

Environmental Monitoring Plan (For the Project Construction Phase)

(1) North Nawin

Monitoring Form (For the Project Construction Phase) (North Nawin Dam, January, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.013	0.023	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils and old bricks	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	54.1	64.5	-	85	3 points, January, 2018	Investigation Branch
Vibration	dB	30.18	39.9	-	75	3 points, January, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	Ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	Ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites.
Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness: According to local people responses, BWID project constructed new bridges over canals, drainage canals (not include original design) and upgrading local access near canal bridges to improve transportation and social awareness of the project.

Waste : In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Environmental Monitoring Sheet														
Project Name : Implementation Support for Irrigation Development Project in Western Bago Region											Jan, 2019			
Dam Name : <u>Nadya Namay</u>											①			
Number : <u>SYN + KKT</u>														
Measurer : <u>N. 18 56 13^h</u>														
Date : <u>N. 18 56 13^h</u>														
Location : <u>E 95 19 50^h</u>														
1) Air Pollution														
Meteorological Phenomenon														
Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)									
10:50	cloudy	25 °C	72-4		7.6									
Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
	CO	ppm	0	0	0	0								
	SPM	µg/m ³	11	10	8	11	7	8	10	9	8			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
	SO ₂	ppm												
2) Noise (working state)														
Detailed Location	Unit	Time	Level (dB < 85 (dB))				Measurement height(m)	Main Source	Remark					
			Lmax											
	dB		62.2				1.2 m							
			64.5				1.2 m							
			59.7				1.2 m							
3) Vibration (working state)														
Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark							
			L10											
	dB		21.5											
			24.6											
			29.4											
*measurement time: 10 minute														

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Jan, 2018 (3)
 Dam Name : NCC (Th. Nawa)
 Number : _____

Measurer : SYN + A.M.
 Date : 18/5/12
 Location : E 95 24 53

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
11:10	cloudy	27.0	72.6		2-8

1) Air Pollution E 95 24 53

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
	CO	ppm	0	0	0	0								
	SPM	ug/m3	5	5	5	6	6	6	7	8	6			
		ug/m3	0	0	0	13	13	13	15	15	14			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time			During time			Measured value					
	SO ₂	ppm				10min	0	0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			I.max				
	dB		43.8				
		47.3					
		51.1					

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		31.2				
		31.4					
		31.2					

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Jan, 2018 (3)
 Dam Name : _____
 Number : _____

Measurer : A.M + KKT.
 Date : 18/5/12
 Location : E 95 22 12

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
11:00	cloudy	24.2	72.0		6-8

1) Air Pollution E 95 22 12

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
	CO	ppm	0	0	0	0								
	SPM	ug/m3	5	4	9	5	5	6	9	5	4			
		ug/m3	0	0	0	0	10	11	9	10	9			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time			During time			Measured value					
	SO ₂	ppm				10min	0	0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			I.max				
	dB		40.4				
		50.1					
		58.4					

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		39.9				
		39.8					
		22.7					

*measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(North Nawin Dam, February, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.076	0.098	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00		average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00		less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	47.42	54.3	-	85	3 points, February, 2018	Investigation Branch
Vibration	dB	32.96	52.7	-	75	3 points, February, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible. Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness

Social Welfare Works are bridges& cart bridges,farm road and tube wells.

Waste Management

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Environmental Monitoring Sheet

Feb, 2019

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Baran Noyon
 Number :

Measurer : Syn. KKT
 Date : 20/2/2019
 Location : N 18° 54' 31" E 95° 23' 44"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:30	sunny	38.8	38.5	↻	1.6

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<u>Mixer and lining</u>	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	43	42	40	39	42	39	45	43	42			
<u>Backhoe</u>	NO ₂	ppm	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0	0							
			Measurement time		During time		Measured value							
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			I _{max}				
<u>Mixer and lining</u>	dB		44.6		1.2m		
<u>Backhoe</u>		48.3		1.2m			
		46.9		1.2m			

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		32.4				
		32.0					
		29.8					

*measurement time: 10 minute

Environmental Monitoring Sheet

Feb, 2019

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Baran Noyon
 Number :

Measurer : Syn. ATW
 Date : 20/2/2019
 Location : N 18° 55' 22" E 95° 19' 45"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:00	sunny	36.8	34.4		2.5

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<u>Mixer and lining</u>	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	42	41	42	42	41	46	42	43	41			
<u>Backhoe</u>	NO ₂	ppm	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0	0							
			Measurement time		During time		Measured value							
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			I _{max}				
<u>Mixer and lining</u>	dB		49.5		1.2m		
<u>Backhoe</u>		50.3		1.2m			
		48.6		1.2m			

