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ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT REPORT

For

FOREST MANAGEMENT OF BENGKOKA AND TAMBALUGU FOREST RESERVES (6,467 HA), PITAS, SABAH

2nd REPORT OF YEAR 2021

APRIL	AUGUST	DECEMBER
	✓	

AEC Ref. No. : JPAS/PP/15/600-1/01/3/60(36)
Report Reference : CK/MO411/1197-2/21
Date of Report : 15th September 2021
Report No. : 8

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GERAK SAGA SDN BHD

ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT REPORT

1.0 Introduction

The Project site covers an area of approximately 6,467 Ha comprising the 6,270 Ha Bengkoka Forest Reserve and the 197 Ha Tambalugu Forest Reserve. For operational purposes, the two forest reserves are managed as a single Forest Management Unit (FMU) and divided into 4 coupes. Coupes 1-3 (Bengkoka) and Coupe 4 (Tambalugu). The Project Proponent holds the license for management operation in both forest for Industrial Tree Plantation (TPP).

1.1 Monitoring Information

Project Title	:	Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah
EIA Letter Approval Ref.	:	JPAS/PP/15/600-1/01/3/60(36) dated 1st November 2017
Monitoring Period	:	May – August 2021
Date of Monitoring	:	Compliance Audit : 11th August 2021
		Water Sampling : 11th August 2021
EIA Consultant		Chemsain Konsultant Sdn. Bhd.

1.2 Project Proponent Information

Project Proponent	:	Gerak Saga Sdn. Bhd.
Contact Person	:	Mr. Guy Thornton
Tel. No.	:	088 – 663 492
Fax No.	:	088 – 662 494
Environmental Officer	:	Ms. Wilvia Olivia William
Contact No.	:	019 – 822 6958 (Mobile)
E-mail	:	w.william@forestsolutions.com.my

1.3 Post–EIA Consultant Information

Post-EIA Consultant	:	Chemsain Konsultant Sdn. Bhd.
Tel. No.	:	Office : 088 – 381 277 / 278
Fax No.	:	088 – 381 280
Contact Person	:	Agatha Francis / Edgar Nichols Cosmas
Email	:	agatha.fr@chemsain.com / edgar.cosmas@chemsain.com

1.4 Other Approvals

Development Plan Ref.	:	NIL
Earthwork Plan Ref.	:	NIL

Drainage Plan Ref. : NIL

ESCP Ref. : NIL

1.5 Project Status

Project Completion : *Total planted area : 1,389.10 Ha*

Harvested : 2,039.20 Ha

**Project progress status as of 31/07/2021.*

Chronology of Evens :

Table 1.0: Chronology of events

No.	Event	Date
1.0	Signing of AEC *Ref. No.: JPAS/PP/15/600-1/01/3/18*	23rd October 2007

2.0 LEGAL REQUIREMENT

The Project is classified as a prescribed activity under the **Second Schedule** of the **Environment Protection Enactment (Prescribed Activities) (Environmental Impact Assessment) Order 2005** under **Item 2 (i)** & **2 (ii)**.

The Environmental Monitoring and Compliance Audit (EMCA) is a requirement by the Environment Protection Department (EPD) and to be carried out every four (4) months, and reported in accordance to the Approval Conditions as specified in the ***Syarat-Syarat Alam Sekitar [Seksyen 12(1) dan 20, Enakmen Perlindungan Alam Sekitar 2002]*** of the EPD ref: **JPAS/PP/15/600-1/01/3/60 (36)** dated **1st November 2017**.

3.0 CHANGES TO PROJECT CONCEPT / ENVIRONMENT

3.1 Project Concept

No.	Item	Changes
1.	Project Component	Nil
2.	Changes to Land Lot	Nil
3.	Land Area	Nil

3.2 Surrounding Environment

No.	Item	Changes
1.	Land Use	Nil
2.	River / Costal Morphology	Nil

4.0 MONITORING LOCATIONS

Designated monitoring and sampling location are shown in **Figure 1.0** with details tabulated in **Table 2.0**.

Table 2.0: Environmental monitoring and sampling particulars

Monitoring Component	Key	GPS Coordinates (Datum: Timbalai)	Location Description
Water Quality	**W1**	N 06° 51' 18.9" E 117° 06' 41.1"	Unnamed stream downstream of Bengkoka Forest Reserve at Kg. Kandang
	W2	N 06° 50' 40.6" E 117° 09' 18.6"	Unnamed stream downstream of Bengkoka Forest Reserve at Kg. Gumpa.
	W3	N 06° 50' 40.1" E 117° 10' 38.2"	Sg. Bongkol of Safoda Dam within Bengkoka Forest Reserve.
	W4	N 06° 51' 10.4" E 117° 08' 52.6"	Sg. Kakarangan downstream of Bengkoka Forest Reserve.
	W5	N 06° 52' 39.3" E 117° 09' 49.8"	Unnamed stream downstream of Bengkoka Forest Reserve.

