

Abbreviations and symbols

ABS	American Bureau of Shipping
AD	Anaerobic Digestion
ADB	Asian Development Bank
AGCA	Associated General Contractors of America
AIT	Asian Institute of Technology
ANSI	American National Standards Institute
ApT	Appropriate Technology
ARSO	African Organization for Standardization
AS	Standards Australia
ASAL	Arid and Semi-arid Lands
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASTM	American Society for Testing Materials
AWE	Aquaculture-Wetland Ecosystem
AWF	Alliance for Water Efficiency
BaB	Biomimicry and Biophilia
BGC	Bio-Geo-Chemical
BMGF	Bill & Melinda Gates Foundation
BOD	Biochemical Oxygen Demand
BoP	Base-of-the-Pyramid
BPDST	Biogas Project For Domestic Sewage Treatment
BPL	Below Poverty Line
BSI	British Standards Institution

CalTech	California Institute of Technology, USA
CAWST	Centre for Affordable Water and Sanitation Technology
CBOs	Community Based Organizations
CCTV	Closed Circuit Television
CEAMA	Morelos State Water and Environmental Commission
CEN	Comité Européen de Normalisation (European Committee for Standardization)
CHP	Combined Heat and Power Generation
CiM	Continuous improvement
CLTS	Community Led-Total Sanitation
CoCT	City of Cape Town
ConSan	Conventional Sanitation
COPANT	Pan American Standards Commission
CPDA	Clay Pipe Development Association
CRSP	Central Rural Sanitation Programme
CSF	Centralized Sanitation Facilities
CSIR	Council for Scientific and Industrial Research
CSO	Combined Sewer Overflow
CSTEP	Center for Study of Science, Technology and Policy
CWTRC	California Wastewater Training & Research Center
DAF	Dissolved Air Flotation
DALY	Disability Adjusted Life Year
DBD	Demand-Based Designs
DCS	Distributed Centralized Systems
DeBoP	Design for the Base-of-the-Pyramid
DeN	Design for Nature
DeRaR	Design For Recovery And Reuse
DeSaP	Design for Service and Products
DESAR	Decentralization Sanitation And Reuse
DFID	Department for International Development
DGTSS	Domestic Greywater Treatment Systems
DOHWA	Department of Health Western Australia
DSF	Decentralized Sanitation Facilities
DSF	Design For Service Framework
DPR	Direct Potable Reuse
DWA	German Association for Water, Wastewater and Waste
DWAF	Department of Water Affairs and Forestry, Pretoria, South Africa
DWWTS	Domestic Wastewater Treatment Systems
EcoSan	Ecological Sanitation
EDIE	Environmental Data Interactive Exchange

EFP	Excreta-Fertilizer Products
EIDT	Existing Improved Design Technology
ELI	Environmental Law Institute
EMF	Ellen MacArthur Foundation
EU	European Union
FaST	Functionalism and System Theory
FLT	Fresh Life Toilets
FNSS	Formal National Sanitation Standards
FPG	Fit-for-Purpose Governance
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSS	Formal Sanitation Standards
FWFD	Faecal Waste Flow Diagram
FWS	Free Water Surface
GDP	Gross Domestic Products
GIS	Geographic Information System
GLASS	Global Assessment and Analysis of Sanitation and Water
GNP	Gross National Product
GoF	Governance Function
GoI	Government of India
GPS	Geographic Positioning System
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HES	Health Education Service
HET	High Efficiency Toilets
HS	Hybridized solutions
HTC	Hydrothermal Carbonization
IAs	Institutional Arrangements
IDWSSD	International Drinking Water Supply and Sanitation Decade
IFSVC	Integrated Functional Sanitation Service Chain
IMA	Institute of Management Accountants
IPR	Indirect Potable Reuse
ISEAL	International Social and Environmental Accreditation and Labelling
ISO	International Organization for Standardization
ISS	Informal Sanitation Standards
IWA	International Water Association
JECES	Japan Education Center of Environmental Sanitation
JMP	Joint Monitoring Programme
JSWA	Japan Sewage Works Association
KaS	Knowledge and Skills

LCA	Lifecycle Assessment
LCCA	LifeCycle Costs Approach
LIXIL	Link to Good Living
LoSWaS	Local Scale Wastewater Services
MDGs	Millennium Development Goals
MFA	Material Flow Analysis
MINALOC	Ministry of Local Government, Rwanda
MINECOFIN	Ministry of Finance and Economic Planning, Rwanda
MINEDUC	Ministry of Education, Rwanda
MININFRA	Ministry of Infrastructure, Rwanda
MINISANTE	Ministry of Health, Rwanda
MLIT	Ministry of Land, Infrastructure, Transport and Tourism, Japan
MMA	Modernized Mixtures Approach
MOA	Ministry of Agriculture, China
MOE	Ministry of the Environment, Japan
NDHS	Nigeria Demographic and Health Survey
NEWEL	Nutrients-Energy-Water-Environment-Land
NGO	Non-Governmental Organization
NISER	Nigerian Institute of Social and Economic Research
NoDT	Nouveau Design Technology
NOWRA	National Onsite Wastewater Recycling Association
NSBs	National Standard Bodies
NSF	National Sanitation Foundation International
NSF	National Science Foundation
NToB	No-Transfer-of-Burden
NZS	New Zealand Standards
OD	Open Defecation
ODF	Open Defecation Free
OECD	Organisation of Economic Cooperation and Development
OFWAT	Office of Water Services
OHS	Occupational Health And Safety
ORs	Operational Responsibilities
OSS	On-site Sanitation Systems
OWTS	On-site Wastewater Treatment Systems
PaP	Participation and Partnership
PaS	Place and Scale
PASC	Pacific Area Standards Congress
PDSS	President Deputy of Strategic Supervision
PLUM	Passive Latrine Use Monitor