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		52.7				
		36.0					
		28.7					

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Feb, 2019
 Dam Name: ~~North~~ ~~South~~
 Number :
 Measurer: Sy N K K I
 Date:
 Location: N18°49'15" E 95°15'26"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
<u>8:15</u>	<u>Sunny</u>	<u>31.2</u>	<u>85-9</u>	<u>N</u>	<u>4.6</u>

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark	
<u>Water Control</u>	CO	ppm	0	0	0	0	0								
<u>Receiving</u>	SPM	ug/m3	41	41	41	41	41	45	43	40	42			Ava 0.076	
	NO ₂	ppm	77	86	82	86	77	90	82	79	80			Max 0.099	
	Ox	ppm	0	0	0	0	0								
			Measurement time		During time		Measured value								
	SO ₂	ppm						0	0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
	dB		54.3		1.2m		Ava 47.42
		40.9		1.2m		Max 54.3	
		45.9		1.2m			

3) Vibration (working state) * measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		47.5				Ava 32.96
		33.5				Max 52.7	
		31.1					

* measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(North Nawin Dam, March, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.082	0.098	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00		average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00		less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	48.48	60.5	-	85	3 points, March, 2018	Investigation Branch
Vibration	dB	27.65	36.4	-	75	3 points, March, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible. Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness

Social Welfare Works are bridges& cart bridges, farm road and tube wells.

Waste Management

_In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : North Nawa
 Number :
 Measurer : Syn. ATW
 Date :
 Location : N 18° 56' 58"
 Metrological Phenomenon :
 Time : 8:30 Weather : fine Temperature (degree) : 25.1 Moisture (percent) : 69.4 Wind direction : E to W Wind speed (m/s) : 1.6

1) Air Pollution E 95° 17' 5"

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<u>Miasand</u>	CO	ppm	0	0	0	0								max 0.098
<u>Vining</u>	SPM	ug/m3	95	92	90	89	92	92	90	89	90			Avg 0.092
	NO ₂	ug/m3	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time		During time		Measured value							
	SO ₂	ppm				10.0		0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height	Main Source	Remark
<u>Miasand</u>	dB		I max			
			36.3	1.2m		max 60.5
<u>Vining</u>			42.7	1.2m		Avg 49.49
			38.1	1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
	dB		L10			
			31.0			max 36.4
			44.3			Avg 22.65
			17.6			

*measurement time: 10 minute

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : North Nawa
 Number :
 Measurer : Syn. KKT
 Date :
 Location : N 18° 56' 14"
 Metrological Phenomenon :
 Time : 9:10 Weather : Sunny Temperature (degree) : 27.9 Moisture (percent) : 58.5 Wind direction : S Wind speed (m/s) : 1.7

1) Air Pollution E 95° 19' 50"

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<u>Miasand</u>	CO	ppm	0	0	0	0								
<u>Vining</u>	SPM	ug/m3	90	91	91	98	91	92	91	92	91			
	NO ₂	ug/m3	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0								
			Measurement time		During time		Measured value							
	SO ₂	ppm				10.0		0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height	Main Source	Remark
<u>Miasand</u>	dB		I max			
			60.5	1.2m		
<u>Vining</u>			56.9	1.2m		
			30.5	1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
	dB		L10			
			33.5			
			44.9			
			35.2			

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : ~~Dei Ab~~ ~~Naun~~

March, 18

3

Number :

Metrological Phenomenon

Measurer : *Syn. KKT*
 Date : *25/8/00*
 Location : *R.D 25800*
N 18 54' 24" E 95' 23" S

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:45	<i>Sunny</i>	37.9	38.9	N	1.7

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<i>mixer and</i>	CO	ppm	0	0	0	0	0	0						
<i>living</i>	SPM	ug/m ³	95	93	93	93	93	90	89	90	89			
<i>Backhoe</i>	NO ₂	ppm	0	0	0	0	0	0	82	81	81			
	Ox	ppm	0	0	0	0	0	0						
			Measurement time		During time		Measured value							
	SO ₂	ppm				10.2		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB)		Measurement height(m)	Main Source	Remark
			I _{max}				
<i>mixer and</i>	dB			45.5	1.2m		
<i>living</i>				50.8	1.2m		
<i>Backhoe</i>					55.1	1.1m	

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB)		Ground condition	Main Source	Remark
			L10				
	dB			36.4			
				21.6			
					22.9		

*measurement time: 10 minute

(2) South Nawin

Monitoring Form (For the Project Construction Phase)
(South Nawin Dam, January, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.015	0.018	-	average daily less, or equal 0.10mg/m ³ /hr and less, or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils and old bricks	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	61.98	69.3	-	85	3 points, January, 2018	Investigation Branch
Vibration	dB	29.8	36.8	-	75	3 points, January, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	Ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	Ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	Ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	Ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites. Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness: According to local people responses, BWID project constructed new bridges over canals, drainage canals (not include original design) and upgrading local access near canal bridges to improve transportation and social awareness of the project.