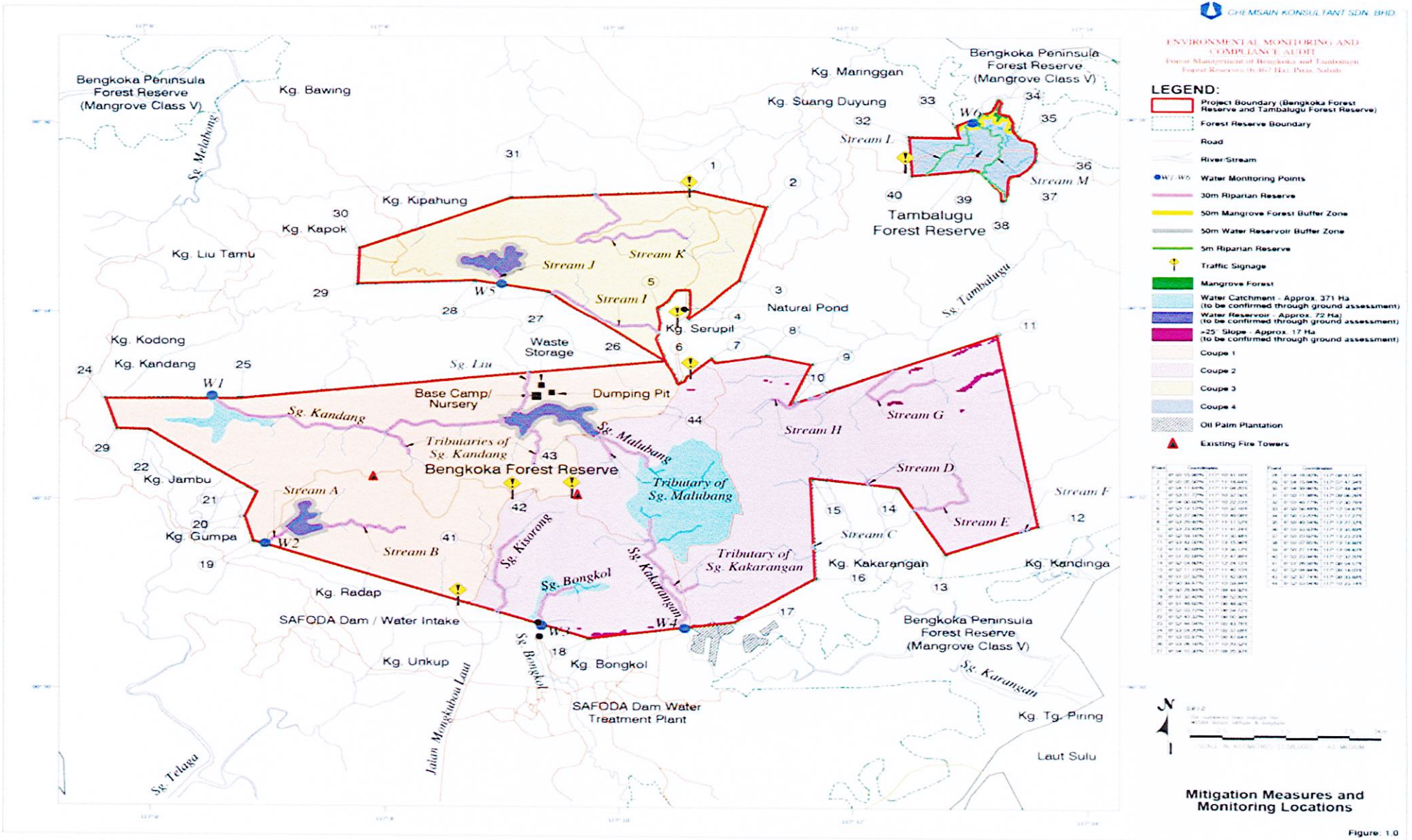


Figure 1.0: Mitigation Measures and Monitoring Locations

5.0 COMPLIANCE STATUS, COMMENTS & RECOMMENDATIONS

Nama Projek	:	Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah
Nama Pemaju	:	Gerak Saga Sdn Bhd
Rujukan fail jabatan ini	:	JPAS/PP/15/600-1/01/3/60 (36)
Tarikh Akujanji	:	1st November 2017
Penyedia laporan pematuhan ini	:	Chemsain Konsultant Sdn. Bhd.
Tempoh diliputi oleh laporan ini	:	May – August 2021

