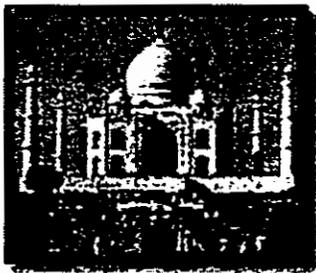


# USAID ALTERNATIVE URBAN TRANSPORTATION PROJECT



*...a collaborative program between Indian/US private sector and USAID*

23865-107-0002

# **ALTERNATIVE URBAN TRANSPORTATION PROGRAM**

*A collaborative initiative between the private sector and USAID*

## **OBJECTIVES:**

1. To initiate the development of a market driven technology for electric 2 and 3 wheeled vehicles.
2. To increase awareness of the benefits of electric vehicle technology.
3. To provide technology options that are commercially attractive for reducing ambient air and noise emissions.

## **PROGRAM OVERVIEW:**

### **Industry Assessment**

Determine key aspects of the passenger transport sector:

Capital & operational costs; taxes; fees revenue; km/shifts; duration of shifts; organization of industry; average daily expenses; average daily income; number of vehicles and registration trends; safety regulations; average distance per fare; average daily fares; electricity rates; availability, quality, and connection options for electricity; maintenance capabilities and workforce sophistication; and medallions

### **Policy and Regulatory Assessment**

Determine key regional and national policies and regulations affecting the transport sector. This includes: safety; registration; taxes; import barriers; foreign ownership and investment issues; loan terms (commercial and personal); and environmental

### **Conventional Vehicle Performance and Safety Tests**

Develop a baseline criteria for the electric vehicles. The electric vehicles are to generally perform as well as conventional vehicles.

### **Urban Drive Profile**

Develop shift use (distance, time, handling) characteristics as an input into prototype design.

### **Conventional Vehicle Emissions**

Develop criteria for determining the effects to ambient urban air and noise emissions of conventional vehicles and the benefits if replaced by electric vehicles.

### **Performance and Safety Tests of Prototypes**

Develop test program to meet Indian standards and for direct comparison to conventional vehicles, and, for registration on Indian roadways.

### **Program Demonstration**

Develop demonstration program to test performance and reliability of prototypes. Provide for safety, driver training, maintenance, promotional campaign, data acquisition and evaluation.

### **Environmental Assessment**

Estimate the amount of reduction in urban air and noise emissions by converting the conventional vehicles with electric vehicles; the impact of current emissions on ambient air quality; the value of this reduction in pollutants; and, the improvement in ambient urban air quality on the health of the population. The quantitative estimate will be an input into the economic/financial model.