Waste : In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Environmental Monitoring Sheet Jan, 2019. (1)

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name: South Naxun
 Number :
 Measurer : SYN + KKT
 Date :
 Location : N 18° 51' 1" RD 48000

Metrological Phenomenon						
Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)	
9:45	Fine	23.1	78.9	N	5.0	

1) Air Pollution E 95° 26' 2" RD 48000

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Mixer and Lining Bachher	CO	ppm	0	0	0	0								
	SPM	ug/m3	8	9	8	8	8	9	8	7	8			
	NO ₂	ug/m3	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time		During time		Measured value							
	SO ₂	ppm				10 max		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB)		Measurement height(m)	Main Source	Remark
			L _{max}				
Mixer and Lining Bachher	dB		57.6		1.2m		
			58.0		1.2m		
			58.1		1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB)		Ground condition	Main Source	Remark
			L ₁₀				
	dB		34.4				
			28.1				
			36.8				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Jan, 2018

Dam Name : South Nyaun ②

Number :

Measurer : KKT + ATW

Date : N 18 40' 22"

Location : N 18 40' 22"

1) Air Pollution E 95 27' 20"

Time		Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
11:15		Sunny	29.2	59.8		2.9

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
			Backhoe	CO	ppm	0	0	0	0					
	SPM	ug/m3	0	6	6	6	6	9	9	7	8			
		ug/m3	12	12	13	14	12	10	15	16	16			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time		During time		Measured value							
	SO ₂	ppm				10min		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
Backhoe	dB		52.2		1.2m		
			58.7		1.2m		
			67.3		1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		31.2				
			31.7				
			21.2				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Jan, 2018

Dam Name : South Nyaun ③

Number :

Measurer : S.Y.N + A.M

Date : N 18 47' 45"

Location : N 18 47' 45"

1) Air Pollution E 95 24' 20"

Time		Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:30		Fine	24.7	65.1	N	6.6

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
			mixer and	CO	ppm	0	0	0	0					
	SPM	ug/m3	7	6	6	6	6	8	9	7	7			
		ug/m3	14	13	13	13	12	15	18	16	15			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time		During time		Measured value							
	SO ₂	ppm				10min		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
mixer and	dB		67.9				
lmeag			69.3				
			68.8				

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		31.8				
			26.1				
			26.9				

*measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(South Nawin Dam, February, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.108	0.181	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	54.45	74	-	85	3 points, February, 2018	Investigation Branch
Vibration	dB	34.97	50.0	-	75	3 points, February, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible. Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness:

Social Welfare Works are bridges& cart bridges, farm road and tube wells.

Waste :

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Re-use excavated soil as back-filling IP and NIP burms.

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Feb, 2019
 Dam Name : South dam
 Number :
 Measurer : Sya, KKI
 Date :
 Location : N 18 38' 03" E 95 24 00"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:00	Sunny	35.4	54.7	S	1.7

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Beckhoe	CO	ppm	0	0	0	0	0	0	0	0	0			
	SPM	ug/m3	61	67	61	59	59	59	60	59	59			
	NO ₂	ppm	134	124	115	112	125	112	118	110	115			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time			During time			Measured value					
SO ₂	ppm								0	0				

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB)		Measurement height(m)	Main Source	Remark
			Lmax	L10			
Beckhoe	dB		42.1		1.2m		
			41.5		1.2m		
			39.6		1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB)		Ground condition	Main Source	Remark
			L10	L5			
	dB		34.7				
			50.0				
			37.6				

*measurement time: 10-minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region Feb, 2019
 Dam Name : South main
 Number : _____

Measurer : Syn. Atw
 Date : _____
 Location : N 18 40' 09" E 95 28' 00"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:45	Sunny	33.2	53.9	S	1.6