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
5.1	***Kawalan Tapak Pembangunan***				
5.1.1	***Kawalan Kawasan Perladangan Hutan***				
i.	*Satu (1) salinan pelan penyukatan sempadan kawasan projek seluas 6,467 hektar dalam kawasan Hutan Simpan Bengkoka dan Tambalugu, Daerah Pitas sebagaimana ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini hendaklah dikemukakan ke JPAS sebelum aktiviti perladangan hutan dimulakan.*	Comply	• Project Demarcation Plan submitted to EPD via the **1st EMCAR of 2019** as **Appendix D**.	-	-
ii.	*Sempadan kawasan projek yang telah diukur hendaklah ditanda di lapangan serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti perladangan hutan dimulakan.*	Comply	• Signboard, entrance gate and coloured pegs in place demarcating the Project boundary on-site. • Signboard in place demarcating boundary between the coupes / block was erected for demarcation purpose.	*Plates 3 to 6*	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iii	*Semua tanda sempadan tapak projek hendaklah tidak ditimbus, dihalang, dirosakkan atau diganggu daripada kedudukan asal.*	Comply	• Signboard and pegs are in good condition as sighted during the site visit.	*Plates 3 to 6*	-
iv	*Aktiviti perladangan hutan adalah **tidak dibenarkan** di dalam kawasan tadahan air, takungan air dan "water intake point" sebagaimana dinyatakan dan masing-masing ditandakan sebagai "Water Catchment", "Water Reservoir" dan "Water Intake" dalam maklumat tambahan rujukan CK/EV403-4278/0199/17 bertarikh 13 April 2017 dan ditunjukkan pada "Figure 6.2.1" dlam Perjanjian Syarat-syarat Alam Sekitar ini.*	Comply	• Development within the water catchments area, water reservoir and water intake was not sighted. • In addition, the Project Proponent has conducted enrichment planting with local species trees along the Riparian Reserve of the water reservoir area.	*Plates 7 & 8*	-
v	***Zon penampan** dengan kelebaran tidak kurang **50 meter** hendaklah disediakan di sempadan kawasan projek yang bersempadan dengan Hutan Simpan Bengkoka dan ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini.*	Comply	• 50m width buffer zone adjacent to the Bengkoka Forest Reserves was provided prior to the Project development on-site.	-	-
vi	*Sebarang aktiviti perladangan hutan **tidak dibenarkan** dalam kawasan zon penampan.*	Comply	• The Project Proponent has given assurance that the 50m width buffer zone shall be excluded from any Project development.	-	-
vii	*Sebarang aktiviti perladangan hutan **tidak dibenarkan** dalam kawasan berkecurunan 25 darjah atau lebih*	Comply	• Development within the steep protection area (≥ 25° slope area) was not sighted.	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	sebagaimana ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini.				
viii	*Sempadan kawasan tadahan air, takungan air dan "water intake point", zon penampan dan kawasan berkecurunan 25 darjah atau lebih yang dilindungi hendaklah ditanda di lapangan dan dipasang denga papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti perladangan hutan dimulakan.*	Comply	• Signboard in place demarcating the buffer zone on-site.	-	-
5.1.2	***Kawalan Pembinaan Jalan***				
i	*Jalan sedia ada hendaklah digunakan bagi mengurangkan gangguan terhadap tanah.*	Comply	• Existing access road was fully utilized as sighted during the site visit.	*Plate 10*	-
ii	*Sistem perparitan hendaklah disediakan bagi mengalirkan air keluar dari struktur jalan dan dilencongkan ke kawasan yang mempunyai tumbuhan.*	*Comply*	• Existing access road are equipped with earth drainage, channelling surface runoff towards the nearest vegetated area.	*Plate 10*	-
iii	*Aktiviti pelupusan atau pembuangan bahan tanah berlebihan* ***tidak dibenarkan*** *dalam parit, sungai atau alur air.*	*Comply*	• Disposal of overburden into the nearest natural waterways was not sighted.	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
5.1.3	***Pembinaan Rumah Pekerja, Kem Pekerja Atau Bengkel***				
i	*Sebarang aktiviti kerja tanah dan pembersihan kawasan bagi pembinaan rumah pekerja, kem pekerja atau bengkel hendaklah diminimakan.*	Comply	• Staff's quarters, workers' quarters and nursery at the base camp were fully utilised. • No workshop facility was constructed within the Project site. • According to the Project Proponent, maintenance of vehicles on-site will be carried out in an external workshop.	*Plates 11 to 13*	-
ii	*Sistem perparitan yang berkesan hendaklah disediakan bagi mengawal larian air permukaan dan air buangan dari kawasan rumah pekerja, kem pekerja atau bengkel dan hendaklah dilencongkan ke kawasan yang mempunyai tumbuhan dan* ***tidak dibenarkan*** *dialir terus ke dalam sungai atau alur air.*	Comply	• Staff's quarters, workers quarters and nursery are equipped with perimeter concrete drainage, channelling surface runoff towards the nearest vegetated area.	*Plates 11 to 13*	-
iii	*Kedudukan rumah pekerja atau kem pekerja hendaklah terletak pada jarak mendatar tidak kurang* ***30 meter*** *dari tebing sungai atau alur air.*	Comply	• Staff's quarters and workers' quarters are located at more than 30 m away from the nearest natural waterways.	*Plates 11 & 13*	-
iv	*Kedudukan bengkel hendaklah terletak pada jarak mendatar tidak kurang* ***50 meter*** *dari tebing sungai atau alur air.*	Not Applicable	• Refer to the comments in **AEC 5.1.3 (i)**.	-	-
v	*Semua rumah pekerja, kem pekerja atau bengkel sedia ada yang tidak mematuhi peraturan-peraturan yang dinyatakan*	Comply	• The facility within the Project site is in compliance with the AEC.	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	dalam Perjanjian Syarat-syarat Alam Sekitar ini hendaklah dipindahkan dan dikawal sebagaimana ditetapkan.				
5.1.4	***Rehabilitasi Tanah Yang Terdedah***				
i	*Semua kawasan tanah dan cerun yang terdedah hendaklah distabilkan dan direhabilitasi dengan menanam spesis tumbuhan yang diluluskan oleh Jabatan Perhutanan Negeri Sabah.*	Comply	• Cover crops are planted at the exposed area of the Project site to reduce the risk of soil erosion. • Existing vegetation on inactive and idle area of the Project site were retained and remained undisturbed.	*Plate 14*	-
5.2	***Perlindungan Sungai***				
i	*Sebarang aktiviti pembersihan dan perladangan hutan adalah **tidak dibenarkan** dalam simpanan sungai sebagaimana ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini.*	Comply	• Development within the riparian reserves area was not sighted.	*Plate 15*	-
