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Supplemental Material

Community-Led Total Sanitation: A Mixed-Methods Systematic Review of Evidence and Its Quality

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Additional File – Excel Document.

Supplemental Material, Table S1. List of databases and websites for journal-published and gray literature searches, and respective search strategy.

Database or website	Search strategy
PubMed	("Community led total sanitation" OR "total sanitation" OR "open defecation" OR "defecation free") OR (sanitation AND subsid*) OR ((Sanitation[Mesh] OR "Sanitation"[Title/Abstract]) AND ((demand OR participat*) AND behavior AND (communit* OR village OR locality OR hamlet OR collective OR neighborhood OR township)))
Web of Science	TOPIC: (("Community led total sanitation" OR "total sanitation" OR "open defecation" OR "defecation free")) OR TOPIC: ((sanitation AND subsid*)) OR TOPIC: (("hygiene" AND "sanitation" AND "behavior")) OR TITLE: (Sanitation) Refined by: TOPIC: (behavior)
Scopus	TITLE-ABS ("Community led total sanitation" OR "total sanitation" OR "open defecation" OR "defecation free") OR TITLE-ABS (sanitation AND behavior AND communit*) OR TITLE-ABS-KEY (sanitation AND subsid*) OR TITLE-ABS-KEY((demand OR participat*) AND (community OR village OR locality OR hamlet OR collective OR neighborhood OR township) AND sanitation AND behavior)
Proquest	community led total sanitation OR "open defecation free"
Cochrane	(sanitation AND ((demand OR participat*) AND behavior AND (communit* OR village OR locality OR hamlet OR collective OR neighborhood OR township))) OR ("Community led total sanitation" OR "total sanitation" OR "open defecation" OR "defecation free") OR (sanitation AND subsid*)
Global Health	(sanitation:ab OR sanitation:ti AND ((demand OR participat*) AND behavior AND (communit* OR village OR locality OR hamlet OR collective OR neighborhood OR township))) OR ("Community led total sanitation" OR "total sanitation" OR "open defecation" OR "defecation free") OR (sanitation AND subsid*)
Embase	(sanitation:ab OR sanitation:ti AND ((demand OR participat*) AND behavior AND (communit* OR village OR locality OR hamlet OR collective OR neighborhood OR township))) OR ("Community led total sanitation" OR "total sanitation" OR "open defecation" OR "defecation free") OR (sanitation AND subsid*)

Database or website	Search strategy
Water Engineering and Development Centre (WEDC) Knowledge Base	"community-led total sanitation" OR "CLTS" OR "total sanitation"
Water Supply and Sanitation Collaborative Council (WSSCC)	<i>Separate searches for:</i> CLTS total sanitation global sanitation fund
Water and Sanitation Program of the World Bank (WSP)	"Topics" → "Scaling up Rural Sanitation and Hygiene" → "Publications and Tools" → search for "total sanitation"
SNV World	"CLTS" (Filter by: "Explore more" AND "Focus areas") Explore more → Sector: Water, Sanitation & Hygiene; Topic: Sanitation AND rural
BMGF WaterAid Concern Worldwide World Vision CARE SuSanA Knowledge Base World Health Organization (WHO) IRC Wash	<i>Separate searches for:</i> CLTS "total sanitation"
Plan International	Priorities: Water and Sanitation; Tag: Community-Led Total Sanitation; Publisher: All Publishers
Google Scholar (first 200 results)	"community led total sanitation" OR CLTS -"central limit" Exclude patents and citations
UNICEF Evaluation Database communityledtotalsanitation.org	"Reports by Theme" → "Water and Environmental Sanitation" → CLTS OR CATS OR total Reviewed all documents of the following types: case studies, country papers, and research

Supplemental Material, Table S2. Quality appraisal framework for quantitative evaluations, qualitative studies, and case studies and project reports.

For quantitative evaluations:

Topic	Criteria	Questions	Notes on scoring (out of 1)
Quality of Reporting	1. Objectives	Were the objectives and purpose of the study described?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> overall purpose objectives
	2. Context	Was sufficient detail provided on the context and setting of the study?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> broader context (e.g. economics, policy, history, culture) descriptive statistics of study sample (non-WaSH indicators)
	3. Process	Was the process of the program or intervention described thoroughly?	0 if less than two items below are included, 0.5 if at least two are included, and 1 if all four items are included: <ul style="list-style-type: none"> overall approach activities dates and duration implementing organization or actors
	4. Study design	Was sufficient detail provided on how households or individuals were assigned to interventions?	0 if no information, 0.5 if partial detail is provided, and 1 if sufficient detail is provided.
	5. Data collection	Was sufficient detail provided on data collection methods and procedures?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> sampling strategy described (including sample size) data collection process described (who conducted, tools used, etc.)
	6. Analysis	Was sufficient detail provided on analytical methods used in the study?	0 if less than two items below are included, 0.5 if at least two are included, and 1 if all three items are included: <ul style="list-style-type: none"> statistical analysis described (estimator used, regression type) method for calculating effect estimates described estimates of error reported (confidence interval, p-value, t-statistic)
Risk of Bias	7. Assignment to intervention	Indicate the study design.	<ul style="list-style-type: none"> 0 if natural experiment or pre + post in single group 0.5 if quasi-experimental design 1 if randomized controlled trial (RCT)
	8. Appropriateness of sampling	Was sampling representative at the household level (did the survey represent the study population?)	0 if sampling was not representative, and 1 if sampling was representative.
	9. Independence of data collection	Was data collection conducted by an independent and trained source, with appropriate auditing procedures?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> trained data collector independent of implementer or funder (note: data collected by a consultant with noted support of implementer will not be considered "independent" unless justified) auditing procedures described
	10. Rigor in data collection: data relevance	Were the indicators measured in the study relevant to the research question, and consistent with prior work and/or thoroughly justified?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> indicators relevant to research question indicators consistent with prior work and/or thoroughly justified
	11. Rigor in data collection: data accuracy	Was validity of data collection tools (testing/piloting) reported?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> pre-testing/piloting data validation
	12. Analytical rigor	Were appropriate analytical methods used?	<ul style="list-style-type: none"> For RCTs: 0 if does not analyze the probability that effect is causal (i.e. due to the program), and 1 if analyzes this probability. For non-RCTs: 0 if does not account for differences between comparison groups, and 1 if accounts for such differences.
	13. External peer-review	Is there evidence of the study being subjected to external/independent review prior to publication?	0 if there is no evidence of external review, and 1 if peer review was conducted by a source external to the publishing organization.
Appropriateness of conclusions	14. Interpretation	Is there a discussion and interpretation of the main findings?	0 if no information, 0.5 if discussion and interpretation is incomplete, and 1 if a complete discussion and interpretation is provided.
	15. Limitations	Were study limitations described?	0 if no information, 0.5 if limitations are incomplete, and 1 if full limitations are described.
	16. Conclusions	Were stated conclusions and implications within the scope of the study design and data collection methods?	0 if conclusions are not stated or beyond the scope, 0.5 if partly beyond the scope, and 1 if conclusions are within the scope of the study.

