

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

Dam Name : Noddy Namay

Number : SYN + KKT

Measurer : N. 18 56 12

Date : 18 56 12

Location : E 95 19 50

Jan, 2019

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:50	cloudy	25°C	72.4		7.6

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								
	SPM	µg/m³	11	10	8	13	2	8	10	9	8			
	NO ₂	µg/m³	22	19	17	23	16	15	21	20	19			
	Ox	ppm	0	0	0	0								
	SO ₂	ppm	0	0	0	0								
			Measurement time		During time		Measured value							

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height (m)	Main Source	Remark
	dB		Lmax			
		62.2	1.2 m			
		64.5	1.2 m			
			59.2	1.2 m		

3) Vibration (working state)

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

Dam Name : Nogah Nawar

Number : _____

Measurer : SYN + A.M.

Date : 18.5.12

Location : E 95 24 53

1) Air Pollution E 95 24 53

Time		Weather		Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
11:10		cloudy		27.°C	72.6		2.8

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			
	NO ₂	ug/m3	0	0	0	0	0	13	15	15	14			
	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}			
			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			
			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

Dam Name : _____

Number : _____

Measurer : A.M + KKT.

Date : 18.5.12

Location : E 95 22 12

1) Air Pollution E 95 22 12

Time		Weather		Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
11:00		cloudy		24.2	72.0		6.8

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	4	5	4			
	NO ₂	ug/m3	0	0	0	0	0	10	9	10	9			
	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}			
			48.4			
			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			
			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

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

Dam Name : Baran Noun

Number :

Measurer : Syn. KKT

Date : 2018/02/20

Location : N 18° 54' 31" E 95° 23' 44"

Feb, 2019

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	ug/m3	98	89	90	84	96	80	85	90	95			
	NO _x	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
			I _{max}			
<u>mixer and lining</u>	dB		44.6	1.2m		
<u>Backhoe</u>			48.5	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			
			22.8			

*measurement time: 10 minute

Environmental Monitoring Sheet

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

Dam Name : Baran Noun

Number :

Measurer : Syn. ATW

Date : 2018/02/20

Location : N 18° 55' 22" E 95° 19' 45"

Feb, 2018

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	45	42	43	41			
<u>Backhoe</u>	NO ₂	ug/m3	92	94	89	84	90	90	84	85	80			
	NO _x	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
			I _{max}			
<u>mixer and lining</u>	dB		49.5	1.2m		
<u>Backhoe</u>			50.5	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

Dam Name : North Bagan

Number : _____

Feb, 2018

Measurer : Sy N K K T

Date : _____

Location : N 18° 48' 15" E 45° 15' 26"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
<u>8:30</u>	<u>Sunny</u>	<u>37.2</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 Gunner</u>	CO	ppm	0	0	0	0	0							
<u>Receiving</u>	SPM	ug/m3	41	41	41	41	41	45	43	40	42			Avg 0.076
	NO ₂	ppm	0	0	0	0	0	0	0	0	0			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		Avg 47.42
			40.9	1.2m		Max 54.3
			45.4	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			Avg 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 :
 Date : syn. ATW
 Location : N 18° 56' 58"
 1) Air Pollution E 95° 17' 52"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:30	fine	25.1	69.4	E to W	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
Mixer and	CO	ppm	0	0	0	0								max 0.098
wining	SPM	ug/m3	95	92	90	89	92	92	90	89	90			avg 0.092
	NO ₂	ppm	0	0	0	0		79	80	79	80			
	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 (m)	Main Source	Remark
Mixer and			I max			
wining	dB		36.3	1.2		max 60.5
			42.7	1.2		avg 42.49
			38.1	1.2		

3) Vibration (working state)

*measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
			L10			
	dB		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 :
 Date : syn. KKT
 Location : N 18° 56' 14"
 1) Air Pollution E 95° 19' 50"

Environmental Monitoring Sheet

March, 18

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:10	Sunny	27.9	58.5	S	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	Remark
Mixer and	CO	ppm	0	0	0	0								
wining	SPM	ug/m3	90	91	91	98	91	92	91	92	91			
	NO ₂	ppm	0	0	0	0	86	79	82	84	77			
	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 (m)	Main Source	Remark
Mixer and			I max			
wining	dB		60.5	1.2		
			56.9	1.2		
			30.5	1.2		

3) Vibration (working state)

*measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
			L10			
	dB		32.5			
			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 B. N. N. N.