ii	*Sempadan simpanan sungai hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti pembersihan dan perladangan hutan dimulakan.*	Comply	• Tree trunks along belt of the riparian reserves were painted in blue colour for demarcation purposes. • Signboard in place demarcating the riparian reserves on-site.	*Plate 15*	-
iii	*Sebarang pembinaan rumah pekerja, kem pekerja, bengkel, tandas atau struktur bangunan lain **tidak dibenarkan** dalam simpanan sungai.*	Comply	• Construction of structure within the riparian reserves area was not sighted.	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iv	*Sebarang penyimpanan bahan minyak atau bahan toksik **tidak dibenarkan** dalam simpanan sungai.*	Comply	• Storage of oils and toxic material within the riparian reserves was not sighted.	-	-
v	*Sebarang bahan tanah lebihan, sisa pepejal, sisa biomas, kumbahan, bahan minyak, kimia atau bahan-bahan toksik **tidak dibenarkan** dilupuskan dalam simpanan sungai.*	Comply	• Disposal of overburden, biomass or any types of wastes (i.e. sewage, oil and chemical, etc.) into the riparian reserve area was not sighted.	-	-
5.3	***Bahan Minyak Dan Sisa Toksik***				
i	*Bahan minyak dan sisa toksik adalah **tidak dibenarkan** dilupuskan atau dibiarkan mengalir ke dalam parit, sungai atau alur air.*	Comply	• Disposal of oils and toxic material into the natural waterways was not sighted.	-	-
ii	*Bahan minyak dan sisa toksik hendaklah dikumpul dan disimpan dalam bekas yang kukuh dan tidak mudah bocor. Bekas-bekas penyimpanan tersebut hendaklah dilabel.*	Comply	• Diesel is stored inside metal skid tank.	*Plates 16 & 21*	-
iii	*Kawasan penyimpanan bahan minyak dan sisa toksik tersebut hendaklah terlindung dari hujan dan terletak pada jarak mendatar tidak kurang **50 meter** dari tebing sungai atau alur air.*	Comply	• Diesel skid tank storage buildings are equipped with concrete flooring, bunded, sheltered from weather exposure and situated at more than 50 m away from the nearest natural waterways.	*Plates 16 & 21*	-
iv	*Kawasan penyimpanan bahan minyak dan sisa toksik hendaklah disediakan dengan sistem saliran serta perangkap minyak.*	Comply	• Diesel skid tank storage building is equipped with an oil trap. • Nozzle storage area of the skid tank was equipped with	*Plates 18 to 20 & 22*	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
			perimeter concrete containment bund filled with sand to prevent oil from directly seep into the ground.		
v	*Bahan minyak dan sisa toksik tersebut hendaklah dilupuskan mengikut keperluan* ***Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005.***	Comply	• According to the Project Proponent, scheduled waste generated on-site will be brought out by DOE licensed contractor, Petrojadi Sdn. Bhd.	-	-
5.4	***Kawalan Sisa Pepejal Dan Biomas***				
i	*Sebarang aktiviti pelupusan sisa pepejal dan biomas* ***tidak dibenarkan*** *dalam parit, sungai atau alur air.*	Comply	• Disposal of solid waste and biomass into the natural waterways was not sighted.	-	-
ii	*Kemudahan mengumpul dan mengutip sisa pepejal dan biomas hendaklah disediakan. Lokasi kawasan pengumpulan hendaklah terletak pada jarak mendatar tidak kurang* ***30 meter*** *dari tebing sungai atau alur air.*	Comply	• Garbage bins provided at the staff's quarters and workers' quarters area at the contractor base camp to facilitate solid waste collection. • Dumping pit was provided on-site and located at more than 30 m away from the nearest natural waterways.	*Plates 28 to 30*	-
iii	*Semua sisa pepejal seperti botol, tin, plastik dan besi hendaklah dikumpul secara berasingan dan dikitar semula.*	Comply	• Recycle bins provided to facilitate solid waste segregation on-site.	*Plate 29*	-
iv	*Sekiranya tiada kawasan pelupusan yang sesuai dalam kawasan projek, sisa pepejal dan biomas hendaklah dilupuskan di kawasan yang diluluskan*	Comply	• Refer to the comments in **AEC 5. (ii)**.	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	oleh pihak berkuasa tempatan yang berkaitan.				
5.5	***Kawalan Sisa Kumbahan / Sisa Cecair***				
i	*Kemudahan sistem sanitasi dan sistem perawatan kumbahan / sisa cecair hendaklah disediakan di kawasan projek.*	Comply	• Toilet facilities on-site are equipped with septic tank.	*Plates 31 to 33*	-
ii	*Sebarang pelepasan atau pelupusan terus sisa kumbahan / sisa cecair* ***tidak dibenarkan*** *dalam sungai atau alur air.*	Comply	• Direct discharge of sewage into the natural waterways was not sighted.	-	-
iii	*Sebarang effluen kumbahan yang dihasilkan hendaklah mematuhi sekurang-kurangnya* ***Piawai B, Peraturan –Peraturan Kualiti Alam Sekeliling (Kumbahan) 2009****.*	Comply	• Refer to the comments in **AEC 5.5 (i)**.	-	-
5.6	***Kawalan Kualiti Udara Dan Kebakaran***				
i	*Pembakaran terbuka adalah* ***tidak dibenarkan****.*	Comply	• The Project Proponent had given assurance that there will be no open burning conducted during the Project development activities. • Signboard pertaining to the prohibition of open burning in place, for notification purpose. • Firefighting equipment provided on-site	*Plate 34*	-
ii	*Pelan pengurusan dan pencegahan kebakaran kawasan projek hendaklah disediakan dan dilaksanakan serta satu*	Comply	• Fire Management and Prevention Plan was attached in the previous report (**3rd EMCAR of 2019**) as **Appendix C**.	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	(1) salinan pelan tersebut hendaklah dikemukakan ke JPAS.				
5.7	***Penghentian Atau Penamatan Projek***				
i	*Semua struktur binaan yang tidak digunakan hendaklah dibuka secara teratur apabila berlaku penghentian atau penamatan projek tersebut.*	Not Applicable	• Not applicable at the current stage of development as the Project is still on-going.	-	-
ii	*Semua struktur binaan yang didapati tidak selamat atau yang tidak dapat dipastikan selamat hendaklah dibuka.*	Not Applicable	• Not applicable at the current stage of development as the Project is still on-going.	-	-
iii	*Satu **Laporan Pematuhan Alam Sekitar** dengan format dan kandungan laporan sebagaimana dinyatakan dalam **Lampiran 1** hendaklah dikemukakan apabila berlaku penghentian atau penamatan projek tersebut.*	Not Applicable	• Not applicable at the current stage of development as the Project is still on-going.	-	-

