Stormwater Low Impact Development Alternatives for Low-Income Settlements in Ocotillo Anexo, San Pedro Sula, Honduras

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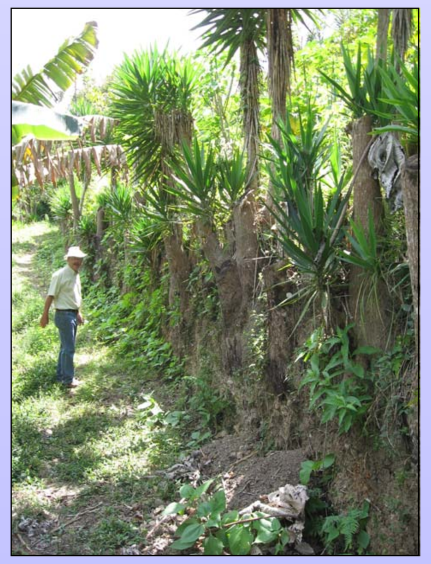
The research explores the feasibility of using “green” low impact development (LID) Best Management Practices (BMPs) to control low-income settlement stormwater runoff in northern Honduras. The design and maintenance of the BMPs in these settings are limited by their cost and slope gradient. Local knowledge and community participation is key for their successful implementation.

An *in situ* survey was conducted to determine the likelihood and acceptance of selected LID technologies. The vegetation recommended is fruit-producing, has extensive but not intrusive root systems, and provides some degree of shading. The survey showed that most residents support the use of BMPs in the public right of way. GIS analysis was used to identify potential sites for selected technologies.

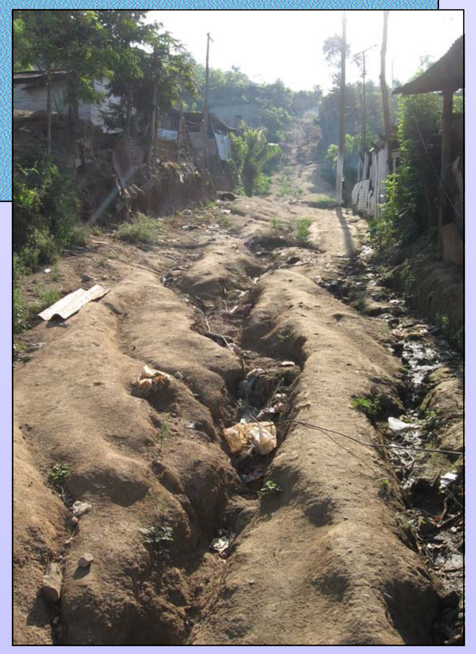


Yucca elephantipes or Izote: A recommended native plant used to prevent erosion and treat runoff

