

Objectives : Riparian reserves are important in maintaining the ecological values and geomorphological stability of a watercourse through a number of processes such as bank stability, habitat values and act as a buffering filter prior entering the water course. Therefore, riparian reserves need to be protected and managed in accordance to the applicable laws, regulations and industry’s best practices.

Definition

- a. River : Natural waterways with surface water flowing with the bed and banks of a channel which usually larger, deeper and longer than stream
- b. Stream : Natural waterways with surface water flowing with the bed and banks of a channel which is small flowing water with not as deep as river
- c. Riparian Reserve : Land located next to natural water bodies, such as spring, natural lakes, streams and rivers

Management Aspects	Actions	Person In-Charge						
Width Determination	<ul style="list-style-type: none"> a. Identifying locations of natural rivers and streams in the estates; b. Verifying on the ground on the conditions and width of the rivers or streams; c. Generating GPS maps with the information on the rivers or streams; d. Determining the width of the riparian reserves in reference to the applicable local and national regulations. <p style="text-align: center;">Table 1: Riparian Reserve Width Determination in the Malaysian Operations (Sabah Water Resources Enactment 1998)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #d9ead3;">River Width</th> <th style="background-color: #d9ead3;">Riparian Reserve Width</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">< 3 meters</td> <td style="text-align: center;">5 meters</td> </tr> <tr> <td style="text-align: center;">≥ 3 meters</td> <td style="text-align: center;">20 meters</td> </tr> </tbody> </table>	River Width	Riparian Reserve Width	< 3 meters	5 meters	≥ 3 meters	20 meters	GPS team and Sustainability Department
River Width	Riparian Reserve Width							
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	<p style="text-align: center;">Table 2: Riparian Reserve Width Determination in the Indonesian Operations <i>(Peraturan Presiden No. 32 Tahun 1990)</i></p> <table border="1"> <thead> <tr> <th>Categories</th> <th>Riparian Reserve Width</th> </tr> </thead> <tbody> <tr> <td>River affected by sea tidal (measure from the highest tide to land)</td> <td>≥ 100 meters</td> </tr> <tr> <td>Large river (river width > 30m)</td> <td>≥ 100 meters</td> </tr> <tr> <td>Small river (river width < 30m)</td> <td>≥ 50 meters</td> </tr> <tr> <td>River (around settlement)</td> <td>10 – 15 meters</td> </tr> <tr> <td>Lake / reservoir</td> <td>50 – 100 meters</td> </tr> <tr> <td>Spring</td> <td>200 meters</td> </tr> </tbody> </table>	Categories	Riparian Reserve Width	River affected by sea tidal (measure from the highest tide to land)	≥ 100 meters	Large river (river width > 30m)	≥ 100 meters	Small river (river width < 30m)	≥ 50 meters	River (around settlement)	10 – 15 meters	Lake / reservoir	50 – 100 meters	Spring	200 meters	
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Demarcation	<p>(A) Old palm stands within riparian reserves</p> <ol style="list-style-type: none"> a. Removing old palm stands within the riparian reserves that are prone to pest and diseases upon obtaining the approval from the Environmental Protection Department (EPD); b. Marking the old palm stands within the riparian reserves with red paint, and only manual weeding or slashing on the palm circles and the harvester's path is allowed to facilitate the harvesting activities; c. No chemical application is allowed within the riparian reserves; d. Installing signboard on do's and don'ts in the riparian reserves at suitable locations; e. Harvesting of fresh fruit bunches (FFB) within the riparian reserves can still be carried out. 	Estate In-Charge														



Management Aspects	Actions	Person In-Charge
	<p>(B) Natural riparian reserves without old palm stands</p> <p>a. Marking of the trees at the outer layer of the riparian reserves with red paint or installing wooden pegs for markings;</p> <p>b. Installing signboard on do's and don'ts in the riparian reserves at suitable locations.</p>	
Rehabilitation	<p>a. Enhancing the riparian reserves where the old palm stands have been removed or degraded with suitable local species of plants or ground vegetation;</p> <p>b. Monitoring the survival rates of the planted tree saplings and replenish with new sapling whenever is necessary.</p>	Estate In-Charge and Sustainability Department
Monitoring and Review	<p>a. Conducting river water quality monitoring at the interval set against the EIA approval conditions or at least once a year;</p> <p>b. Maintaining the red paint markings, signboards and wooden pegs at a regular basis or as and when is necessary;</p> <p>c. Reviewing the effectiveness of the rehabilitation programme and takes necessary corrective or enhancement actions.</p>	Sustainability Department