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
	CO	ppm	0	0	0	0	0							
<u>Backhoe</u>	SPM	ug/m3	78	79	79	77	72	75	76	73	78			Avg 0.108
		ug/m3	183	179	178	187	157	155	156	158	166			Max 0.181
	NO ₂	ppm	0	0	0	0	0							
	Ox	ppm	0	0	0	0	0							
			Measurement time		During time		Measured value							
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height (m)	Main Source	Remark
			Lmax				
<u>Backhoe</u>	dB			52.5	1.2m		Avg 54.45
				54.5	1.2m		Max 74
				52.0	1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB			30.5			Avg 34.97
				35.8			Max 50.0
				22.7			

*measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(South Nawin Dam, March, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.06	0.08	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	58.6	62.6	-	85	3 points, March, 2018	Investigation Branch
Vibration	dB	33.4	48.3	-	75	3 points, March, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible.
Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness:

Social Welfare Works are bridges& cart bridges, farm road and tube wells.

Waste :

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

(3) Wegyi

Monitoring Form (For the Project Construction Phase)
(Wegyi Dam, January, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.103	0.124	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	59.5	69.3	-	85	3 points, January, 2018	Investigation Branch
Vibration	dB	40.7	45.3	-	75	3 points, January, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible.

Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness: According to local people responses, BWID project constructed new bridges over canals, drainage canals (not include original design) and upgrading local access near canal bridges to improve transportation and social awareness of the project.

Waste :In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

R.D. - 59200 Jan, 18
L.M.C

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Wegyi
 Number :

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:00	Fine	23.8	64.5	N	1.6

Measurer : Min Kyaw Htike
 Date :
 Location : N 18° 28' 638"

1) Air Pollution E 095° 33' 237"

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<u>Backhoe</u>	CO	ppm	0	0	0									
	SPM	ug/m3	53	55	54	54	54	54	55	54	54			
		ug/m3	110	111	113	124	117	110	113	110	114			
	NO ₂	ppm	0	0	0									
	Ox	ppm	0	0	0									
			Measurement time		During time		Measured value							
	SO ₂	ppm				10 min	0	0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
<u>Backhoe</u>	dB			57.6	1.2m		
				66.5	1.2m		
				69.3	1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
<u>Backhoe</u>	dB			42.5			
				43.2			
				41.7			

*measurement time: 10 minute

R.D. - 501700 Jan, 18
L.M.C

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Wegyi
 Number :

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:00		20.9	75.1	N	1.2

Measurer : Min Kyaw Htike
 Date :
 Location : N. 18° 28' 800"

1) Air Pollution E 095° 34' 473"

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<u>Lining</u>	CO	ppm	0	0	0									
	SPM	ug/m3	50	50	49	48	48	46	44	46	48			
		ug/m3	95	105	98	100	96	96	83	101	96			
	NO ₂	ppm	0	0	0									
	Ox	ppm	0	0	0									
			Measurement time		During time		Measured value							
	SO ₂	ppm				10 min	0	0						

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
<u>Lining</u>	dB			59.5	1.2m		
				62.3	1.2m		
				59.8	1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
<u>Lining</u>	dB			35.4			
				37.8			
				34.5			

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name: **Implementation Support for Irrigation Development Project in Western Bago Region**

Site Name: **Weggin Dan**

Number: **AKW+MKH RD 56400**

Measurer: **N 18 28 747**

Date: **E 95 33 730**

Location: **E 95 33 730**

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed
7:45	fine	23	67-9	N	1.4

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	
Lining	CO	ppm	0	0	0									
	SPM	µg/m ³	49	50	48	51	51	54	48	48	54			
	NO ₂	µg/m ³	93	95	105	96	96	124	95	93	95			
	Ox	ppm	0	0	0									
			Measurement time		During time		Measured value							
	SO ₂	ppm				10 min		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height (m)	Main Source	
			L _{max}			
Lining	dB		43.6	1.2 m		
			54.5	1.2 m		
			62.8	1.2 m		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	
			L10			
Lining	dB		45-3			
			48-4			
			42-6			

* measurement (10 minute)

Monitoring Form (For the Project Construction Phase)
(Wegyi Dam, February, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.113	0.156	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	49.1	55.3	-	85	3 points, February, 2018	Investigation Branch
Vibration	dB	37.0	45.9	-	75	3 points, February, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible.
Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness:

Social Welfare Works are bridges& cart bridges, farm road and tube wells.

Waste :

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Re-use excavated soil as back-filling IP and NIP burms.

