

**GEF Large City Congestion and Carbon
Reduction Project**

Environment Management Plan

GEF Project Management Office (Chengdu)

07/2012

Announcement

In accordance with the *GEF Large City Congestion and Carbon Reduction Project* guideline, the following Project Environment Management Plan is to be made public for seven days. At the meantime, public inspection and supervision are encouraged and complaints against the Plan can be made via various means or contact Yan Yang at 028 6188 7328.

1. Project Components

The *GEF Large City Congestion and Carbon Reduction Project (Chengdu)* consists of 9 components as follows for demonstration.

1) *Optimizing the operation of bus dedicated lanes.*

This project is aiming to prioritize public transport at crossroads and in bus lanes through traffic signal optimization and essential channelization work. The total budget for this project has been made at US\$200,000 and it is solely from GEF funding. US\$150,000 of the total amount will be allocated to the channelization work, while US\$50,000 is to be allocated to technical assistance.

2) *Optimizing the use of bus platforms.*

This project is aiming to raise public transport share by such works as improving bus platforms' design, improving pedestrian lanes to create a favorable bus connecting environment. The total budget for this project has been made at US\$3,200,000 and it is comprised of GEF funding (US\$200,000) and local government co-financing (US\$3,000,000). US\$150,000 of total GEF funding will be allocated to works improving bus connecting environment, while US\$50,000 of GEF funding is to be allocated to technical assistance.

3) *Optimizing bus lines and large-capacity BRT lines.*

This project is aiming to optimize public transport infrastructure and services (including the construction of BRT lines) through broad research on passenger volume and the performance of existing public transport network. The total budget for this project has been made at US\$250,000 and it is solely from GEF funding. The total amount is to be allocated to technical assistance.

4) *Information Service System and Traffic Guidance System development.*

This project is aiming to manage transport demand and reduce congestions through advanced public transport system upgrade, including Information Service System and Traffic Guidance System; along with the installation of live traffic information boards. The total budget for this

project has been made at US\$7,050,000 and it is comprised of GEF funding (US\$50,000) and local government co-financing (US\$7,000,000). The total GEF funding will be allocated to technical assistance.

5) *Parking space control and differential parking pricing policy development.*

This project is aiming to manage transport demand and provide guidance for appropriate use of parking spaces through the development and implementation of parking space control and parking pricing policy. The policy framework is based on comprehensive research on demand-supply relationship of parking space and the application of parking information system, etc. The total budget for this project has been made at US\$100,000 and it is solely from GEF funding. The total amount is to be allocated to technical assistance.

6) *Reducing traffic congestion research.*

This project is aiming to develop policy framework and cost-effective measures to alleviate traffic congestions based on research on current transit operation and management, and experiences from other cities of implementing such policy under similar circumstances. The total budget for this project has been made at US\$650,000 and it is solely from GEF funding. US\$450,000 of total GEF funding will be allocated to the procurement of relevant software, while US\$200,000 of GEF funding is to be allocated to technical assistance.

7) *Optimizing Traffic Signal Control System.*

This project is aiming to raise transport management efficiency, alleviate traffic congestions and reduce carbon emissions by replacing signal control system and upgrading intelligent transport management system at selected crossroads. The total budget for this project has been made at US\$6,550,000 and it is comprised of GEF funding (US\$50,000) and local government co-financing (US\$6,500,000). The total amount of GEF funding is to be allocated to technical assistance.

8) *The development of database of city public transit and the road network model.*

This project is aiming to build database to enhance the capacity for transit operation,

congestion condition and transport carbon emissions at city level through the installation of on-board units to record data. The total budget for this project has been made at US\$7,600,000 and it is comprised of GEF funding (US\$1,100,000) and local government co-financing (US\$6,500,000). US\$500,000 of total GEF funding is to be allocated to data collecting units procurement, while US\$250,000 will be allocated to the procurement of software/hardware necessary for database building and US\$350,000 is to be allocated to technical assistance.

9) *Emission data collection, testing and evaluation.*

This project is aiming to promote sustainable urban transport and support transport emission reduction by collecting emission data, using emission testing equipment and developing emission evaluation standards. The total budget for this project has been made at US\$200,000 and it is solely from GEF funding. US\$100,000 of total GEF funding is to be allocated to emission testing equipment procurement, while the rest US\$100,000 of GEF funding is to be allocated to technical assistance.

The duration of *GEF Large City Congestion and Carbon Reduction Project (Chengdu)* is estimated at 4 years. It is planned to commence in the last quarter of 2012 and is expected to accomplish by 2016.

2. Environment affecting factors

The GEF Large City Congestion and Carbon Reduction Project (Chengdu) has two civil engineering associated components as follows.

1) *Optimizing the operation of bus dedicated lanes;* 2-3 crossroads are planned to be selected for channelization and traffic signs and markings adjustment to prioritize public transport. The selection will be based on current traffic condition and Project Proposal. The project duration is estimated at 2 months; and

2) *Optimizing the use of bus platforms;* 2-3 bus platforms are planned to be selected for pedestrian lanes' improvement to create a favorable bus connecting environment. The selection will be based on current traffic condition and Project Proposal. The project duration is

estimated at 1 month.

