

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 4

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1) Catchment Area

Area

187 ha

Highest Point

1,192 m

Average Slope

18 %

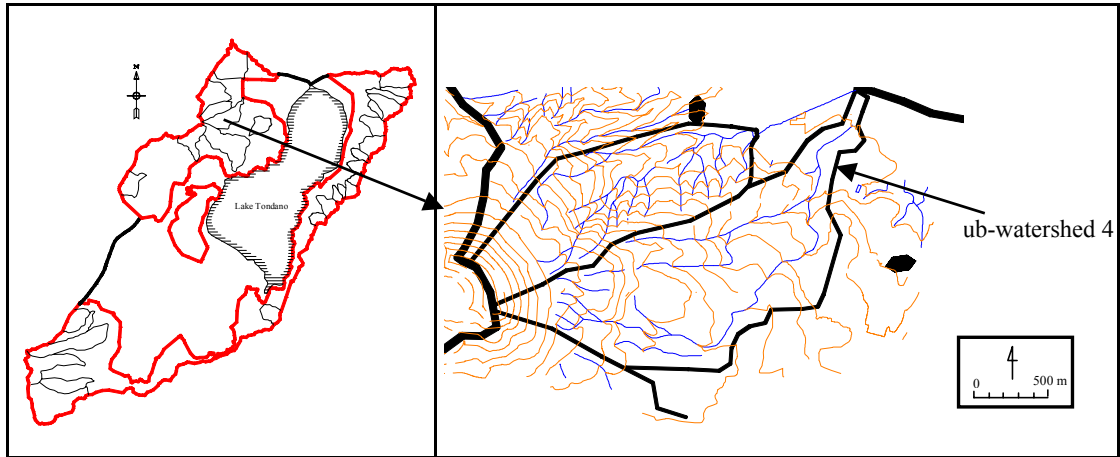
Lowest Point

695 m

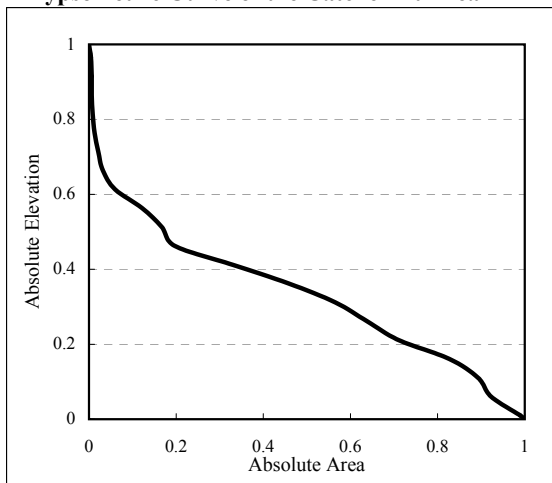
Elevation Difference

497 m

Plan



Hypsometric Curve of the Catchment Area



Land Use of Catchment Area

Natural/Semi-natural Forest	2%
Secondary Forest	0%
Planted Forest	0%
Estate	8%
Mixture of Estate and Dry-farming Land	52%
Dry Farming Land	29%
Pasture Land	8%
Paddy Field	0%
Swamp	0%
Water Body	0%
Settlement & Othres	0%

Source:

1:50,000 Land Use Map prepared by JICA Study Team for Master Plan.

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Figure HAT2.5

Characteristics of Sub-watershed 4 (1/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 4

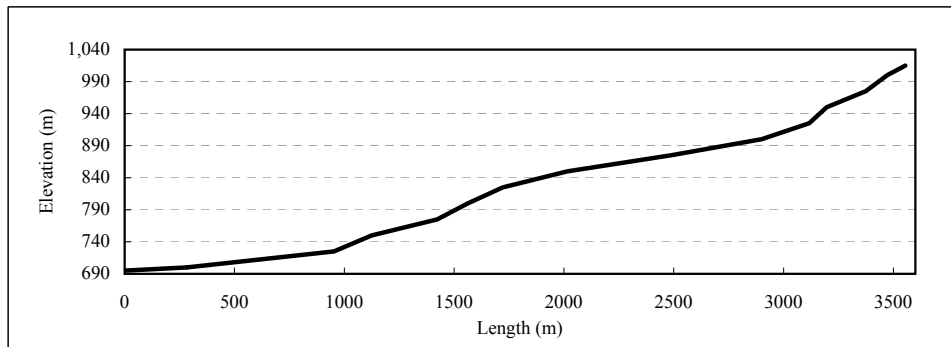
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2) Main Torrent