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Weggi (Feb)
 Number : Myo kyaw Aung

Measurer : N 18 28-755'
 Date : 10-30

Location : E 95 29-618'

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:30	Fine	32.3	55.7	-	0

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Backhoe + Truck	CO	ppm	0	0	0	0	0	0						Ave = 0.113 Max = 0.156
	SPM	ug/m3	61	65	59	60	57	62	54	60	58			
		ug/m3	105	110	102	124	115	110	102	103	110			
	NO ₂	ppm	0	0	0	0	0	0						
	Ox	ppm	0	0	0	0	0	0						
			Measurement time			During time			Measured value					
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax	L10			
Backhoe + Truck	dB		55.3		1.2m		Ave = 49.1 Max = 55.3
			52.0		1		
			52.2		1		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10	L5			
Backhoe + Truck	dB		29.4				Ave = 37.0 Max = 45.9
			37.7				
			29.7				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Weggi (Feb)
 Number : Myo kyaw Aung

Measurer : N 18 25-789'
 Date : 10-31

Location : E 95 35-564' RMC

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:15	Fine	27.8	70	-	0

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Lining + mixer	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	55	55	49	48	50	54	45	49	52			
		ug/m3	110	126	102	106	93	105	92	101	96			
	NO ₂	ppm	0	0	0	0	0							
	Ox	ppm	0	0	0	0	0							
			Measurement time			During time			Measured value					
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax	L10			
Lining + mixer	dB		44.9		1.2m		
			44.7		1		
			43.8		1		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10	L5			
Lining + mixer	dB		37.2				
			35.1				
			39.6				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bagan Region

Dam Name : Weggi (Feb)

(3)

Number : Myo Kyan Aung

Metrological Phenomenon

Measurer : NS 18 28.409

Date

Location : E 95 29.478

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:30	Fine	31	48	W	0-5

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Lining + mixer + Truck	CO	ppm	0	0	0	0	0	0						
	SPM	ug/m3	75	70	69	72	62	65	59	60	65			
	NO ₂	ppm	0	0	0	0	0	0	103	114	130			
	Ox	ppm	0	0	0	0	0	0						
			Measurement time			During time			Measured value					
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
Lining + mixer + Truck	dB		49.7		1.2m		
			47.9		4		
			50.3		4		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
Lining + mixer + Truck	dB		37.5				
			45.9				
			46.1				

*measurement time: 10 minute

*measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(Wegy Dam, March, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.105	0.180	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	57.3	69.7	-	85	3 points, March, 2018	Investigation Branch
Vibration	dB	42.5	47.1	-	75	3 points, March, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible.
Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness:

Social Welfare Works are bridges& cart bridges, farm road and tube wells.

Waste :

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Re-use excavated soil as back-filling IP and NIP burms.

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : Maggi (March)

Number : Myo Kyau Aung

①

Measurer : N. U. 29.129
 Date : E-95 29.645 RMC
 Location :

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:00	Fine	28.6	87.5	N	0.8

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Lining	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	83	86	50	45	55	52	48	50	52			Ave = 0.105 Max = 0.180
	NO ₂	ug/m3	187	180	105	98	110	101	96	103	98			
	Ox	ppm	0	0	0	0	0							
			Measurement time			During time			Measured value					
SO ₂	ppm							0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
Lining	dB		51.4		1.2m		
			57.6		"		Ave = 57.3 Max = 69.7
			62.8		"		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
Lining	dB		47.1				
			44.2				Ave = 42.5 Max = 47.1
			36.4				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : Maggi (March)

Number : Myo Kyau Aung

②

Measurer : N. U. 28.092 D.Y = 12
 Date : E 95 28.572
 Location :

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:00	Sunny	35.5	54.9	N	0.7

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Mixer + Lining + Village Road	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	50	70	60	50	48	52	45	62	55			
	NO ₂	ug/m3	182	194	122	96	103	105	92	114	110			
	Ox	ppm	0	0	0	0	0							
			Measurement time			During time			Measured value					
SO ₂	ppm							0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
Mixer + Lining + Village Road	dB		69.7		1.2m		
			59.2		"		
			50.7		"		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
Mixer + Lining + Village Road	dB		48.7				
			46.7				
			46.1				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : *Wegyi (Masch)*

Number : *Myo Kyaw Aung*

3

Metrological Phenomenon

Measurer : *03.1828.356*

Date

Location : *E 95 29.462*

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
<i>8:15</i>	<i>87</i> <i>Fine</i>	<i>28.6</i>	<i>55</i>	<i>N</i>	<i>0.4</i>