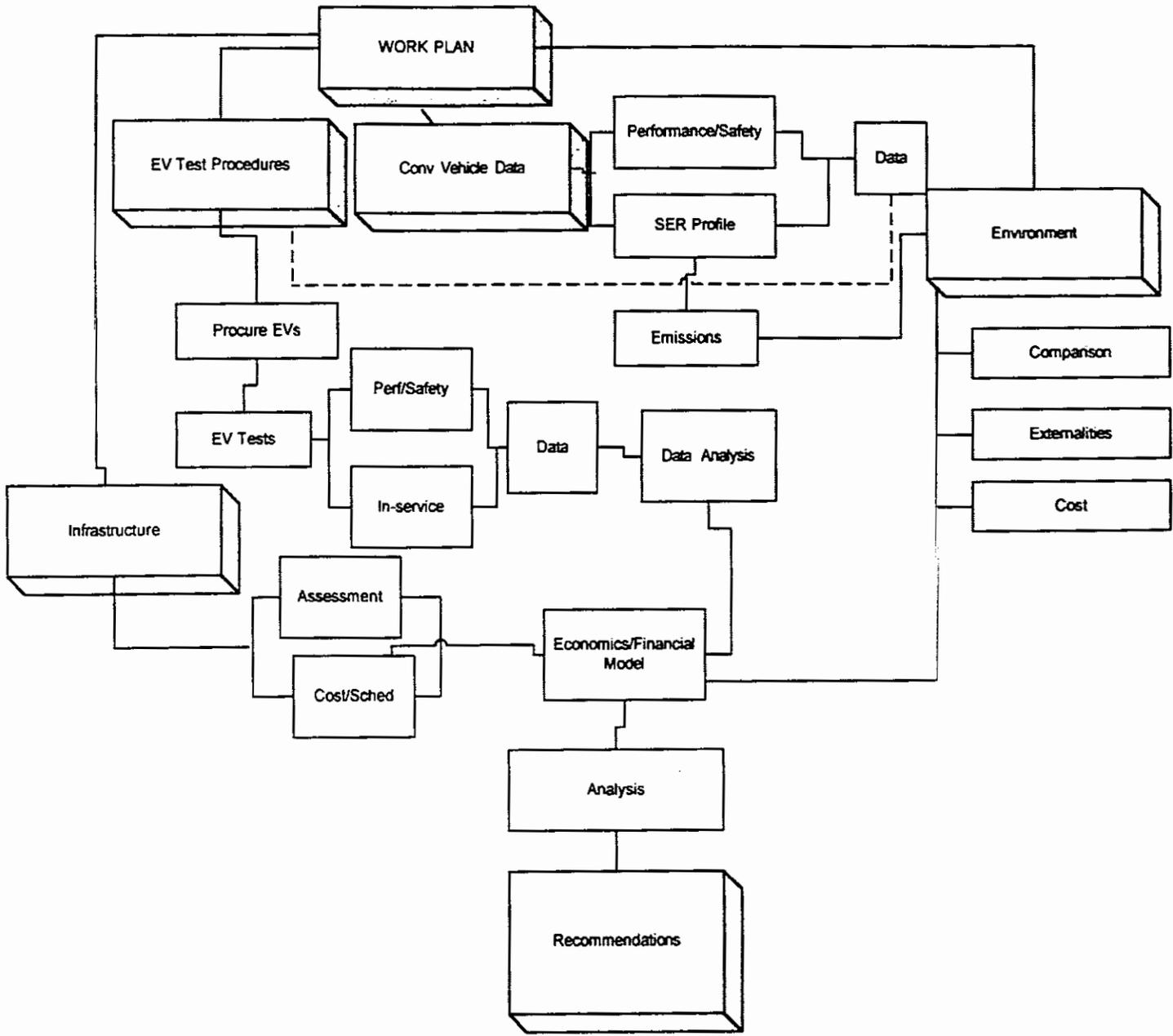
### **Infrastructure Assessment**

Assess and identify the needs for battery charging, billing system, battery storage, battery disposal and recycling, and vehicle servicing. The assessment will provide equipment and industry organization recommendations and estimated capital and operational costs. The assessment should also consider fleet owned and individually owned scenarios. The quantitative estimate will be an input into the economic/financial model.

### **Economic/Financial Assessment**

All relevant inputs from the demonstration program are to be considered in the development of an economic/financial model based upon discounted cash flow analysis. The model should allow for sensitivity analysis. A user's manual is to be provided.

# Alternative Urban Transportation Program



# ALTERNATIVE URBAN TRANSPORTATION PROGRAM

## General Description – Two and Three -Wheelers

<u>Type of Vehicle</u>	<u>Electric Two-Wheeler</u>	<u>Electric Three Wheeler</u>
Vehicle Weight	100 kg	333 kg
Payload	100 kg	337 kg
Top Speed	60 kph	55 kph
Acceleration	0 –20 kph, 2 seconds 0 – 30 kph, 5 seconds 0 – 40 kph, 9 seconds 0 – 60 kph, 18 seconds	0 –20 kph, 3 seconds 0 – 30 kph, 7 seconds 0 – 40 kph, 15 seconds 0 – 60 kph, 25 seconds
Range per Charge	> 89 km	> 89 km

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Timing of Program	latter part of 1999
Number of Vehicles	6 – 10
Space & Maintenance	Suitable parking; Maintenance & parts to be provided.
Electrical Requirements	Load of 1 hot water heater when recharging approximates need

Vehicles will be certified for Indian roads and be fully insured. Drivers will be provided training. There is no cost to user except for electricity.