CONCLUSIONS

6.1 Overall Compliance

For the Environmental Compliance period of May - August 2021 for the, *Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah*, generally complied with the EIA approval conditions, no **non-compliance** recorded.

\PERAKUAN PAS

Dengan ini saya mengaku telah turut serta dalam odit yang dijalankan oleh perunding alam sekitar dan telah meneliti dan bersetuju dengan isi kandungan Laporan Pematuhan Alam Sekitar bagi projek ini.

Tandatangan :
Nama : GUY THORNTON
Jawatan : FORESTRY DIRECTOR
Tarikh : 30/09/2021
Cop Rasmi syarikat :

PERAKUAN PERUNDING ALAM SEKITAR

Dengan ini saya mengaku dan mengesahkan semua kenyataan dan butir-butir dalam Laporan Pematuhan Alam Sekitar yang dikemukakan adalah benar.

Tandatangan :
Nama : **Agatha Francis**
Tarikh : 15th September 2021
Cop Rasmi syarikat :

APPENDIX A

Plates

5.1.1 Kawalan Kawasan Perladangan Hutan

Plate 1

Chemical spray within planting area of Coupe 1 (Block 45).

All Project development were conducted within the Project boundary.

**Photo was provided by the Project Proponent.*

**Photo was provided by the Project Proponent*

Plate 2

Slashing within planting area of Coupe 1 (Block 47).

All Project development were conducted within the Project boundary.

**Photo was provided by the Project Proponent.*

**Photo was provided by the Project Proponent*

5.1.1 Kawalan Kawasan Perladangan Hutan

Plate 3

Signage in place demarcating boundary between the Project site and the adjacent forest reserves.

GPS coordinates of the picture taken: N 06° 50' 54.0" E 117° 08' 39.4"

Plate 4

Signage in place demarcating boundary between coupe and block of the Project site.

GPS coordinates of the picture taken: N 06° 50' 53.9" E 117° 08' 39.4"

5.1.1 Kawalan Kawasan Perladangan Hutan

Plate 5

Signage in place demarcating boundary between the Project site and the adjacent local village.

GPS coordinates of the picture taken: N 06° 53' 13.0" E 117° 10' 33.9"

Plate 6

Entrance gate in place demarcating Project boundary.

GPS coordinates of the picture taken: N 06° 53' 01.6" E 117° 10' 28.7"

5.1.1 Kawalan Kawasan Perladangan Hutan

Plate 7

View of the water reservoir dam located within the Project site.

GPS coordinates of the picture taken: N 06° 52' 53.6" E 117° 09' 07.5"

Plate 8

View of the enrichment planting conducted along the Riparian Reserve area near the water reservoir dam located within the Project site.

GPS coordinates of the picture taken: N 06° 52' 52.7" E 117° 09' 06.1"

5.1.1 Kawalan Kawasan Perladangan Hutan

Plate 9

View showing the log pond on-site.

GPS coordinates of the picture taken: N 06° 56' 55.7" E 117° 06' 43.3"

5.1.2 Kawalan Pembinaan Jalan

Plate 10

View showing the existing access road on-site.

It is equipped with earth drainage, channelling surface runoff towards the nearest vegetated area.

GPS coordinates of the picture taken: N 06° 52' 38.6" E 117° 09' 49.2"

5.1.3 Pembinaan Rumah Pekerja, Kem Pekerja atau Bengkel

Plate 11

View of the staff' quarters at the base camp.

The facility is located at more than 30 meters away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 53' 00.5" E 117° 09' 19.4"

Plate 12

View showing the workers' quarters near base camp.

The facility is located at more than 30 meters away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 53' 00.1" E 117° 09' 17.7"

5.1.3 Pembinaan Rumah Pekerja, Kem Pekerja atau Bengkel

Plate 13

View showing the nursery on-site.

The facility is located at more than 50 m away from any nearest natural waterways.

The nursery on-site was provided with proper drainage system.

GPS coordinates of the picture taken: N 06° 52' 54.9" E 117° 09' 14.3"

5.1.4 Rehabilitasi Tanah Yang Terdedah

Plate 14

Steep area within Coupe 2 (Block 39) is clearly demarcated on-site.

GPS coordinates of the picture taken: N 06° 53' 05.4" E 117° 10' 32.0"

5.2 Perlindungan Sungai

Plate 15

Signboard in place demarcating the riparian reserves on-site.

GPS coordinates of the picture taken: N 06° 51' 07.4" E 117° 08' 51.3"

5.3 Bahan Minyak dan Sisa Toksik

Plate 16

View showing the skid tank storage building situated near the staff quarters area.

The facility is equipped with concretized floor, bunded and sheltered from weather exposure.

The facility was located at 50 meters away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 52' 57.8" E 117° 09' 18.7"

5.3 Bahan Minyak dan Sisa Toksik

GPS coordinates of the picture taken: N 06° 52' 57.5" E 117° 09' 18.7"

Plate 17

View showing the lubricant and oil storage, and Genset building situated near the staff quarters area.