Number :

Measurer : Syn. KKT 25/800

Date : R.D 25800

Location : N 18 54' 24" E 95° 23' 50"

March, 18 3

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:45	Sunny	31.9	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
<u>river and</u>	CO	ppm	0	0	0	0	0	0						
<u>living</u>	SPM	ug/m3	45	43	43	43	43	40	39	40	39			
<u>backhoe</u>	NO ₂	ppm	0	0	0	0	0	0	0	0	0			
	Ox	ppm	0	0	0	0	0	0						
			Measurement time		During time		Measured value							
	SO ₂	ppm				10.33		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB)	Measure-ment height(m)	Main Source	Remark
<u>river and</u>	dB		I max			
<u>living</u>			45.5	1.0m		
<u>backhoe</u>			50.8	1.0m		

3) Vibration (working state)

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

* measurement time: 10 minute

* 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

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

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

Jan, 2019. (1)

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

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>river and</u>	CO	ppm	0	0	0	0								
<u>lining</u>	SPM	ug/m3	18	9	8	8	8	9	8	7	8			
<u>Backher</u>	NO ₂	ug/m3	15	18	17	15	16	17	16	15	18			
	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
<u>river and</u>	dB		Lmax			
		57.6	1.2 m			
		58.0	1.2 m			
<u>lining</u>			58.1	1.2 m		
<u>Backher</u>						

3) Vibration (working state)

*measurement time: 10 minute

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

Dam Name : South Nyaung

Number : _____

Measurer : KKT + ATW

Date : N 18 40' 42"

Location : N 18 40' 42"

1) Air Pollution E 95 27' 20"

Jan, 2018. (2)

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	0	0	0	0	9	8	7	8			
	NO ₂	ug/m3	12	12	13	14	12	10	15	16	16			
	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
Backhoe	dB		Lmax			
			52.2	1.2m		
			58.2	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
	dB		L10			
			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

Dam Name : South Nyaung

Number : _____

Measurer : S.Y.N + AM

Date : N 18 47' 45"

Location : N 18 47' 45"

1) Air Pollution E 95 24' 20"

Jan, 2018. (3)

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 lining	CO	ppm	0	0	0	0								
	SPM	ug/m3	7	6	6	6	6	8	9	7	7			
	NO ₂	ug/m3	14	13	13	13	12	15	18	16	15			
	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
mixer and lining	dB		Lmax			
			67.9			
			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
	dB		L10			
			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.

Feb, 2019

Environmental Monitoring Sheet
Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
Dam Name : South dam
Number :
Measurer : Syn, 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	2.4

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	Remark
Beekhoe	CO	ppm	0	0	0	0	0	0	0	0	0			
	SPM	ug/m3	61	61	61	59	59	59	60	59	59			
	NO ₂	ug/m3	134	124	115	112	125	112	118	110	115			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
	SO ₂	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time		During time		Measured value							

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measure-ment height(m)	Main Source	Remark
			Lmax			
Beekhoe	dB		42.1	1.2m		
			41.5	1.2m		
			39.6	1.2m		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
			L10			
	dB		34.7			
			50.0			
			37.1			

*measurement time: 10 minute

Environmental Monitoring Sheet

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

Dam Name : South Nyaung

Number : _____

Measurer : Syn. ATW

Date : _____

Location : N 18° 40' 09" E 95° 28' 00"

Feb, 2019

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:45	Sunny	32.2	53.9	3	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							
Backhoe	SPM	ug/m3	78	79	79	77	72	75	76	73	78			Avg 0.108
	NO ₂	ug/m3	183	179	178	181	151	155	156	158	160			Max 0.181
	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			
Backhoe	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.

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 March, 19

Dam Name : Saba

Number :

Measurer : Sya. KKT

Date : 20/4/2020

Location : N 18° 51' 27" E 95° 26' 49"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:15	Sunny	28.1	72.5	W to E	Comp.

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	CO	ppm	0	0	0	0	0	0	0	0	0			max: 0.08
Dumper	SPM	ug/m3	33	33	33	33	32	32	32	32	32			Avg: 0.06
Dumper	NO ₂	ug/m3	62	60	60	65	68	60	65	65	60			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time		During time		Measured value							
	SO ₂	ppm				10mm		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height (m)	Main Source	Remark
Backhoe	dB		I max			
Dumper			60.8	1.2m		max 62.6
Dumper			62.6	1.2m		Avg 58.6
			54.3	1.2m		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
	dB		L10			
			48.1			max 48.3
			43.9			Avg 33.9
			30.2			

*measurement time: 10 minute

Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region March, 19

Dam Name : Saba

Number :

Measurer : Sya. ATW

Date :