Given that the two project components are small in scale and short in duration; therefore, negative influence on nearby surroundings is limited. This would include that, little demolition would be generated from construction work, depending on onsite circumstances; little influence on public transport, pedestrians' safety and commercial operations; no direct influence (i.e. demolition, noise, dust, etc.) on environmentally sensitive sites (i.e. cultural relics, schools, hospitals, nursery, etc.); little wastewater and residue would be generated from construction work. The influence listed above is commonly seen in urban infrastructure construction projects. It can be minimized or avoided with proper management policy.

3. Environment Management Policy

A professional road construction and maintenance department or operator will be chosen taking the responsibility for the two civil engineering associated projects' implementation. The chosen party should be equipped with environment management professionals and be experienced in urban infrastructure construction projects and environment management. Therefore, the chosen party should be capable of accomplishing the project in line with the environment protection standards. Chengdu Transport Committee, as the project owner-entrusted, will make sure the *Common Environment Management Measures* be strictly followed during project implementation and appropriate actions are taken to restrict work radius, shorten work duration, and minimize environment affecting factors (i.e. noise, dust, etc.). Chengdu Transport Committee will also take the supervision and inspection responsibility for environment management during the project implementation.

4. Supervision, Inspection and Report

A Project Environment Supervision and Inspection Report will be completed on the basis of project nature and requirements. The Report will mainly include the following.

- 1) The party being responsible for on-site environment supervision and inspection, the time and process, etc.
- 2) Project environment management policy, environment monitoring program, training program

and pollution prevention and control measures will be developed and addressed, based on relevant environment regulations and standards such as environment supervision and inspection programs and related approval documents, etc.

3) Clarify the time period and range of the environment supervision and inspection. Tables and graphs are acceptable for demonstration.

4) Major environment affecting factors will be determined and be addressed during the project implementation. Public supervision and inspection are encouraged.

5) An environment management system will be developed. The system framework and environment protection associated situation will be clarified.

6) The development of environment management system, and the supervision and inspection associated situation during project implementation will be addressed.

7) The work content and workload will be listed in the aim of clarifying the environment supervision and inspection programs.

8) The work content and workload of the following will also be addressed - summary of site visit, on-site supervision, on-site records, environment monitoring data application, on-site directions, meetings on environment supervision, environment protection advertisement, pollution handling, construction work changes, etc.

5. Budget

The budget for environment management has yet to be determined, given that the bus stations and crossroads under civil engineering work have not been chosen and detailed engineering work plan has not been drafted. The civil engineering associated projects are small in scale and short in duration, therefore, the environment protection measures are actions to encourage undertaking the project in a safe and environment-friendly manner and to reinforce on-site management. The Project Management Office (Chengdu), as the project owner-entrusted, will take into account any cost arising from the environment protection measures. The total cost will be listed in the tender document and reflected in the project contract.

6. Publicity

The Environment Management Plan is planned to be made public in July 2012, on Chengdu Transport Committee official website <http://www.cdjt.gov.cn/>.

7. Common Environment Management Measure

On the basis of domestic environment management regulations; The World Bank safety and security policy; OP4.01 environment evaluations; environment, health and safety guidelines used in international commercial companies, the project is required to implement in accordance with the following *Common Environment Management Measures*. (The *Common Environment Management Measures* is required to be included in the project contract, if there is a project contractor.)

Common Environment Management Measures

1. Minimize Social Disturbance

- 1.1 Announcement boards should be installed at construction sites, explaining project contents, construction duration, demolition and relief policy, etc. for public support and understanding.
- 1.2 Construction radius should be strictly restricted; any action without official approval to expand construction radius is prohibited.
- 1.3 Construction sites should be cleaned at regular bases.
- 1.4 Traffic separation should be in place for safety reasons.
- 1.5 Cooperation with traffic control department should be provided. Traffic information should be announced through radio, TV and newspaper when necessary to ensure the smooth of traffic flow. Construction materials transportation should be planned in advance and minimize the possibility to use roads across schools and residential areas.
- 1.6 Temporary pedestrian bridge should be in place at road sections such as school, hospital, etc. to ensure pedestrian safety. Traffic safety education is necessary.
- 1.7 The placement of construction lighting during late working hours should not affect residents' sleep.
- 1.8 Preparation work should be done before construction. Investigation on the construction associated elements, i.e. road, electricity, and telecommunications, should be done. Relocation plan should be agreed with relevant department.

Emergency plan should be in place to facilitate normal social life.

- 1.9 Safety education, supervision and management are necessary, for construction workers undertaking the project under a safe and environmentally-friendly manner.
- 1.10 Professionals should be arranged by construction operators to ensure traffic safety, environment management and construction work are carried out properly.
- 1.11 First aid should be provided in emergency.