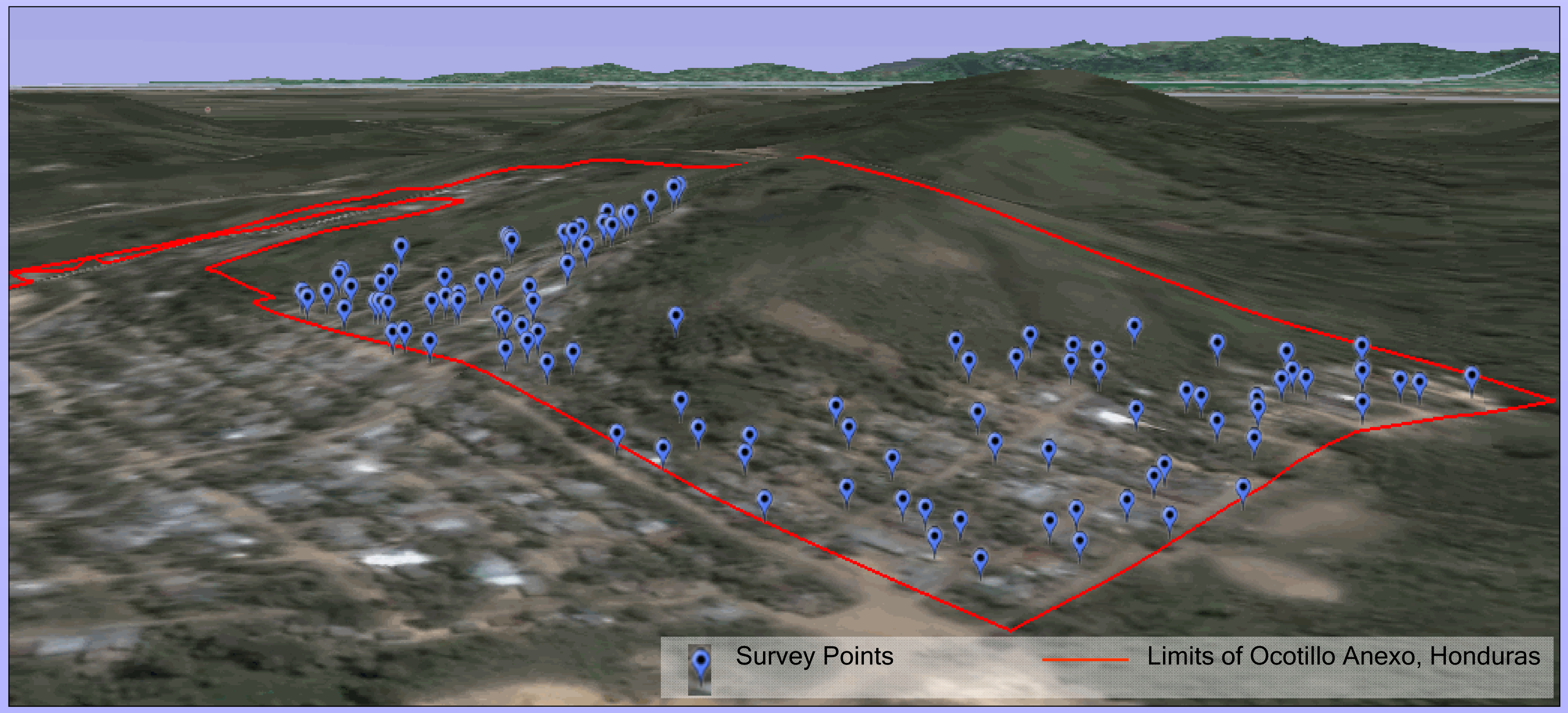
Living Fences: Used for slope stabilization, erosion prevention, fruit production and shade