The facility is equipped with concretized floor, bunded and sheltered from weather exposure.

The facility was located at 50 meters away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 52' 57.5" E 117° 09' 18.5"

Plate 18

Diesel skid tank storage building was equipped with an oil trap.

5.3 Bahan Minyak dan Sisa Toksik

GPS coordinates of the picture taken: N 06° 52' 57.5" E 117° 09' 18.7"

Plate 19

Lubricant and oil storage building was equipped with an oil trap.

GPS coordinates of the picture taken: N 06° 52' 58.1" E 117° 09' 19.1"

Plate 20

Nozzle storage area of the skid tank was equipped with concrete containment bund filled with sand to prevent oil from directly seep into the ground.

5.3 Bahan Minyak dan Sisa Toksik

Plate 21

View showing the diesel skid tank situated within the log pond area.

It is situated at more than 50 m away from the nearest natural waterways and sheltered from weather exposure.

GPS coordinates of the picture taken: N 06° 56' 50.3" E 117° 06' 38.0"

Plate 22

Nozzle storage area of the skid tank within the log pond area was equipped with concrete containment bund filled with sand to prevent oil from directly seep into the ground.

GPS coordinates of the picture taken: N 06° 56' 50.7" E 117° 06' 38.1"

5.3 Bahan Minyak dan Sisa Toksik

Plate 23

View showing the agrochemical storage area on-site.

The facility is located at more than 50 m away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 52' 59.0" E 117° 09' 20.5"

Plate 24

View showing the fertiliser storage area on-site.

The facility is located at more than 50 m away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 52' 59.4" E 117° 09' 19.7"

5.3 Bahan Minyak dan Sisa Toksik

Plate 25

Close up view of the lubricant and oil storage area situated at the site office.

Oil was stored inside HDPE container.

The facility was equipped with concretized floor, bunded and sheltered from weather exposure.

The facility is located at more than 50 m away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 52' 57.5" E 117° 09' 18.7"

Plate 26

Agrochemical containers on-site was labelled and stacked properly.

GPS coordinates of the picture taken: N 06° 52' 59.2" E 117° 09' 20.2"

5.3 Bahan Minyak dan Sisa Toksik

Plate 27

Fertiliser on-site was labelled and stacked properly.

GPS coordinates of the picture taken: N 06° 52' 59.4" E 117° 09' 19.7"

5.4 Bahan Sisa Pepejal dan Sisa Biomas

Plate 28

Garbage bin was provided to facilitate solid wastes collection.

GPS coordinates of the picture taken: N 06° 55'41.7" E 117° 06' 45.5"

5.4 Bahan Sisa Pepejal dan Sisa Biomas

Plate 29

Recycle bins in place to facilitate solid waste segregation.

GPS coordinates of the picture taken: N 06° 52' 59.5" E 117° 09' 16.9"

Plate 30

Dumping pit is available on-site.

GPS coordinates of the picture taken: N 06° 53' 00.7" E 117° 09' 27.1"

5.5 Kawalan Sisa Kumbahan / Sisa Cecair

Plate 31

Toilet with septic tank was available at the project site to cater sewage waste.

GPS coordinates of the picture taken: N 06° 53' 00.3" E 117° 09' 17.0"

Plate 32

Toilet of the workers' quarters at the base camp is equipped with septic tank.

GPS coordinates of the picture taken: N 06° 53' 00.3" E 117° 09' 17.0"

5.5 Kawalan Sisa Kumbahan / Sisa Cecair

Plate 33

Toilet of the staff quarters within the base camp area is equipped with septic tank.

GPS coordinates of the picture taken: N 06° 53' 00.9" E 117° 09' 16.9"

5.6 Kawalan Kualiti Udara Dan Kebakaran

Plate 34

Portable fire prevention equipment provided to control fire outbreak (if any).

GPS coordinates of the picture taken: N 06° 52' 59.3" E 117° 09' 19.4"

APPENDIX B

Environmental Monitoring Report

1.0 WATER QUALITY ANALYSIS

1.1 MONITORING LOCATION

Water sampling was carried out on the 11th August 2021 at five (5) monitoring locations, **W1**, **W2**, **W3**, **W4** and **W5** as shown in **Figure 1.0**. However, no sampling was carried out at locations **W2** due to not accessible during site visit and **W3, W4, W5** due to the Project has not progressed into these locations yet.

The weather was fine and sunny throughout the sampling exercises.

1.2 ANALYTICAL RESULTS

Laboratory reports of the sample analyses are presented in ***Appendix C***. Results of water quality analysis for monitoring stations **W1 – W5** are summarized in **Tables 3.0** and compared to respective limit of ***Class IIB of National Water Quality Standards for Malaysia (NWQSM)***.

