning a bicycle has been both immediate and substantial for many of the participants. For example, Elizabeth Mavundla, whose story is featured in the video documentary, was able to save as much as \$75 a month on transport costs.

Interest in surrounding communities notwithstanding, the proximity of the ACW to central Johannesburg gives it a high-profile among political decision-makers. Afribike's presence in Newtown has precipitated a plan by the Greater Johannesburg Metro Council to include wide dedicated bike lanes on a new bridge that will connect Newtown to Central Johannesburg. The demonstration effect of the bicycle project thus had an important influence in changing the political attitude towards cycling facilities.

There were several additional project elements to the Afribike initiative:

9. *Xtracycles*

To augment the load-carrying capacity of Afribikes, some were converted into "Xtracycles". Consisting of a large rear rack that is welded together and bolted to the frame of a regular bicycle, Xtracycle technology has been previously tested in the western United States, Senegal and Nicaragua. Developed by Stanford engineering student Ross Evans, the Xtracycle is a low-cost solution to load-carrying problems, and can carry up to 100 kilograms of cargo. Xtracycle fabrication capacity was more difficult to establish than originally envisaged: sourcing appropriate steel, brake braze-ons and other components proved difficult. Today, an adaptation and fabrication of an Xtracycle appropriate for use in South Africa is continuing apace, and orders have started to come in from recyclable collectors, small traders and businesses looking to mobilize their workforces.

10. *Bicycle Trailers*

Thirty bicycle trailers were donated to Afribike from Burley Design Cooperative in Eugene, Oregon. Though an effective and light-weight load-carrying technology, widespread use of Burley's in South

Africa is not likely in the near future as they are prohibitively expensive to import. The Burley's made available to small traders (to be seen in the World Bank-funded Afribike video) have nevertheless been useful in that they are demonstrating the potential of non-motorized load-carrying technology. Plans for a low-cost trailer capable of being manufactured in South Africa have been acquired through the International Bicycle Fund. Afribike plans to begin manufacturing these in 2000.

11. *The Sisters of Mercy Project*

This element more forcefully addressed the gender dimensions of the project. Historically, due to a host of factors, Black women have tended not to cycle. Because Black women typically shoulder a disproportionate share of the household transport burden, this was seen as an obstacle worth working to overcome. Winterveld is an informal settlement located 30km north of South Africa's capital of Pretoria. The Sisters of Mercy school, located in the Jakhlas area of Winterveld, provides 1500 children, teens and adults with access to vocational training in masonry, paper making, embroidery and other job skills. Afribike's Master Mechanic arrived at the Sisters of Mercy facility in a truck laden with bikes, tools, and workstands and began teaching a 7-day Afribike course to 24 young women who were recycled stationary makers, embroiderers and sewers. Twenty-two of them had never learned how to ride and in addition they had to confront their peers' resistance to the idea of women on bikes.

The time savings related to the bicycles have been enormous for the women. For example, Betty Mathlo, one of the recycled stationary makers, cut her daily commute from 90 minutes to 30 minutes, affording her more time and energy to improve her trade. Similarly, fellow paper maven Martha Mailula cut her one-way commute from 75 minutes to 30 minutes. Afribike and the Sisters of Mercy are planning three more trainings within the next 5 months, serving an additional 75 aspiring cyclists. Afribike has provided the Sisters of Mercy center with the necessary tools, training and support to found their own Afribike 'satellite' shop.

12. *The All Africa Games in Alexandra Township*

Afribike also provided training and workbikes to 200 women who are employed as service workers at the All-Africa Games Village in Alexandra Township. The bicycles were painted in the spirit of the Games (Sept. 10 –19, 1999), outfitted with racks and crates, and be used for various tasks in and around the Games Village. The women get to keep their bikes. The training and workbike procurement, funded jointly by ITDP, the workers themselves and corporate sponsors of the Games, gives the women vital economic tools to use after the Games are over, in addition to affording enormous exposure to the potential of bicycles and challenging cultural norms.

▪ *The BikeTraC initiative*

On December 15, 1998, Afribike and Ibrahim Seedat of the South African Department of Transportation hosted a workshop: "Bicycling as a Transport Option in South Africa", in the hopes of jump-starting a bicycle safety campaign. NGOs, government officials, and other cycling and public transport advocates from all over the country came—including three founding members of the Soweto Cycling Association.

At the end of the workshop, participants decided to form "BikeTraC", the Bicycle Transport Coalition of South Africa, to "Promote People-Powered Transportation", particularly in the province of Gauteng, where Johannesburg and most townships are located. Two weeks later, BikeTraC staged the first of several "Cyclist Solidarity Rides for Safe Streets." The ride began in Soweto, passed through downtown Johannesburg, and ended at the steps of City Hall where the riders demanded bike facilities and motorist education. Two weeks later, BikeTraC representatives began a round of meetings with government officials to discuss "bikestations", or bicycle parking facilities adjacent to township mini-bus taxi ranks, major bus stops and commuter rail nodes. BikeTraC is now a part of Afribike's "Safe Streets" program, and is working with a host of NGOs and governmental bodies to improve conditions for cyclists.

▪ *General outreach and marketing*

Afribike has been the focus of numerous newspaper and magazine articles, radio shows and television programs within South Africa. Thanks to such widespread coverage, much of the South Africa development community is now aware of Afribike, increasing the prospects for future cooperative projects and increased capacity. A well-respected South African PR firm, Charles Smith and Associates, has agreed to embark upon a pro-bono Afribike marketing campaign, focusing primarily on Afribike's trainings at the All Africa Games Athlete's Village in Alexandra township.

The international bicycle industry has also taken notice. Currently Afribike is exploring a partnership with two major Taiwanese bicycle manufacturers that would ostensibly result in founding South Africa's only bicycle assembly and/or manufacturing concern. The South African Department of Trade and Industry is also interested, as such an undertaking would have obvious benefits to their current goals of job creation.

Today, the project is continuing successfully. Afribike is scheduled to soon become its own registered in-country NGO, with the prospect of receiving support from several national and international donor agencies, including UNDP.

Lessons Learned

15. The primary objective of the project, to improve access to cycling resources, was met. The achievement of mobilizing hundreds of individuals with workcycles and training was made more impactful by the high-profile situations in which Afribike worked, and by the widespread press coverage that resulted. The impact was furthered through active outreach to the government (NDOT), multilateral development institutions (The World Bank), the South African and United States cycling communities, industry, business development and NGO communities--all of whom are now furthering Afribike's goal of providing training, low-cost bicycles, and improved cycling environments to South Africa's majority.
16. Though Afribike is making strides in promoting cycling in Johannesburg's inner city, most of the demand for Afribike's services continues to come from the townships and semi-rural areas where the need for affordable transport is most acute. In the future Afribike will continue to work in the inner city but focus more on servicing the outlying communities where the most rapid development is taking place.
17. One issue which has not yet been fully addressed concerns the financial sustainability of the project. As the bicycles were donated, under South African law it was not possible for them to be sold and the only charges which could be levied were for training and the cost of the Xtracycles. If the project is to be replicated on a larger scale it will be important to evaluate whether participants will be able and willing to cover the full economic cost of the bicycle and the program overheads.
18. To summarize, successful project setup requires extensive in-country coordination and intimate knowledge of local conditions, combined with a flexibility to adjust program elements in an ongoing learning approach. Public outreach and media coverage will greatly contribute to project success. It should also be noted that until special efforts were made to target women and women's organizations for the training courses, female participation was low. To date, a majority (80%) of the participants in the project are women.