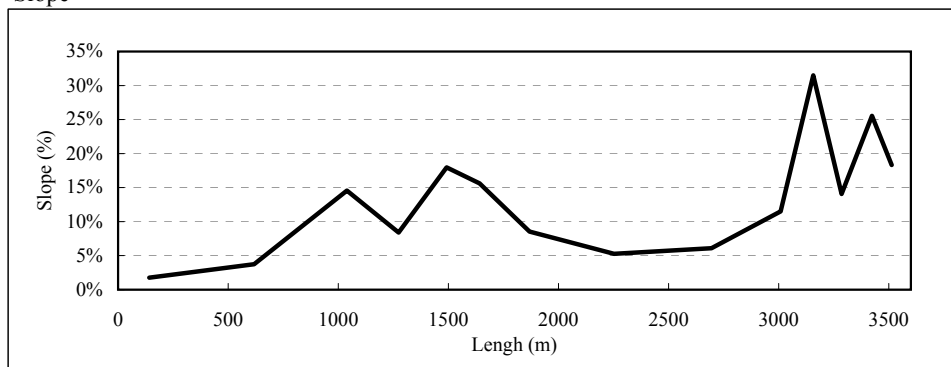
Mean Torrent Bed Gradient

9.0 %

Profile of the Main Torrent



Slope



Torrent Condition

Survey Point

TD-4

TD-5

Bed Width

2.0 m

3.0 m

Bank Height

1.5 m

1.5 m

Bank Slope

80 -

70 -

Gravel Condition

Min

60 cm

- cm

Max

80 cm

- cm

Average

70 cm

- cm

Uniformity

Yes

Yes

Coverage Ratio

20 %

5 %

Amount of Deposition

0 -

0 -

Land Use of Surrounding Area

Arable Upland

Forest

Water Depth at the Time of Measurement

- m

- m

Water Color

-

-

Remarks

See Figure HAT2.32 for the survey point.

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Figure HAT2.5

Characteristics of Sub-watershed 4 (2/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 5