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<i>Lining + Truck</i>	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	<i>30</i>	<i>29</i>	<i>28</i>	<i>66</i>	<i>65</i>	<i>62</i>	<i>59</i>	<i>50</i>	<i>62</i>			
	NO ₂	ug/m3	<i>63</i>	<i>58</i>	<i>56</i>	<i>110</i>	<i>103</i>	<i>101</i>	<i>103</i>	<i>98</i>	<i>103</i>			
	Ox	ppm	0	0	0	0	0							
			Measurement time			During time			Measured value					
	SO ₂	ppm							<i>0</i>	<i>0</i>				

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB)		Measurement height(m)	Main Source	Remark
			Lmax				
<i>Lining + Truck</i>	dB			<i>52.6</i>	<i>1.2m</i>		
				<i>56.4</i>	<i>u</i>		
				<i>54.8</i>	<i>u</i>		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB)		Ground condition	Main Source	Remark
			L10				
<i>Lining + Truck</i>	dB			<i>35.3</i>			
				<i>41.1</i>			
				<i>39.3</i>			

*measurement time: 10 minute

*measurement time: 10 minute

(4) Taung Nyo

Monitoring Form (For the Project Construction Phase)
(Taungnyo Dam, January, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.045	0.071	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	57.5	71.8	-	85	3 points, January, 2018	Investigation Branch
Vibration	dB	44.6	48.2	-	75	3 points, January, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible.

Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness: local rural development road of project area (Nattalin _ Damange) was repaired by the BWID project. And then, according to local people responses, BWID project constructed new bridges over canals, drainage canals (not include original design)to improve transportation and social awareness of the project.

Waste :In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

S.S.A.E. *Bioguard* Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region MC
R 9
23500
24000 *Cam MODL*

Dam Name : *Tauagayo* *Jan 18*
2020
①

Number : Metrological Phenomenon

Measurer : T.A.K + M.K.H

Date : *Jan 18 2020*

Location : *N 18° 29' 16.8"*
E 095° 40' 36.6"

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
AM - 9:15	Fine	23.6	75.3	E-N	1.2

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<i>Mixer and lining</i>	CO	ppm	0	0	0									
	SPM	µg/m ³	23.5	23	24	23	23	23	22	23	31			
		µg/m ³	52	43	25	43	43	43	50	50	62			
	NO ₂	ppm	0	0	0									
	Ox	ppm	0	0	0									
			Measurement time		During time		Measured value							
	SO ₂	ppm				10 min		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
<i>Mixer and lining</i>	dB		65.1		1.2m		
			67.3		1.2m		
			71.8		1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
	dB		41.2				
			43.6				
			41.3				

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region ②

Dam Name : *Tauagayo*

Number : Metrological Phenomenon

Measurer : T.A.K + M.K.H

Date : *Jan 18 2020*

Location : *N 18° 29' 38.1"*
E 095° 40' 37.0" *Tauagayo*
T/V BRANCH-A
R.D-5+800

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:30	Fine	22.4	51.7	N	1.8

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<i>Backhoe</i>	CO	ppm	0	0	0									
	SPM	µg/m ³	22	22	34	21	22	20	22	22	21			
		µg/m ³	41	41	71	42	42	42	41	42	41			
	NO ₂	ppm	0	0	0									
	Ox	ppm	0	0	0									
			Measurement time		During time		Measured value							
	SO ₂	ppm				10 min		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
<i>Backhoe</i>	dB		42.3		1.2m		
			48.6		1.2m		
			50.1		1.2m		

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
<i>Backhoe</i>	dB		45.3				
			48.2				
			46.2				

*measurement time: 10 minute

Environmental Monitoring Sheet															
Project Name : Implementation Support for Irrigation Development Project in Western Bago Region															
Dam Name : <u>Raw-gya</u>															
Number : _____															
Metrological Phenomenon															
Measurer : <u>T.A.R + M.K.H</u>		TN BRANCH - A		Time		Weather		Temperature (degree)		Moisture (percent)		Wind direction		Wind speed (m/s)	
Date : <u>N 18° 29.168'</u>		<u>R.D. 4+000</u>		10:00		Fine		28.3		66.8		N		1.3	
Location : <u>E 095° 40.960'</u>															
1) Air Pollution															
Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark	
			Measurement time			During time			Measured value						
<u>Mixer and lining</u>	CO	ppm	0	0	0										
	SPM	ug/m3	22	21	21	21	22	22	23	24	22				
		ug/m3	41	42	48	44	48	41	52	52	50				
	NO ₂	ppm	0	0	0										
	Ox	ppm	0	0	0										
			Measurement time			During time			Measured value						
	SO ₂	ppm				10 min		0	0						
2) Noise (working state)															
Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark								
			Lmax												
<u>Mixer and lining</u>	dB		52.2		1.2m										
			58.4		1.2m										
			62.1		1.2m										
3) Vibration (working state) *measurement time: 10 minute															
Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark								
			L10												
<u>Mixer and lining</u>	dB		42.1												
			48.2												
			45.5												
*measurement time: 10 minute															

