



## Guidelines for Tree Transplantation during Construction Work

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### A. Preparation before transplantation

1. If the transplantation process requires temporary demolition of an existing road surface, please acquire permission from the related authorities before commencement of work. The excavated road surface should be kept flat during the process, and reverted to its original state after transplantation.
2. Roots must be trimmed before transplanting. Set up temporary supports before trimming. Perform excavation and trimming in stages. The root-cutting diameter should be 10 centimetres less than the planned root ball. The roots should be trimmed one after another, in a circular pattern with the trunk as the core. The wounds of the exposed roots must be smoothed. Root trimming is normally performed in spring, before new shoots start to grow, but can also be performed in summer when the part above the ground stops growing or before the leaf falling season in autumn.
3. Trim the tree crown before transplanting, according to the following principles:
  - a. Trees with prominent trunks: Maintain their overall shape, trim away long shoots, withered or infected twigs, overlapping and crossing shoots, and unwanted shoots growing from the trunk less than 2 metres from the ground. Trim away up to  $1/3 \sim 1/2$  of the original mass for deciduous trees, and up to  $1/5 \sim 2/5$  for evergreens. For *Bombax ceiba*, leave at least two layers of branches after trimming.
  - b. Trees without a prominent trunk: For broadleaf deciduous trees, thin the branches before heavy pruning, keep the growing and strong branches, and trim away up to  $3/5 \sim 9/10$  of the original mass. For broadleaf evergreen trees, trim away the tree crown and inner branches up to  $1/3 \sim 3/5$  of the original mass. For coniferous evergreen trees, thin the branches to moderately reduce the size of the tree crown by trimming  $1/5 \sim 2/5$  of the original mass.



- c. Wounds should be smooth without splitting. When trimming branches with a diameter of over 5 centimetres, avoid splitting due to improper trimming. The wounds must be smoothed, with preservatives applied.
- d. For palm trees, transplant the whole tree and only remove withered leaves, e.g. *Roystonea regia*, *Washingtonia robusta*, etc.

## **B. Digging up trees**

1. The diameter of the excavated root system or soil ball should be five times the diameter of the base of the tree trunk, but not less than 40 centimetres. The depth of the excavation should be  $\frac{2}{3}$  of the soil ball's diameter, but not shallower than 25 centimetres. The depth of the soil ball should include multiple root systems. For slow growing plants or big trees being transplanted in the non-growing season (i.e. weakly growing trees or transplantation during inappropriate season), the size of the soil ball should be increased accordingly.
2. When encountering thick roots, cut them with a hand saw instead of digging through, keep the wounds smooth and apply healing agents to prevent infection.
3. Wrap the soil ball with biodegradable materials, and then with large mesh wire netting to maintain its stability.

## **C. Wrapping and transporting**

1. After being excavated, the tree trunk should be wrapped with protective materials (e.g. sackcloth, canvas). During transporting the tree to the new destination, cushions should be placed between the tree and the body of the vehicle, to avoid damaging the branches. Fasten the tree with ropes for safety's sake, regardless of how far it is being transported.
2. Be gentle while loading, unloading, and handling, and avoid dragging while transporting. Ensure there are no damage to the soil ball, and no scratching and splitting of the root system. The tree should be kept intact without injuries to its root system, trunk and crown.
3. Keep the trees being transported properly moistened, sheltered and protected from wind, strong sunlight, rain, cold weather and theft.



4. While transporting, loading and unloading, follow traffic safety guidelines, with warning signs erected to alert passing vehicles and pedestrians.

#### **D. Tree planting**

1. Mark the planting site with the IACM staff in advance. Start digging only after confirmation. The size of the excavation should be double that of the soil ball, or at least 30 centimetres wider than its diameter, while the hole should be 15~20 centimetres deeper than the root ball. After digging, apply organic or other types of fertilizers to the base of the hole to facilitate root growth, and replace the existing soil with new soil. The backfilled soil should comprise 40% yellow soil, 20% pond silt, 10% organic fertilizers, 10% peat soil, 20% pumice and 0.1% moisturiser. There should not be any rocks or impurities larger than 1 centimetre in diameter in the soil.
2. The transplantation process including excavation, transporting and planting should be completed within the same day. Shorter transplantation time can provide better conditions for the survival of seedlings. When encountering adverse weather, apply temporary measures to protect the soil ball and the planting hole, install sheltering facilities and, if necessary, water the tree to prevent injury or withering.
3. Before planting, place a ventilation bag on each of the four sides of the hole (Dimensions of ventilation bag: 12~15 centimetres in diameter, 1 metre in length; fillings comprising perlite, with a diameter of more than 1 centimetre). While planting, remove the wrapping materials around the soil ball, gently put the tree into the hole, and keep the trunk upright. Refill the soil surrounding the root ball, water the tree three times, compact the soil with wooden stick to enhance contact with the root system, and build a “soil wall” around the tree to retain water.
4. Install supporting structures immediately after planting, to prevent tree leaning. Structures of less than 20 centimetres in diameter should be made up of materials of at least 5 centimetres in diameter, while structures of over 20 centimetres in diameter should be made up of materials of at least 10 centimetres in diameter, and they should be firmly pressed at least 4 inches into the soil. Protect the parts where the trunk is in contact with the structures with thick soft materials (such as plastic or fabrics), to avoid injuries to the bark. Fasten the tree with ropes.



5. Water the tree immediately after transplanting, and water again after 2~3 days, and then again after one week. Keep it well watered each time, to ensure sufficient water at the base of the soil ball. Meanwhile, wrap the main trunk and the first and second main branches with straw ropes or soft moist materials.

#### **E. Maintenance after transplanting**

1. Keep the tree well maintained by professional horticulturists for one year. Take care of the tree with the following measures, according to individual conditions:
  - a. In summer, build a shelter to protect the tree, and spray the tree crown and trunk with water to keep them moist. Protect the tree against cold weather in winter by installing a wind screen and applying other winter-proof measures.
  - b. Apply foliar fertilisers after transplanting when appropriate.
  - c. Constantly keep the soil moist after transplanting. Beware of water logging and drain excess water in time. During the maintenance period, avoid watering at noon when the weather is hot.
  - d. Keep the tree free from pests. While refilling the soil, add pesticide if needed, and trim away branches which are withered or infected by diseases.
2. The IACM reserves the right to request compensation regarding death or weakening of trees caused by negligence in following the guidelines, including the costs of replacing with trees of the same species and specifications. The party responsible for replacing the trees shall also provide a one-year maintenance scheme, to ensure the trees' survival, and shall be liable for replacing dead or poorly grown replanted trees.