Location : N 18° 48' 33" E 95° 26' 23"

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:00	Sunny	29.7	69.0	S	1.5

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
Backhoe	CO	ppm	0	0	0	0	0	0	0	0	0			
Dumper	SPM	ug/m3	44	54	44	43	51	44	44	43	59			
Dumper	NO ₂	ug/m3	26	32	23	21	28	26	23	21	32			
	Ox	ppm	0	0	0	0	0	0	0	0	0			
			Measurement time		During time		Measured value							
	SO ₂	ppm				10mm		0	0					

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measurement height (m)	Main Source	Remark
Backhoe	dB		I max			
Dumper			60.5	1.2m		
Dumper			61.9	1.2m		
			51.3	1.2m		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
	dB		L10			
			34.9			
			48.3			
			16.7			

*measurement time: 10 minute

march, 18

Date: _____
Location: N 18° 41' 38" E 95° 29' 91"
1) Air Pollution

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
9:45	sunny	30.2	53.4	S	3.2

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
Misapond	CO	ppm	0	0	0	0								
Lining	SPM	ug/m3	37	36	37	36	38	35	37	36	37			
Backhoe	PM ₁₀	ug/m3	47	48	40	49	47	80	44	44	40			
	NO ₂	ppm	0	0	0	0								
	Ox	ppm	0	0	0	0								
			Measurement time			During time		Measured value						
	SO ₂	ppm				10 ppm		0	0					

Detailed Location	Unit	Time	Level (dB < 85 (dB)	Measure- ment height(m)	Main Source	Remark
Richard Living Backpor	dB		Lmax			
		59.4	1.9m			
		59.2	1.9m			
		59.7	1.9m			

Detailed Location	Unit	Time	Level (dB < 75 (dB)	Ground condition	Main Source	Remark
			L10			
	dB		31.4			
			32.9			
			34.5			

*measurement time: 10 minute

(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 : _____

Measurer : Min Kyaw Hlike

Date : N. 18.28.638

Location : N 18° 28' 23.8"

1) Air Pollution E 095° 33' 23.7"

Metrological Phenomenon

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

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
Backhoe	CO	ppm	0	0	0									
	SPM	ug/m3	55	55	54	54	54	54	55	54	54			
	NO ₂	ppm	110	111	113	124	117	110	113	110	114			
	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
Backhoe	dB		Lmax			
			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
Backhoe	dB		L10			
			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 : _____

Measurer : Min Kyaw Hlike

Date : N. 18.28.800

Location : N 18° 28' 23.8"

1) Air Pollution E 095° 34' 47.3"

Metrological Phenomenon

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

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									
	SPM	ug/m3	50	50	49	48	48	46	44	46	48			
	NO ₂	ppm	95	105	98	100	96	96	83	101	96			
	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
Lining	dB		Lmax			
			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
Lining	dB		L10			
			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																																																
Team Name: <i>Weggy Dan</i>																																																
Number: <i>AKW+MKH R056400</i>																																																
Measurer: <i>N 18 28 747</i>																																																
Date: <i>2 95 33 730</i>																																																
Location: <i>2 95 33 730</i>																																																
F) Air Pollution																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="8">Metrological Phenomenon</th> <th colspan="2"></th> </tr> <tr> <th>Time</th> <th>Weather</th> <th>Temperature (degree)</th> <th>Moisture (percent)</th> <th>Wind direction</th> <th>Wind speed</th> <th colspan="5"></th> </tr> </thead> <tbody> <tr> <td>7:45</td> <td>fine</td> <td>23</td> <td>67-9</td> <td>N</td> <td>1.4</td> <td colspan="5"></td> </tr> </tbody> </table>																	Metrological Phenomenon										Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed						7:45	fine	23	67-9	N	1.4					
		Metrological Phenomenon																																														
Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed																																											
7:45	fine	23	67-9	N	1.4																																											
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																																			
<i>lining</i>	CO	ppm	0	0	0																																											
	SPM	µg/m ³	49	50	48	51	51	54	48	48	54																																					
		µg/m ³	93	95	105	96	96	124	95	93	95																																					
	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																																										
<i>lining</i>	dB		L max																																													
			43.6		1.2 m																																											
			54.5		1.2 m																																											
			62.8		1.2 m																																											
3) Vibration (working state) * measurement 10 minute																																																
Detailed Location	Unit	Time	Level (dB < 75 (dB))		Ground condition	Main Source																																										
<i>lining</i>	dB		L10																																													
			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