Monitoring Form (For the Project Construction Phase)
(Taungnyo Dam, February, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.101	0.121	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	53.4	60.8	-	85	3 points, February, 2018	Investigation Branch
Vibration	dB	35.7	40.4	-	75	3 points, February, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible. Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness

There is no information about improving social welfare.

Waste Management

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Taungnyo (Feb)
 Number : Min Kyaw Hlike
 Measurer : 11-18-28-796
 Date : E-995-39.033
 Location : Branch A, 200025

①

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
17:00	Fine	36°	96	N	0.5

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Concrete	CO	ppm	0	0	0	0	0	0	0	0	0			Ave = 0.101
Mixer	SPM	ug/m3	51	50	55	51	49	50	52	49	52			Max = 0.121
	NO ₂	ppm	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time		During time		Measured value							
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			L _{max}	L _{eq}			
Concrete	dB		58.2		1.2m		Ave = 53.4
Mixer			42.5				Max = 60.8
				47.6			

3) Vibration (working state) *measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L ₁₀	L ₅			
Concrete Mixer	dB		38.4				Ave = 35.7
			36.7				Max = 40.4
				14.3			

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : Taunggya (Feb)

Branch - A

2

Number : Min Kyaw Hike

Metrological Phenomenon...

Measurer : N. 18.28.997

Date : E. 95.39.844

Location : ၆၃၀၆၆

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
16:30	Sunny	1.2	96.3	E	0.2

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
lining	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	49	50	49	49	49	49	48	49	48			
		ug/m3	107	110	93	107	112	112	100	107	105			
	NO ₂	ppm	0	0	0	0	0							
	Ox	ppm	0	0	0	0								
			Measurement time			During time			Measured value					
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
lining	dB			52.2	1.2m		
				96.3	"		
				60.8	"		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
lining	dB			40.4			
				37.8			
				36.2			

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : Taunggya (Feb)

Number : Min Kyaw Hike BOX.1

Metrological Phenomenon...

Measurer : N. 18.27.102

Date : E. 95.36.297

Location : ၆၃၀၆၆

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
16:00	Sunny	33.9	98.2	NE	1.2

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Mixing Concrete lining	CO	ppm	0	0	0	0								
	SPM	ug/m3	47	49	48	49	50	49	40	41	51			
		ug/m3	94	93	91	95	100	98	80	94	96			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time			During time			Measured value					
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
Mixing Concrete lining	dB			53.6	1.2m		
				54.5	"		
				54.7	"		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
Mixing Concrete lining	dB			37.8			
				40.3			
				39.6			

*measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(Taungnyo Dam, March, 2018)

(1) Response and actions by the government

Monitoring Item	Monitoring Results during Report Period	Responsible Agency
Number and contents of formal comments made by the public	No comment	CON(2) and MDBW
Number and contents of responses from the people	No response	CON(2) and MDBW

(2) Air Pollution

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
At construction site							
SO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04ppm/hr and less or equal 0.1ppm/hr	under limit	Investigation Branch
CO	ppm	0.00	0.00	-	average daily less or equal 10ppm/hr and average 8hr less or equal 20ppm/hr	under limit	Investigation Branch
SPM	mg/m ³	0.104	0.133	-	average daily less or equal 0.10mg/m ³ /hr and less or equal 0.20mg/m ³ /hr	under limit	Investigation Branch
NO ₂	ppm	0.00	0.00	-	average daily less or equal 0.04 - 0.06ppm/hr	under limit	Investigation Branch
Ox	ppm	0.00	0.00	-	less or equal 0.06ppm/hr	under limit	Investigation Branch

(3) Waste

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Excavated soils	Properly handled	confirmed by check sheet for safety control	every day	CON(2) and MDBW

(4) Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standards	Referred Japanese Standards	Remarks (Measurement Point, Frequency, Method, etc.)	Responsible Agency
Noise	dB	52.9	62.7	-	85	3 points, March, 2018	Investigation Branch
Vibration	dB	40.3	48.9	-	75	3 points, March, 2018	Investigation Branch