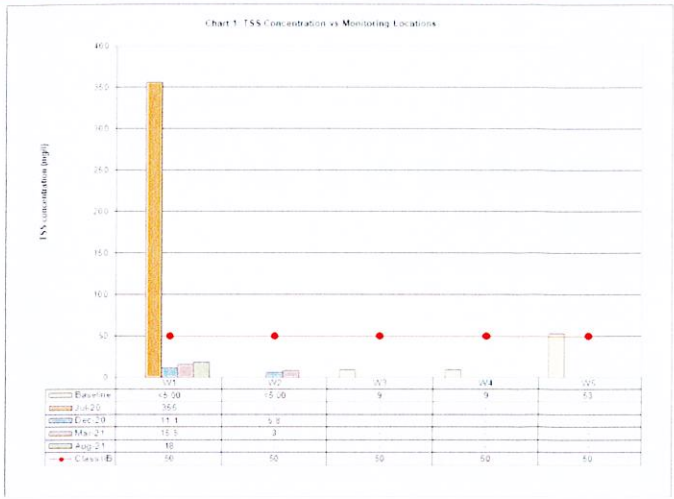
Table 3.0: Surface Water Quality Monitoring Results

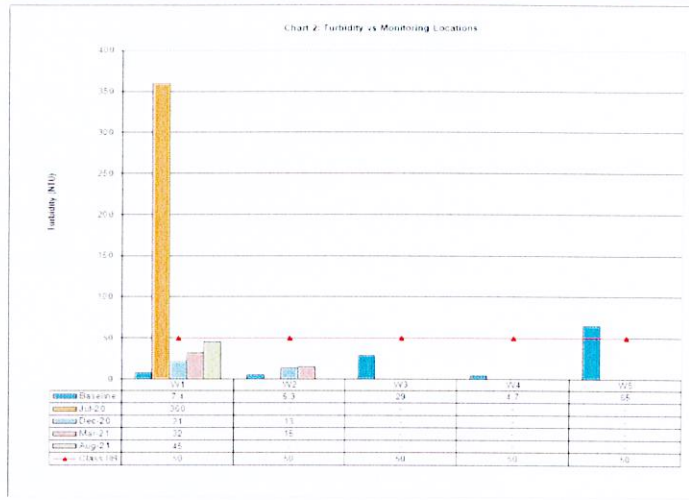
Monitoring Location	**W1**	**W2**	**[1]LIMITS (Class III)**
Monitoring Date / Time	**11/08/2021 11:35 Hrs**	**-**	
Physical / Chemical Analysis			
Total Suspended Solids (TSS), *mg/L*	45	NA	**50.0**
Turbidity	18.0	NA	**-**
Oil & Grease, *mg/L*	<1.50	NA	**50.0**
Microbiological Analysis			
Total Coliform Count (TCC), MPN/100mL	1400	NA	**5000**

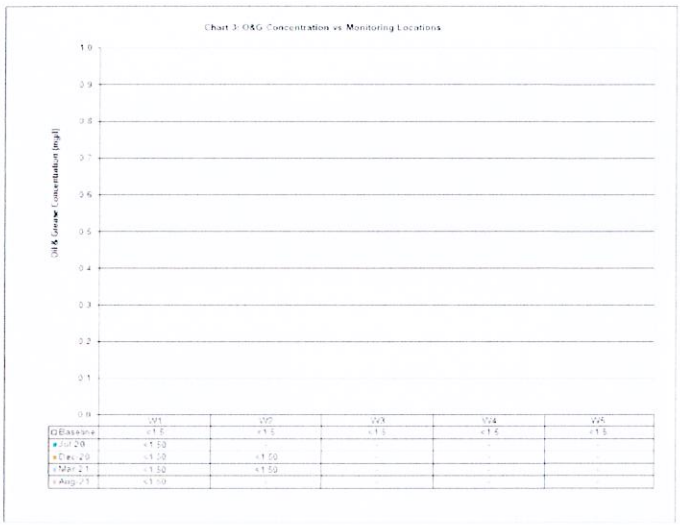
Notes: < > Below / above detection limit; NA-Sampling point Not Accessible

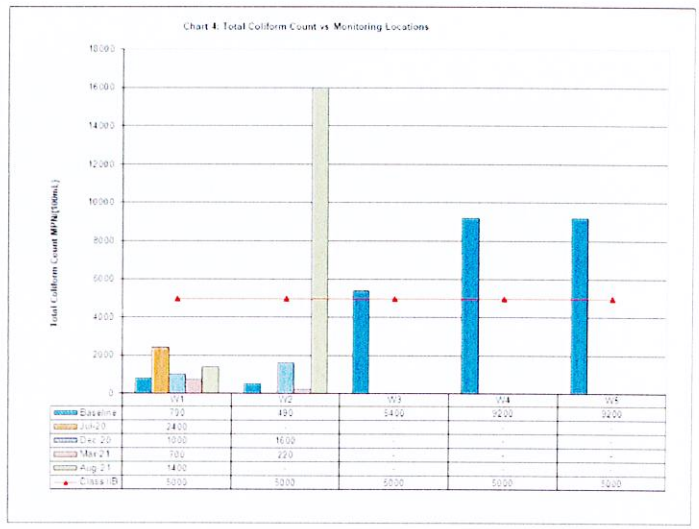
[1] National Water Quality Standards for Malaysia, Malaysia Environmental Quarry Report (DOE, 2006)

HISTORICAL SURFACE WATER QUALITY GRAPHICAL REPRESENTATION









*Note: * Baseline data extracted from EIA for Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah.*

1.3 DISCUSSION

Surface water quality analysis show that all the parameters measured is **below** the recommended limit of ***Class IIB***.

1.4 RECOMMENDED MITIGATION MEASURES

- Construction of sedimentation pond or drainage system within existing waterway or river reserve is strictly prohibited.
- Vegetation clearing shall be carried out in stages and confined to areas that are essential for Project development. Existing vegetation shall be retained to reduce runoff velocity and act as a natural barrier to minimize soil erosion.
- Re-vegetation or planting of cover crops shall be carried out in tandem with the field establishment works. This is to avoid prolonged and unnecessary exposure of bare ground elements such as rainfall, wind and surface runoffs.
- Usage of agro-chemical is minimized and strictly adhered to the rules and regulations as stipulated under the Pesticides Act 1974. Disposal of agro-chemicals such as pesticide and herbicide into existing stream or any waterway is strictly prohibited.