Page 1/2

1) Catchment Area

Area

100

ha

Highest Point

913

m

Average Slope

20

%

Lowest Point

690

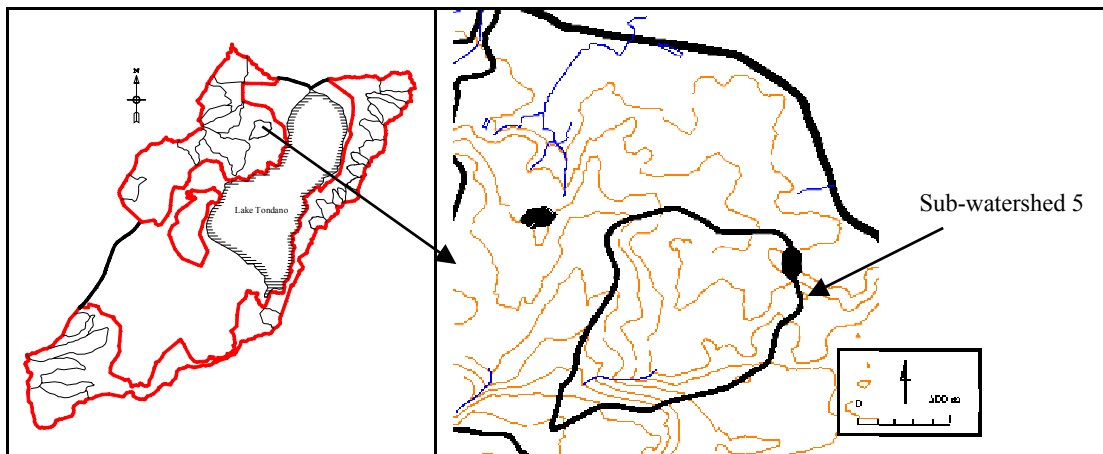
m

Elevation Difference

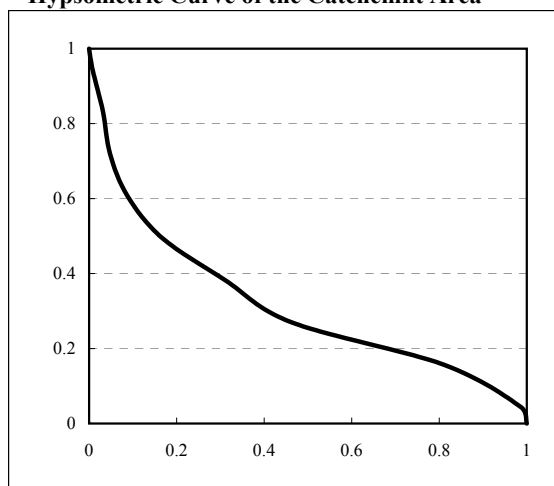
223

m

Plan



Hypsometric Curve of the Catchment Area



Land Use of Catchment Area

Natural/Semi-natural Forest	0%
Secondary Forest	0%
Planted Forest	8%
Estate	19%
Mixture of Estate and Dry-farming Land	42%
Dry Farming Land	31%
Pasture Land	0%
Paddy Field	0%
Swamp	0%
Water Body	0%
Settlement & Othres	0%

Source:

1:50,000 Land Use Map prepared by JICA Study Team for Master Plan.

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Figure HAT2.6

Characteristics of Sub-watershed 5 (1/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 5

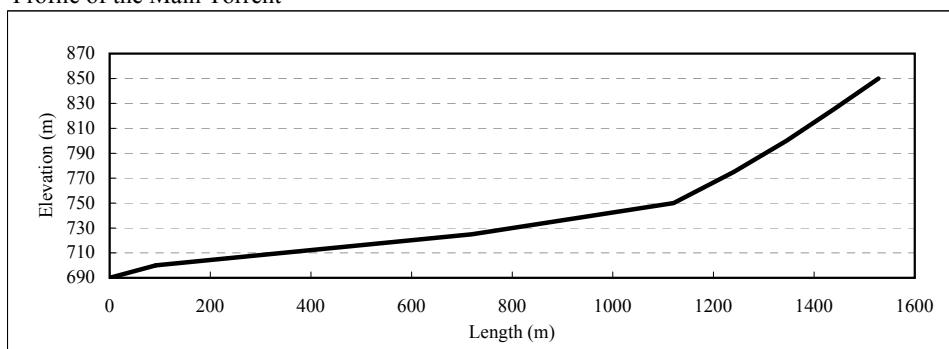
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2) Main Torrent

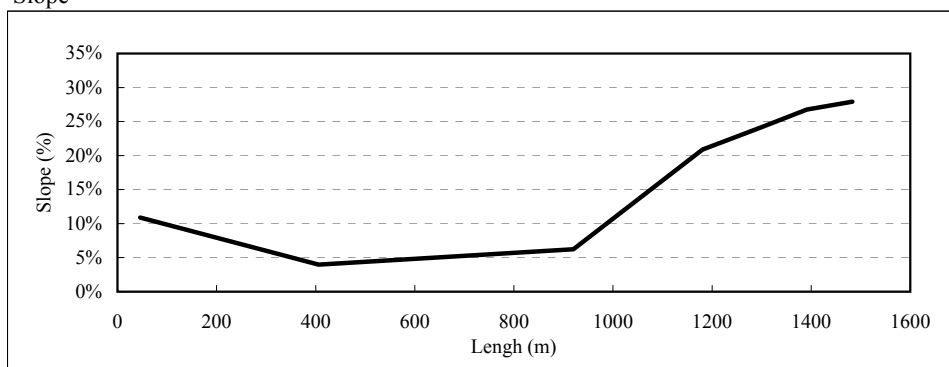
Mean Torrent Bed Gradient

10.5 %

Profile of the Main Torrent



Slope



Torrent Condition

Survey Point

TD-7

No major flow section is observed.

Bed Width

m

Bank Height

m

Bank Slope

-

Gravel Condition

Min

cm

Max

cm

Average

cm

Uniformity

Coverage Ratio

%

Amount of Deposition

-

Land Use of Surrounding Area

Water Depth at the Time of Measurement

m

Water Color

Remarks

See Figure HAT2.32 for the survey point.