Roadway-Upper Portion

Open sewer in Ocotillo Aldea



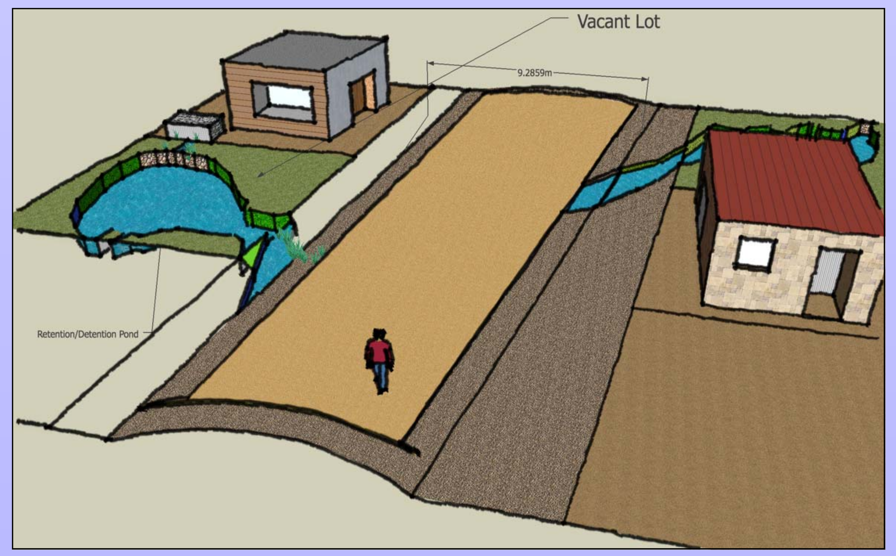
Roadway- lower portion



Ocotillo Anexo

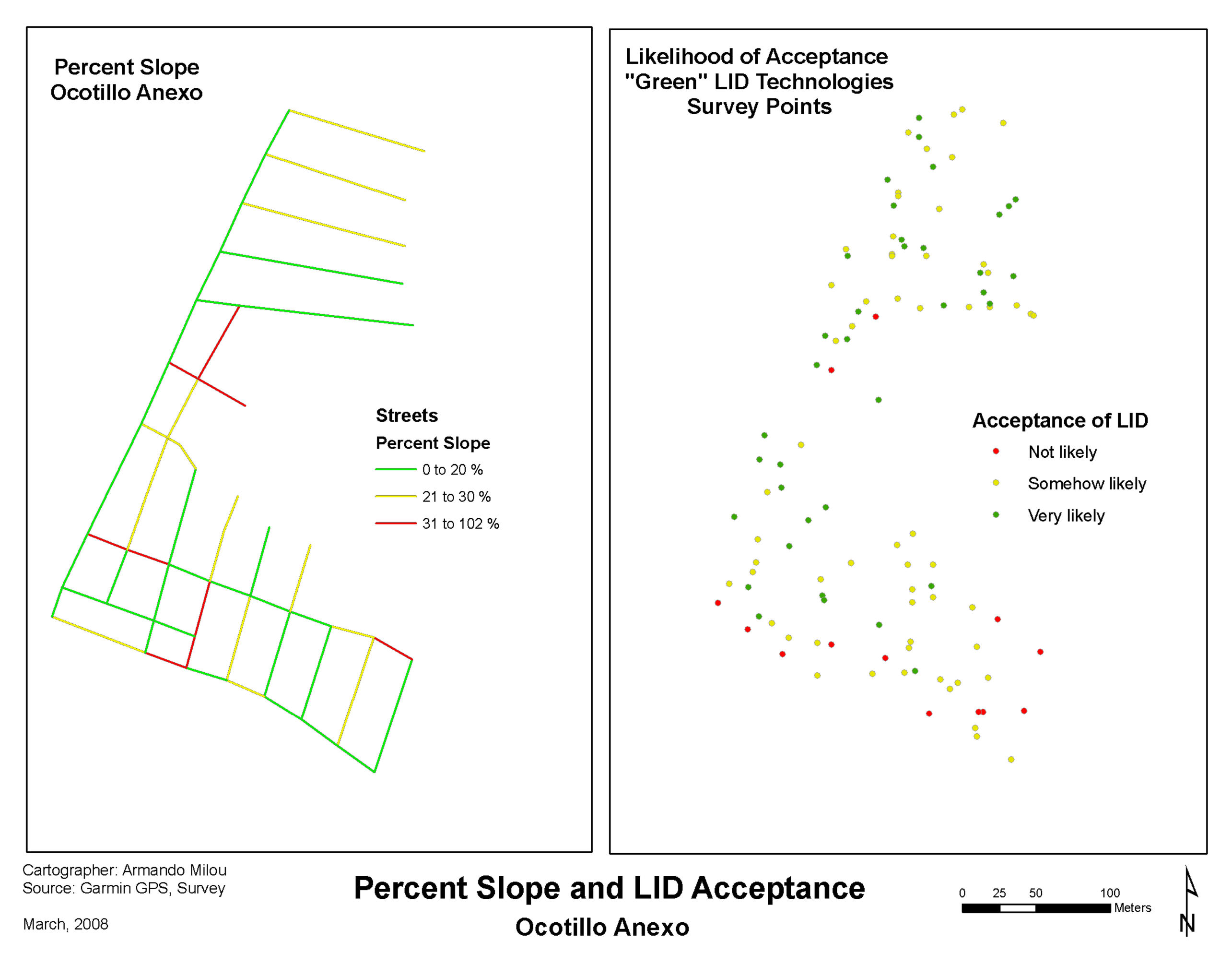
Recycled Tires cut and stapled to create walls