2. Dust Control

- 2.1 Field fence should be in place before construction work taking place.
- 2.2 Roads near schools, hospitals etc. should be watered, before and after school in particular, to maintain cleanliness.
- 2.3 Materials used for construction work that produce dust should be piled up and the height of the pile should be no more than 0.7m. Closed fence should be used around the pile and dense mesh be used to cover up.
- 2.4 Sealed asphalt mixer with smoke/dust reducing function should be chosen. Waste generated from asphalt mixing should not be landfilled. It should be handled properly by asphalt supplier or any party appointed by local environment department.
- 2.5 Construction operators should choose equipments and transportation vehicles in accordance with National Health Protection Standards to ensure that emissions meet relevant standards. Transportation should avoid peak hours; heavy loaded or assault transportation should take place during night time and minimize pollution.
- 2.6 Enforce the refilling management. Measure, i.e. earth ground surface compacting, regular watering, covering, etc. should be constructed; waste soil and spoil should be transferred immediately; otherwise, covered or applying hardening/toughening process.
- 2.7 Closed-loop construction manner should be taken to prevent dust pollution. Vehicles should obtain transportation permit to transfer waste, sand and soil. Vehicles should be cleaned when leaving construction site. Actions should be taken to prevent vehicles from being heavy loaded and dust spillover; transportation route and schedule should be planned to avoid central area, traffic-oriented area and residential area; transportation should be done during night time in environmentally sensitive areas, to reduce the dust impact. Soil spilled from transportation should be cleaned up immediately.

3. Noise Management

- 3.1 Use low noise machinery or machines equipped with noise elimination in work.
- 3.2 Construction time should be properly arranged to minimize time exposure to noise. Machines producing strong noise should be used at different times. Soundproofing screen should be in place in heavily affected construction sites.
- 3.3 Machinery should be well maintained and properly handled to minimize noise emission.
- 3.4 Machinery with strong noise is prohibited between 22:00pm and 6:00am.
- 3.5 Construction is prohibited during National College Entrance Examination and High School Entrance Examination.
- 3.6 Machine operators should work rotating time according to Work Health Standard to reduce time exposure to noise. Construction workers should be equipped with ear plugs and helmet for protection.
- 3.7 Transportation time should be properly arranged. Speed should be lower and horn is not allowed when passing villages and schools. Transportation routes should be properly designed to avoid crossing villages, residential areas, schools, etc.
- 3.8 Noise control should be well managed by construction supervisor. Noise detecting devices should be in place to ensure noise emission is within acceptable range.

4. Ecology Protection

- 4.1 Construction work should be done step-by-step. The use of earth ground should be balanced. Vegetation should not be destroyed whenever is possible.
- 4.2 Transportation routes should use existing road network wherever is possible.
- 4.3 Construction under severe weather conditions is prohibited to minimize soil erosion.
- 4.4 Waste generated from demolition should be dealt with immediately by qualified transport party for refilling.
- 4.5 Farming land should be protected. Actions should be taken for land cleaning, restoring and greening on completion of construction.
- 4.6 Environment protection education should be provided.

5. Water Protection

- 5.1 Wastewater generated from construction work and sewage should not be discharged into farmland, arable land, irrigation canals and rivers.
- 5.2 Washing water from construction work should be discharged into sump for reuse. Wastewater containing grease should be discharged into an anti-leakage sump for evaporation.

5.3 Sewage should be processed properly to meet discharge standards.

6. Water Protection

6.1 Waste and disposals should be transferred on a daily basis to a designated waste landfill plant to be dealt with properly.

6.2 Storage management of spoil on site should be enhanced. Spoil and excavated earth ground should be compacted and covered to prevent rain wash and air-borne dust generation.

6.3 Storage of earth ground and construction materials should be limited within redline range.

6.4 Watering is needed for moisture before earth ground refilling to prevent air-borne dust generation.

6.5 Transportation of construction waste should be authorized by relevant department. Construction materials to be transferred should be covered and transported in line with regulated time, route and location. Any scattered material should be dealt with immediately.

6.6 Any use of construction waste as fuel is prohibited.

7. Construction Site Management

7.1 Construction site should be well managed and fenced with color steel plates with a height no less than 2.5m.

7.2 Construction site surface should be solidified by compaction before construction commencing. Watering is needed to prevent air-borne dust generation during excavation, drilling, demolition and refilling. Frequency of watering should be increased under windy or dry weather conditions.

7.3 The construction work should be carried out within red lines. Soil and construction materials should not be stored near the site.

7.4 The vegetation and trees in the middle or along the road should be protected and relocated, rather than replanting. Trees and green areas near construction sites should be protected.

7.5 The vegetation and green area should be restored immediately on completion of the construction work of each road section.

7.6 The vegetation and green areas near project related roads should be protected during construction.

7.7 Construction progress should be well designed and land occupation should be minimized. Construction sites and occupied land should be cleaned, retreated and recovered on completion of the work.

8. Physical Cultural Resources

On finding cultural relics during construction, contractor should protect the site to prevent any loss; and report to the supervisor and the local cultural resources protection department and suspend construction work until the relics have been dealt with and permission has been granted.