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Figure HAT2.6

Characteristics of Sub-watershed 5 (2/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 6

Page 1/2

1) Catchment Area

Area

158

 ha

Highest Point

1,111

 m

Average Slope

20

 %

Lowest Point

728

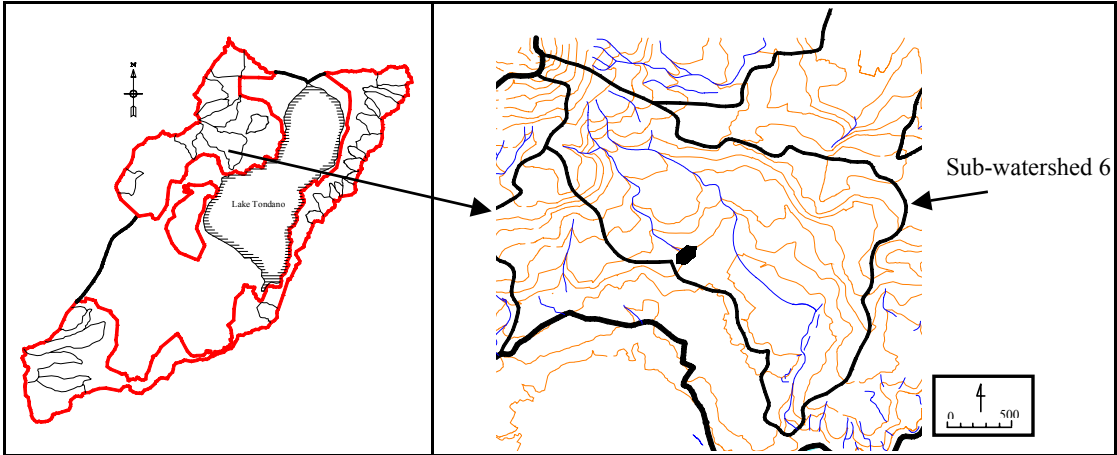
 m

Elevation Difference

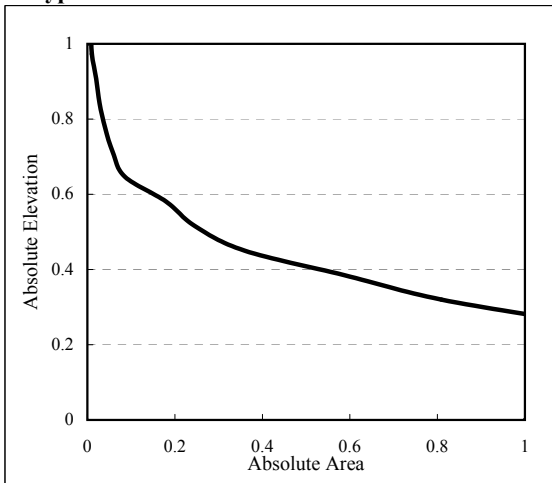
383

 m

Plan



Hypsometric Curve of the Catchment Area



Land Use of Catchment Area

Natural/Semi-natural Forest	1%
Secondary Forest	0%
Planted Forest	1%
Estate	29%
Mixture of Estate and Dry-farming Land	20%
Dry Farming Land	42%
Pasture Land	7%
Paddy Field	0%
Swamp	0%
Water Body	0%
Settlement & Othres	0%

Source:

1:50,000 Land Use Map prepared by JICA Study Team for Master Plan.

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Figure HAT2.7

Characteristics of Sub-watershed 6 (1/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 6

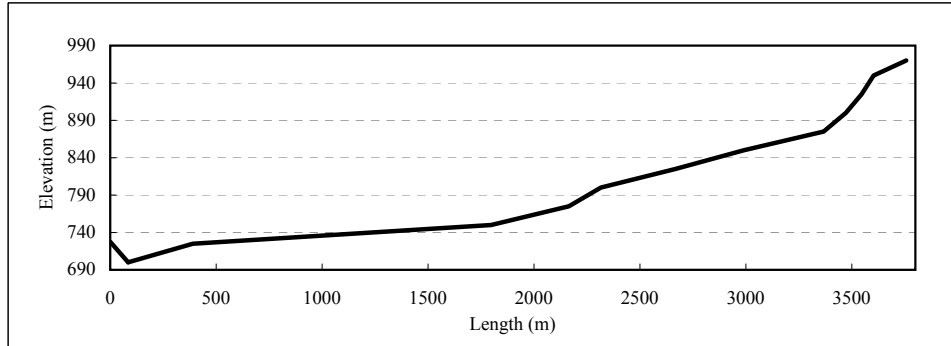
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2) Main Torrent