Wall made of recycled tires in Tijuana, Mexico



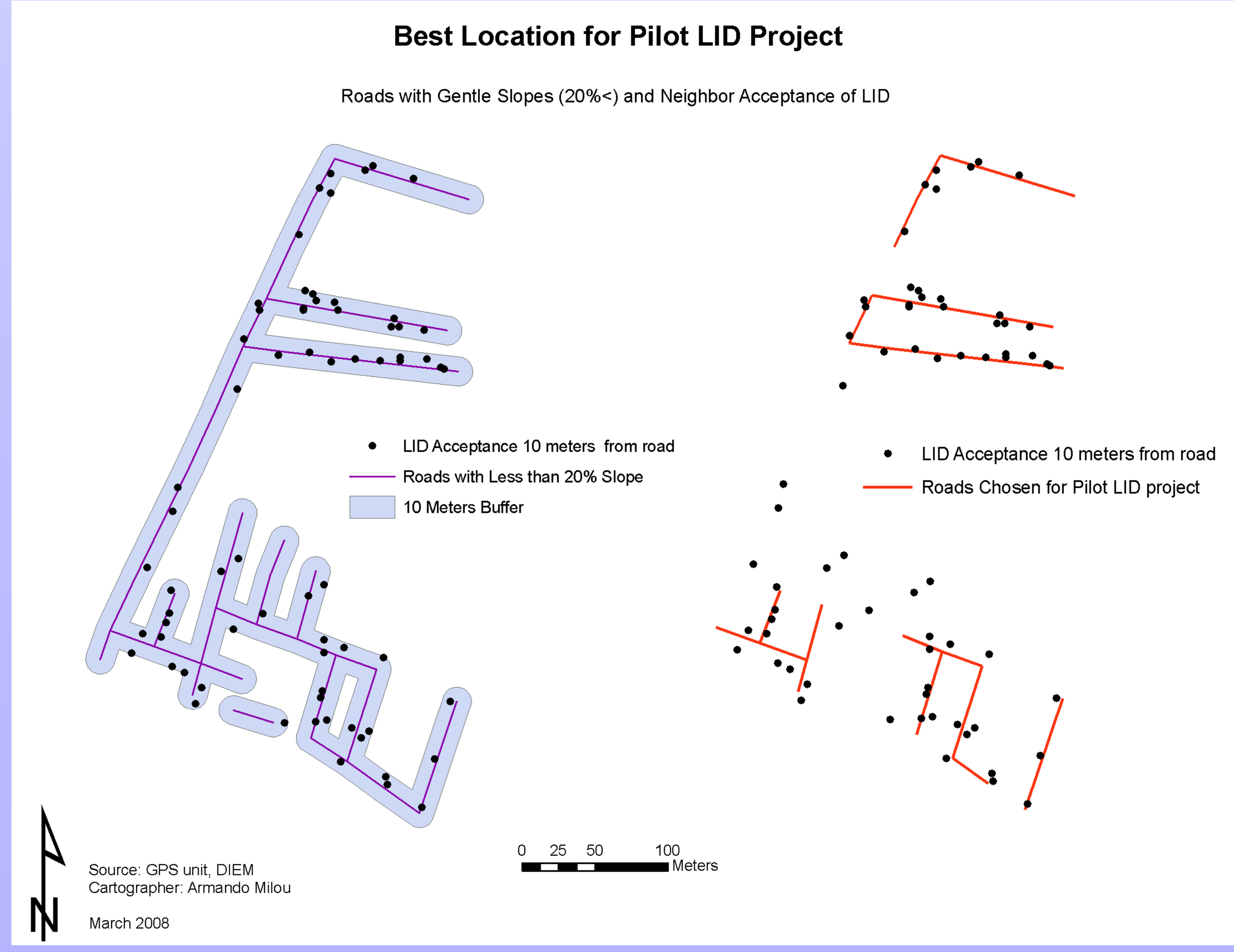
Bioretention ponds in vacant lots

Less than two-thirds of the total lots in the community are currently assigned or occupied. These lots can be used to divert the runoff from the roads and reduce erosion and sedimentation. “Check dams” made of recycled tires will retain/ detain runoff, thereby increasing infiltration. Planting native vegetation along the road will help to direct the water towards the pond. The sandy loam soils in the area will help ensure high infiltration rates without creating a mosquito-breeding habitat.



Ocotillo Anexo’s roads were entered into a geodatabase using municipal GIS data in order to measure the length and determine the slope of individual road segments. Each survey point location was obtained with a GPS unit waypoint number that was attached to each survey sheet. LID acceptance was determined by adding survey questions designed to capture the perceived value, benefits and problems associated with vegetation on the public right of way.

Responses from survey participants who were likely to accept LID within 10 meters of the road with gentle slopes (20%<) were selected to account for GPS accuracy (+-9 Mt). Streets with more than three supporters of LID technologies were chosen as best locations to install pilot projects that would be used as examples for other communities.



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