PSC	Psycho-Socio-Cultural
PSEP	Psycho-Socio-Ecophilia
PSS	Public Sanitation Service
RA	Rural Agriculture
RaSR	Recycling and Safe Reuse
RBP	Resource-based Paradigm
RD	Rural Development
RDDT	Regenerative Development and Design Theory
ReDT	Restorative Design Tech
ReGenSan	Regenerative Sanitation
ReGenSanC	Regenerative Sanitation Concept
ReGenSanP	Regenerative Sanitation Paradigm
ReGenSanT	Regenerative Sanitation Theory
ReS	Resource SubSystem
RFID	Radio Frequency Identification Technology (RFID)
RoDF	Rehabilitation of Dysfunctional Facilities
ROS	Resource-Oriented Sanitation
RRR	Resource Recovery and Reuse
SABS	South African Bureau of Standards
SaG	Sanitation Governance
SaPs	Sanitation Paradigms
SARSO	South Asian Regional Standards Organization
SC	Service Chain
SCF	Sanitation Conceptual Framework
SCR	Struvite Crystallizer Reactor
SD	Sustainable Development
SDC	Swiss Agency for Development and Cooperation
SDE	Sanitation-Derived Energy
SDO	Standard Development Organizations
SDFs	Sanitation-Derived Fertilizers
SDG	Sustainable Development Goals
SDNs	Sanitation-Derived Nutrients
SDPs	Sanitation-Derived Products
SE	Socio-Economic
SEI	Stockholm Environment Institute
SER	Society for Ecological Restoration
SES	Social-Ecological SubSystem
SF	Subsurface Flow
SFD	Shit Flow Diagram

SHI	Systemic Holistic Integration
SIs	Sanitation Infrastructure Standards
SIS	Sanitation Infrastructure Standardization
SLTS	School-Led Total Sanitation
SMEs	Sanitation Management Entities
SMS	Short Message Service
SON	Standards Organisation of Nigeria
SS	Sewage Sludge
SSA	Sub-Saharan Africa
SSC	Sanitation Service Chain
SSC-RaMs	Sanitation Service Chain Raw Materials
SSD	Source Separation And Decentralization
SSDC	Sanitation Service Delivery Chain
SSF	Satellite Sanitation Facilities
SSL	Sanitation Service Ladder
SOM	Soil Organic Matter
STE	Socio-Techno-Ecological
STED	Septic Tank Effluent Drainage
STR	Social-Technical Regimes
SuSan	Sustainable Sanitation
SuSanA	Sustainable Sanitation Alliance
SVC	Sanitation Value Chain
SVCA	Sanitation Value Chain Analysis
SWA	Sanitation and Water for All
TBC	Toilet Board Coalition
TeS	Technology SubSystem
TISI	Thai Industrial Standards Institute
TOP	Top-of-the-Pyramid
TSC	Total Sanitation Campaign
UD	Urine Diversion
UDCT	Urine-Diversion-Composting-Toilet
UDDT	Urine-Diversion Dry Toilets
UDT	Urine-Diverting Toilets
UF/RO	Ultrafiltration/Reverse Osmosis
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UN-Water	United Nations Water
UNESC	United Nations Economic and Social Council

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNHRC	United Nations Human Rights Council
UNICEF	United Nations Children Fund
UR	Urban Regeneration
USAID	United States Agency for International Development
USDE	United States Department of Energy
USDOE	U.S. Department of Energy
USEPA	United States Environmental Protection Agency
USLG	Urban Sustainability Learning Group
UWWTD	Urban Wastewater Treatment Directives
VC	Value Chain
VC	Vacuum Closet
VF	Vertical-flow
VIPs	Ventilated Improved Pits
WASAC	Water and Sanitation Corporation, Rwanda
WCED	World Commission on Environment and Development
WCT	Waterless Composting Toilet
WECD	World Commission on Environment and Development
WEDC	Water, Engineering and Development Centre
WEF	Water and Environment Federation
WERF	Water Environment Research Foundation
WE&RF	Water Environment & Reuse Foundation
WHO	World Health Organization
WSDHWMP	Washington State Department of Health Wastewater Management Program
WSP	Water and Sanitation Program
WSSD	World Summit on Sustainable Development
WWAP	United Nations World Water Assessment Programme
WWPT	Wastewater Treatment Plants