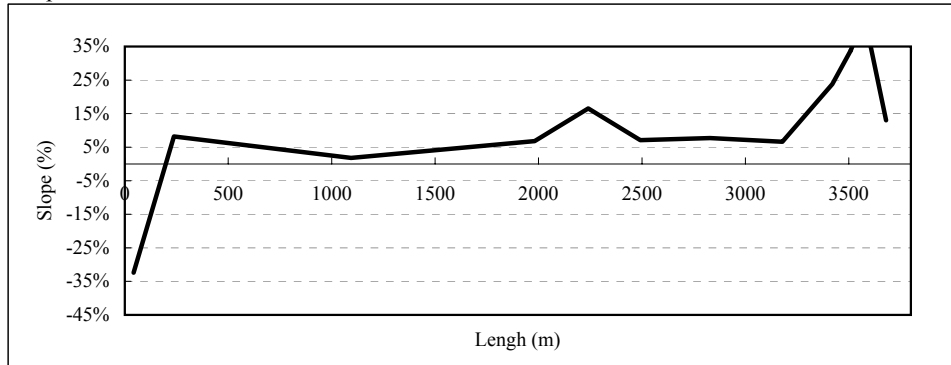
Mean Torrent Bed Gradient

12.1 %

Profile of the Main Torrent



Slope



Torrent Condition

Survey Point

TD-8

Bed Width

7.0 m

Bank Height

3.0 m

Bank Slope

45°

Gravel Condition

Min

15 cm

Max

200 cm

Average

140 cm

Uniformity

No

Coverage Ratio

70 %

Amount of Deposition

0 -

Land Use of Surrounding Area

Forest

Water Depth at the Time of Measurement

0.4 m

Water Color

Gray and somewhat yellow-brown

Remarks

See Figure HAT2.32 for the survey point.

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Figure HAT2.7

Characteristics of Sub-watershed 6 (2/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 7