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 03.06.2020

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	55	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							
	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))	Measure-ment height(m)	Main Source	Remark
<u>Backhoe + Truck</u>	dB		<u>Lmax</u>			
			<u>55.3</u>	<u>1.2m</u>		<u>Ave = 49.1</u>
			<u>52.0</u>	<u>1</u>		<u>Max = 55.3</u>
			<u>52.2</u>	<u>1</u>		

3) Vibration (working state)

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

*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

Location : E 95 35.564 1 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			
	NO ₂	ug/m3	110	126	102	106	93	105	92	101	96			
	Ox	ppm	0	0	0	0	0							
			Measurement time			During time		Measured value						
	SO ₂	ppm						0	0					

2) Noise (working state)

2) Noise (working state)

Detailed Location	Unit	Time	Level (dB < 85 (dB))	Measure-ment height(m)	Main Source	Remark
<u>Lining + mixer</u>	dB		<u>Lmax</u>			
			<u>44.9</u>	<u>1.2m</u>		
			<u>44.7</u>	<u>1</u>		
			<u>43.8</u>	<u>1</u>		

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
<u>Lining + mixer</u>	dB		<u>L10</u>			
			<u>37.2</u>			
			<u>35.1</u>			
			<u>34.6</u>			

*measurement time: 10 minute

Environmental Monitoring Sheet

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

Dam Name : Weggyi (Feb)

(3)

Number : Myo Kyan Aung

Meteorological Phenomenon

Measurer : N 18 28.409Date : E 95 29.478Location : E 95 29.478

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:30	Fine	31	48	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
Lining +	CO	ppm	0	0	0	0	0	0						
mixer +	SPM	ug/m3	75	70	69	72	62	65	59	60	65			
Truck	NO ₂	ppm	156	130	125	142	110	125	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 +			49.7	1.2m		
mixer +			47.9	4		
Truck			50.3	4		

3) Vibration (working state)

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

*measurement time: 10 minute

*measurement time: 10 minute

Monitoring Form (For the Project Construction Phase)
(Wegyi 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: Waggi (March)

Number : Mgo Kyauz Aung

Measurer: N. W. 29.139

Date: 10.08.2014
E-9629.645 RMC

Location : E-95 29.645.

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							Ave = 0.105
	SPM	ug/m3	83	86	50	45	55	52	48	50	52			Max = 0.180
		ug/m3	157	180	105	93	110	101	96	103	98			
	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
			L _{max}			
Lining	dB		51.4	1.2m		Ave = 57.3
			57.6	"		M _{ca} = 69.7
			62.8	"		

3) Vibration (working state)

*measurement time: 10 minute

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

Number : Mgo Kyaw Aung

Measurer: NJ 18.28.093 DY-12

Date: 95 28 5221

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
10:00	Sunny	35.5	54.9	no	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
Mukherjee + Lening + Village Road	CO	ppm	0	0	0	0	0							
		ug/m3	50	70	60	50	48	52	45	62	55			
	SPM	ug/m3	180	144	123	96	103	105	92	114	110			
	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)	Main Source	Remark
Mixer + Lining + village Road	dB		Lmax			
		69.7	1.2m			
		59.2	"			
		50.7	"			

3) Vibration (working state)

*measurement time: 10 minute

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

*measurement time: 10 minute

Environmental Monitoring Sheet
 Project Name : Implementation Support for Irrigation Development Project in Western Bago Region
 Dam Name : Weggyi Masch
 Number : Myo Kyaw Aung

Measurer : 03.1828.356
 Date : 8.15
 Location : 89529.462

Metrological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
8:15	8.7 Fine	28.6	55	N	0.4

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	Remark
Lining + Truck	CO	ppm	0	0	0	0	0							
	SPM	ug/m3	30	29	28	66	65	62	59	50	62			
		ug/m3	63	58	56	110	103	101	103	92	103			
	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
Lining + Truck	dB		Lmax	1.2m		
			52.6	u		
			56.4	u		
			54.8	u		

3) Vibration (working state)

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

*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. *Engineering* Environmental Monitoring Sheet

Project Name : Implementation Support for Irrigation Development Project in Western Bago Region MC R2 23500 24000 Jan 18 2018

Dam Name : *Tauungmye*

Number : *23500 24000 Jan 18 2018*

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

Date : *N 18 29 168*

Location : *E 095 40 966*

1) Air Pollution

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

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	CO	ppm	0	0	0									
	SPM	µg/m ³	23.5	23	24	23	23	23	22	23	31			
	NO ₂	µg/m ³	52	43	25	43	43	43	50	50	62			
	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
			L _{max}				
Mixer and lining	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
			L ₁₀				
	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 : *Tauungmye*

