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**The confluence of water and power: water management in the Brantas river basin from the tenth to the sixteenth century CE**  
Prasodjo, T.

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# **The Confluence of Water and Power**

Water Management in the Brantas  
River Basin from the Tenth to the  
Sixteenth Century CE

Tjahjono Prasodjo

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A reproduction image of *Relief van Trawoelan in N.J. Krom. Inleiding tot de HindoeJavaansche kunst. Derde Deel* ('s-Gravenhage: Martinus Nijhoff, 1923): plate 67.

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# **The Confluence of Water and Power**

Water Management in the Brantas River Basin  
from the Tenth to the Sixteenth Century CE

## **Proefschrift**

ter verkrijging van  
de graad van doctor aan de Universiteit Leiden,  
op gezag van rector magnificus prof.dr.ir. H. Bijl,  
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te verdedigen op donderdag 27 januari 2022  
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door  
Tjahjono Prasodjo

geboren te Yogyakarta (Indonesia), in 1962

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# List of Abbreviations

ANU	Australian National University
BEFEO	Bulletin de l'École française d'Extrême-Orient
BKI	Bijdragen tot de Taal-, Land- en Volkenkunde
ENSO	El Niño Southern Oscillation
FIB	Fakultas Ilmu Budaya
IPPA	Indo-Pacific Prehistory Association
ISEAS	Institute of Southeast Asian Studies
JESHO	The Journal of the Economic and Social History of the Orient
KITLV	Koninklijk Instituut voor Taal-, Land- en Volkenkunde
LIA	the Little Ice Age
MBRAS	Malaysian Branch of The Royal Asiatic Society
MCA	Medieval Climate Anomaly
MKAW	Mededeelingen van de Koninklijke Akademie van Wetenschappen
MISI	Madjelis Ilmu Pengetahuan Indonesia
MKAW-L	Mededelingen van de Koninklijke Akademie van Wetenschappen, afd. Letterkunde
NUS	National University of Singapore
OV	Oudheidkundig Verslag

OD	Oudheidkundige Dienst
PNAS	Proceedings of the National Academy of Sciences of the United States of America
SEAMEO	Southeast Asian Ministers of Education Organization
SPAFA	SEAMEO Project in Archaeology and Fine Arts
TBG	Tijdschrift voor Indische Taal-, Land-, en Volkenkunde.
UGM	Universitas Gadjah Mada
VBG	Verhandelingen van het Bataviaasch Genootschap der Kunsten en Wetenschappen
VG	Verspreide Geschriften

# Spelling

The romanization of Old Javanese characters used in this thesis is presented below.

Vowels	a, ā, i, ī, u, ū, ě, ö, e, ai, o, au
Consonants	
Gutturals	k, kh, g, gh, ṅ
Palatals	c, ch, j, jh, ñ
Cerebrals	ṭ, ṭh, ḍ, ḍh, ṇ
Dentals	t, th, d, dh, n
Labials	p, ph, b, bh, m
Semivowels	y, r, l, w
Sibilants	ś, ṣ, s
Aspirate	h
<i>Anusvāra</i>	ṅ
<i>Visarga</i>	ḥ

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