Page 1/2

1) Catchment Area

Area

158

 ha

Highest Point

1,111

 m

Average Slope

20

 %

Lowest Point

728

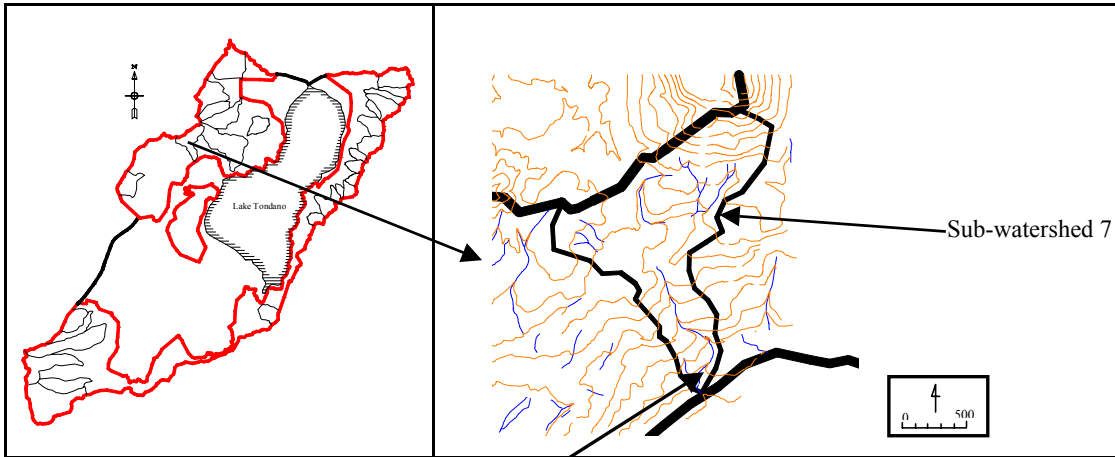
 m

Elevation Difference

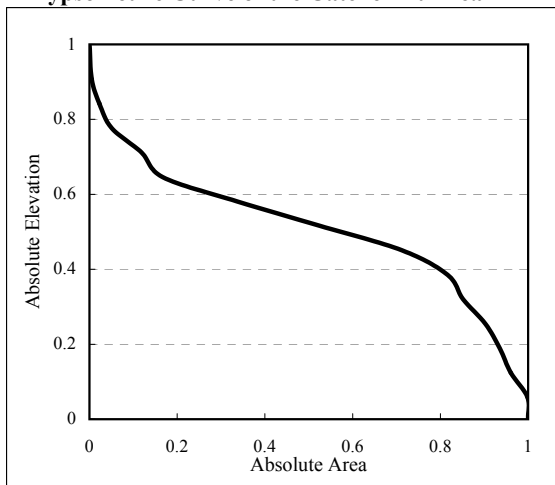
383

 m

Plan



Hypsometric Curve of the Catchment Area



Land Use of Catchment Area

Natural/Semi-natural Forest	7%
Secondary Forest	5%
Planted Forest	2%
Estate	12%
Mixture of Estate and Dry-farming Land	36%
Dry Farming Land	26%
Pasture Land	10%
Paddy Field	0%
Swamp	0%
Water Body	0%
Settlement & Othres	2%

Source:

1:50,000 Land Use Map prepared by JICA Study Team for Master Plan.

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Figure HAT2.8

Characteristics of Sub-watershed 7 (1/2)

Characteristics of Sub-watershed in the Intensive Area

Sub-watershed No.

Sub-watershed - 7

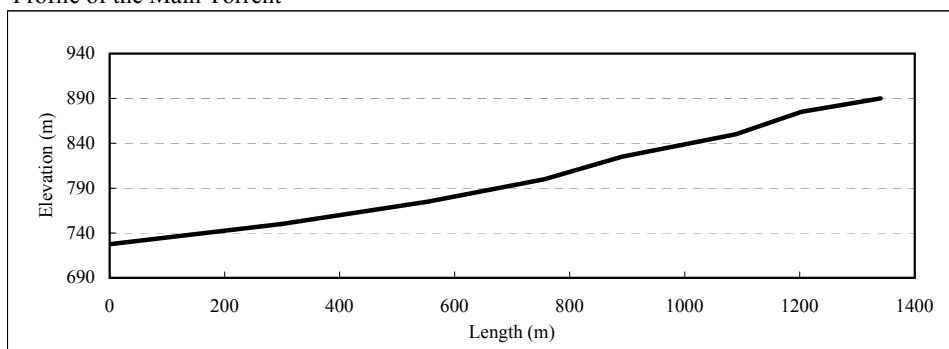
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2) Main Torrent

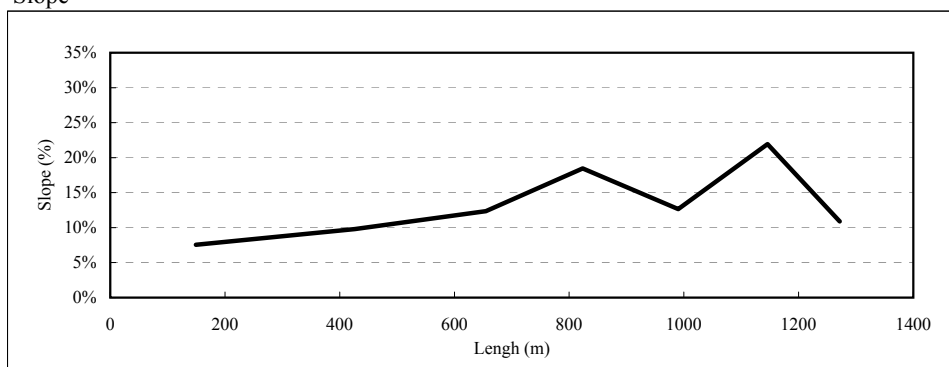
Mean Torrent Bed Gradient

12.1 %

Profile of the Main Torrent



Slope



Torrent Condition

Survey Point

TD-9

Bed Width

3.0 m

Bank Height

1.2 m

Bank Slope

45°

Gravel Condition

Min

30 cm

Max

180 cm

Average

50 cm

Uniformity

No

Coverage Ratio

50 %

Amount of Deposition

0 -

Land Use of Surrounding Area

Arable Upland

Water Depth at the Time of Measurement

0.2 m

Water Color

Yellow-brown

Remarks

See Figure HAT2.32 for the survey point.

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Figure HAT2.8

Characteristics of Sub-watershed 7 (2/2)