
Online resource 1

Table A1 Characteristics of the catchment, reservoir, and dam.

	Value for the Eupen reservoir
Capacity	$25 \cdot 10^6 \text{ hm}^3$
Dam height	66 m
Natural rivers	Vesdre, Getzbach
Natural drainage area	6920 ha
Diverted river	Helle
Diverted drainage area	3675 ha
Reservoir level for drinking water	343 m
Reservoir level for chosen flood safety margin	361 m
Spillway crest	362 m

Table A2 Characteristics of the catchment, reservoir, and dam that are used for the optimisation.

	Symbol	Value for the Eupen reservoir
Minimum stored volume for drinking water	minStorage	2.25 hm^3
Maximum stored volume for flood safety margin	maxStorage	22 hm^3
Required amount of drinking water	drinkingWater	$55\,000 \text{ m}^3/\text{day}$
Minimum environmental flow from the dam	environmentalFlow	$0.22 \text{ m}^3/\text{s}$
Maximum discharge through the hydropower penstock	penstockHydropower	$4.5 \text{ m}^3/\text{s}$
Maximum discharge through the bottom outlets	bottomOutlet	$70 \text{ m}^3/\text{s}$
Maximum deviation from the river Helle	maxDiverted _{Helle}	$20 \text{ m}^3/\text{s}$
Minimum environmental flow for river Helle	environmentalFlow _{Helle}	$0.05 \text{ m}^3/\text{s}$