Number : *Tauungmye*

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

Date : *N 18 29 381*

Location : *E 095 40 390*

1) Air Pollution

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

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									
	SPM	µg/m ³	22	22	34	21	22	20	22	22	21			
	NO ₂	µg/m ³	41	41	71	42	42	42	41	42	41			
	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
			L _{max}				
Backhoe	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
			L ₁₀				
Backhoe	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>Rak-ga</u>														
Number : _____														
Measurer : <u>T.A.R + M.K.H</u> <u>T.N. BRANCH - A</u>														
Date : <u>N 18° 29.168'</u>														
Location : <u>E 095° 40.960'</u> <u>R.D. 4+000</u>														
Metrological Phenomenon														
Time		Weather		Temperature (degree)		Moisture (percent)		Wind direction		Wind speed (m/s)				
10:00		Fine		28.3		66.8		N		1.3				
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									
	SPM	ug/m3	22	21	21	21	22	22	23	24	22			
	NO ₂	ug/m3	41	42	48	44	48	41	52	52	50			
	Ox	ppm	0	0	0									
			Measurement time			During time		Measured value						
	SO ₂	ppm				10 min		0						
2) Noise (working state)														
Detailed Location	Unit	Time	Level (dB < 85 (dB))		Measurement height (m)		Main Source		Remark					
<u>Mixer and lining</u>	dB		Lmax											
			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					
<u>Mixer and lining</u>	dB		L10											
			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 Hike
 Measurer : 11-18-28-796
 Date : E-995-39.033
 Location : Braich A, 20095

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	ug/m3	107	95	121	98	105	101	103	108	106			
	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
Concrete	dB		I _{max}	1.2m		Ave = 53.4 Max = 60.8
Mixer			58.2			
			42.5			
			47.6			

3) Vibration (working state)

*measurement time: 10 minute

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
Concrete Mixer	dB		L10			Ave = 55.7 Max = 40.4
			38.4			
			36.7			
			19.3			

*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 HikeMeasurer : N. 18.28.997
Date : E. 95.39.844Location : ၆၃၈၆၆

Meteorological Phenomenon

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			
	NO ₂	ug/m3	107	110	93	107	112	112	100	107	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))	Measure-ment height(m)	Main Source	Remark
lining	dB		Lmax			
			52.2	1.2m		
			56.3			
			60.8			

3) Vibration (working state)

Detailed Location	Unit	Time	Level (dB < 75 (dB))	Ground condition	Main Source	Remark
lining	dB		L10			
			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.1Measurer : N. 18.27.102
Date : E. 95.36.297Location : ၆၃၈၆၆

Meteorological Phenomenon

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	CO	ppm	0	0	0	0								
Concrete	SPM	ug/m3	47	49	48	49	50	49	40	41	51			
lining	NO ₂	ug/m3	94	93	91	95	100	98	80	94	96			
	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))	Measure-ment height(m)	Main Source	Remark
Mixing	dB		Lmax			
Concrete			53.6	1.2m		
lining			54.5			
			54.7			

3) Vibration (working state)

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

Number : Min Kyaw Hike

Measurer : N 10.52.463

Date : E 06.07.947

Location : 00208

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	0	0	0	0	0		Ave = 0.104
	SPM	ug/m3	54	54	56	52	46	50	54	52	54			Max = 0.133
	NO ₂	ug/m3	133	108	106	104	105	105	104	106	105			
	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
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 HlikeMeasurer : N-18°25.789' B0Y-1Date : E-95°35.565' R0-15935Location : 84000

Meteorological Phenomenon

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

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	Remark
Near Camp and Damage Road	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	ug/m3	105	115	96	98	95	97	102	95	95			
	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
Near Camp and Damage Road	dB		I _{max}			
			48.5	1.2m		
			52.9	"		
			54.0	"		

3) Vibration (working state)

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

*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 HlikeMeasurer : N-18°27.285' B0Y-2Date : E-95°36.810' R-33900Location : Sen Empr (around 8)

Meteorological Phenomenon

Time	Weather	Temperature (degree)	Moisture (percent)	Wind direction	Wind speed (m/s)
15:30	Sunny	36°	85.3	NE	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
Watering and lining	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	ug/m3	110	96	115	98	112	100	96	103	102			
	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
Watering and lining	dB		I _{max}			
			47.1	1.2m		
			44.3	"		
			44.7	"		

3) Vibration (working state)

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

*measurement time: 10 minute