(5) Working environment (Include working safety)/ Accident

Environmental parameter	Monitoring results	Measures taken	Monitoring date	Responsible Agency
Safety check for carrying the heavy machineries into the work area.	All right	confirmed by check sheet for safety control	Every day	CON(2) and MDBW
Safety check for refueling car accessing the work sites.	All right	ditto	ditto	CON(2) and MDBW
Safety check for carrying-out of the heavy machineries from the work sites.	All right	ditto	ditto	CON(2) and MDBW
Checking of the heavy machineries if keeping correct routes and speed.	All right	ditto	ditto	CON(2) and MDBW
Installation of project sign board around the field.	All right	ditto	ditto	CON(2) and MDBW

Recommendations:

For SPM: To need frequent watering access roads especially near villages and working sites because SMP level must be reduce in working hours as much as possible. Operator and Worker should use mask especially in working area of highly or busy road sites.

Improving social awareness

There is no information about improving social welfare.

Waste Management

In principle, re-use excavated soils as back-filling materials, re-use the removed bricks out of the dilapidated main canal portions for the protection/ lining of tributary canals, and re-use the dilapidated concrete portions of access road for basement of concrete pavement. Further, remaining ones which cannot be re-used will be dumped and buried in the ID owned lands stretching alongside the canals.

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Jawngyo (March)
 Number : Min Kyaw Hike
 Measurer : N 10.52.463
 Date : E 96.07.947
 Location : 00008

Branch A

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:00	Sunny	35.8	36	N	2.5

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
Lining	CO	ppm	0	0	0	0	0							Ave = 0.104
	SPM	ug/m3	34	54	56	52	46	50	54	52	34			Max = 0.133
	NO ₂	ppm	0	0	0	0	0	105	104	106	105			
	Ox	ppm	0	0	0	0	0							
			Measurement time				During time		Measured value					
	SO ₂	ppm						0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height(m)	Main Source	Remark
Lining	dB		L _{max}	1.2m		Ave = 52.9
			62.7	"		Max = 62.7
			60.8	"		

3) Vibration (working state)

* measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
Lining	dB		L ₁₀			Ave = 40.3
			35.2			Max = 48.9
			32.8			
			34.5			

* measurement time: 10 minute

Environmental Monitoring Sheet

(2)

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : *Tauagayya (March)*

Number : *Min Kyaw Hlike*

Measurer : *N-18° 25' 78.9" BOY-1*

Date : *E-95° 35' 56.5" RO-15935*

Location : *84000*

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
<i>09:00</i>	<i>Sunny</i>	<i>33</i>	<i>85</i>	<i>N</i>	<i>0.4</i>

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<i>Near Camp and Damage Road</i>	CO	ppm	0	0	0	0	0	0	0	0	0			
	SPM	ug/m3	50	50	51	49	50	48	50	50	50			
	NO ₂	ppm	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time			During time			Measured value					
SO ₂	ppm													

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
<i>Near Camp and Damage Road</i>	dB		<i>48.5</i>		<i>1.2m</i>		
			<i>52.9</i>				
			<i>54.0</i>				

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
<i>Near Camp and Damage Road</i>	dB		<i>39.0</i>				
			<i>48.9</i>				
			<i>47.0</i>				

*measurement time: 10 minute

Environmental Monitoring Sheet

(3)

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region

Dam Name : *Tauagayya (March)*

Number : *Min Kyaw Hlike*

Measurer : *N 18° 27' 28.5" BOY-2*

Date : *E 95° 36' 8.10" RO-3900*

Location : *600600 (area 8)*

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
<i>15:30</i>	<i>Sunny</i>	<i>36</i>	<i>85.3</i>	<i>NE</i>	<i>0.8</i>

1) Air Pollution

Detailed Location	Item	Unit	0 (hr)	1 (hr)	2 (hr)	3 (hr)	4 (hr)	5 (hr)	6 (hr)	7 (hr)	8 (hr)	hourly maximum	Day Average	Remark
<i>Watering and lining</i>	CO	ppm	0	0	0	0	0	0	0	0	0			
	SPM	ug/m3	50	51	50	49	49	48	48	47	49			
	NO ₂	ppm	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time			During time			Measured value					
SO ₂	ppm													

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height(m)	Main Source	Remark
			Lmax				
<i>Watering and lining</i>	dB		<i>47.1</i>		<i>1.2m</i>		
			<i>44.3</i>				
			<i>44.7</i>				

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source	Remark
			L10				
<i>Watering and lining</i>	dB		<i>32.8</i>				
			<i>46.0</i>				
			<i>46.3</i>				

*measurement time: 10 minute