APPENDIX C

Surface Water Test Reports

National Water Quality Standards for Malaysia (NWQSM)

CHEMSAIN KONSULTANT SDN BHD *(130904-U)*

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Jalan Kolombong, 88450, Kota Kinabalu, Sabah, Malaysia.
Tel: +60-88-389671 / 381278 **Fax:** +60-88-381280
Email: laboratory.kk@chemsain.com
www.chemsain.com

MS ISO/IEC 17025
TESTING
SAMM NO. 238

TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Customer	:	Gerak Saga Sdn Bhd L-70-7, KK Times Square, Off Jalan Coastal, 88450 Kota Kinabalu, Sabah		
			Lab No.	: CK/CL405/3126/21
			Type (No.) of Sample	: River Water (1)
			Date Received	: 13th August 2021
			Date of Report	: 26th August 2021
			Project Code	: CK/MO411/1197/21

Parameter(s)	W1 Date: 11/08/21 Time: 11.35 am	*Test Method*	* *Standard Limit*
Turbidity, NTU	45	*APHA 2130 B, 2017*	*50*
Total Suspended Solids, mg/L	18.0	*APHA 2540 D, 2017*	*50*
Oil & Grease, mg/L	<1.50	*APHA 5520 B, 2017*	-

** Class IIB National Water Quality Standards Malaysia.*

---------- *End* ----------

CHEMSAIN KONSULTANT SDN. BHD. Laboratory Kota Kinabalu (130904-U)

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ChM. SHIERLY BINTI SULAIMAN
B. Sc. (Hons)
MMIC (4697/603[illegible]/17)
SENIOR CHEMIST

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Email: laboratory.kk@chemsain.com
www.chemsain.com

MS ISO/IEC 17025
TESTING
SAMM NO. 238

TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Customer	:	Gerak Saga Sdn Bhd L-70-7, KK Times Square, Off Jalan Coastal, 88450 Kota Kinabalu, Sabah	Lab No. Type (No.) of Sample Date Received Date of Report Project Code	: CK/ML405/3127/21 : River Water (1) : 13th August 2021 : 27th August 2021 : CK/MO411/1197/21

Parameter(s)	W1 Date: 11/08/21 Time: 11.35 am	*Test Method*	* *Standard Limit*
Total Coliform Count MPN/100ml, 35±0.5°C/48 h	1.4×10^3	*APHA 9221 B, 2017*	*5,000*

** Class IIB National Water Quality Standards Malaysia.*

---------- *End* ----------

CHEMSAIN KONSULTANT SDN. BHD. Laboratory Kota Kinabalu (130904-U)

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STEPFANIE BYERT JOLE
M. Sc.
MJMM0369
MICROBIOLOGIST

NATIONAL WATER QUALITY STANDARDS FOR MALAYSIA

		Classes					
Parameters	**Unit**	**I**	**IIA**	**IIB**	**III**	**IV**	**V**
Ammoniacal-N.	mg/l	0.1	0.3	0.3	0.9	2.7	>2.7
BOD	mg/l	1	3	3	6	12	>12
COD	mg/l	10	25	25	50	100	>100
DO	mg/l	7.0	5.0 – 7.0	5.0 – 7.0	3.0 – 5.0	<3.0	<1.0
pH		6.5 – 8.5	6.0 – 9.0	6.0 – 9.0	5.0 – 9.0	5.0 – 9.0	-
Colour	TCU	15	150	150	-	-	-
Elec. Cond*	µS/cm	1000	1000	-	-	6000	-
Floatables		N	N	N	-	-	-
Odour		N	N	N	-	-	-
Salinity*	%	0.5	1	-	-	2	-
Taste		N	N	N	-	-	-
Tot. Diss. Sol.*	mg/l	500	1000	-	-	4000	-
Tot. Susp. Sol.	mg/l	25	50	50	150	300	>300
Temperature	°C	-	Normal±2	-	Normal±2	-	-
Turbidity	NTU	5	50	50	-	-	-
F. Coliform**	counts/100ml	10	100	400	5000 (20000)[a]	5000 (20000)[a]	-
Total Coliform	counts/100ml	100	5000	5000	50000	50000	>50000

N = No visible floatable material / debris; or no objectionable odour; or no objectionable taste.

* = Related parameters, only one recommended for use

** = Geometric mean

± = Maximum not to be exceeded

CLASS USES

I represent water body of excellent quality. Standards are set for the conservation of natural environment in its undisturbed state. Water bodies such as those in the national park areas, fountainheads, and in high land and undisturbed areas come under this category where strictly no discharge of any kind is permitted. Water bodies in this category meet the most stringent requirements for human health and aquatic life protection.

IIA / IIB represents water bodies of good quality. Most existing raw water supply sources come under this category. In practice, no body contact activity is allowed in this water for prevention of probable human pathogens. There is a need to introduce another class for water bodies not used for water supply but of similar quality which may be referred to as **Class IIB**. The determination of **Class IIB** standard is based on criteria for recreational use and protection of sensitive aquatic species.

III is defined with the primary objective of protecting common and moderately tolerant aquatic species of economic value. Water under this classification may be used for water supply with extensive / advance treatment. This class of water is also defined to suit livestock drinking needs.

IV defines water quality required for major agricultural irrigation activities which may not cover minor applications to sensitive crops.

V represents other waters which do not meet any of the above uses.