For qualitative studies:

Topic	Criteria	Questions	Notes on scoring (out of 1)
Quality of Reporting	1. Objectives	Were the objectives and purpose of the study described?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> overall purpose objectives
	2. Context	Was sufficient detail provided on the context and setting of the study?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> broader context (e.g. economics, policy, history, culture) context of specific program setting
	3. Process	Was the process of the program or intervention described thoroughly?	0 if less than two items below are included, 0.5 if at least two are included, and 1 if all four items are included: <ul style="list-style-type: none"> overall approach activities dates and duration implementing organization or actors
	4. Study design	Was sufficient detail provided on the sampling approach?	0 if less than two items below are included, 0.5 if at least two are included, and 1 if all three items are included: <ul style="list-style-type: none"> sampling method (e.g. purposive, convenience, snowball) sample size and descriptors recruitment process (e.g. through NGO staff)
	5. Data collection	Was sufficient detail provided on qualitative data collection procedures?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> data collection process and tools (e.g. interviews, focus groups) data collector identified and recording/transcription reported
	6. Analysis	Was sufficient detail provided on analytical methods used in the study?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> analytical approach (e.g. thematic, content, or discourse analysis; grounded theory; phenomenological approach) analytical process (e.g. reading/coding transcripts, listening to recordings, identifying themes, matrices/networks)
Risk of Bias	7. Appropriateness of sampling	Was sampling appropriate given stated objectives?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> appropriate people targeted to answer research question appropriate method for qualitative research (i.e. not random, or provides thorough justification for random sampling)
	8. Independence of data collection	Was data collection conducted by a trained source independent of the implementer of the program or intervention?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> data collector independent of implementer or funder (note: data collected by a consultant with noted support of implementer will not be considered "independent" unless justified) training of data collectors mentioned
	9. Rigor in data collection	Were there attempts to establish the credibility, neutrality, consistency, and/or transferability of data collection tools?	0 if less than three items below are included, 0.5 if at least three are included, and 1 if at least first four are included (data collected by individual researcher does not necessarily decrease rigor, but team collection can enhance credibility): <ul style="list-style-type: none"> appropriate tools used (e.g. semi-structured interview guides, observation checklists) data collection tools piloted prior to use average length of interviews, or time spent in field described attempts at triangulating data (recruiting different types of respondents; including documents and monitoring data) data collected in a team
	10. Analytical rigor	Were there attempts to establish the credibility, neutrality, consistency, and/or transferability of data analysis methods?	0 if less than three items below are included, 0.5 if at least three are included, and 1 if at least first four are included (individual data analysis does not necessarily decrease rigor, but team analysis can enhance credibility): <ul style="list-style-type: none"> systematic data analysis process (coding, matrices, etc.) process of reflexivity documented evidence of member checking and/or external audit? sufficient detail provided on context to allow reader to determine transferability of results data analyzed in a team (inter-coder discussions)
	11. External peer-review	Is there evidence of the study being subjected to external/independent review prior to publication?	0 if there is no evidence of external review, and 1 if peer review was conducted by a source external to the publishing organization.
Appropriateness of conclusions	12. Interpretation	Is there a discussion and interpretation of the main findings?	0 if no information, 0.5 if discussion and interpretation is incomplete, and 1 if a complete discussion and interpretation is provided.
	13. Limitations	Were study limitations described?	0 if no information, 0.5 if limitations are incomplete, and 1 if full limitations are described.
	14. Conclusions	Were stated conclusions and implications within the scope of qualitative study design and well-grounded in the data?	0 if conclusions are not stated or beyond the scope, 0.5 if partly beyond the scope, and 1 if conclusions are within the scope of the study.

For case studies and project reports:

Topic	Criteria	Questions	Notes on scoring (out of 1)
Quality of Reporting	1. Objectives	Were the objectives and purpose of the program or intervention described?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> overall purpose objectives
	2. Context	Was sufficient detail provided on the context and setting of the program or intervention?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> broader context (e.g. economics, policy, history, culture) context of specific program setting
	3. Process	Was the process of the program or intervention described thoroughly?	0 if less than two items below are included, 0.5 if at least two are included, and 1 if all four items are included: <ul style="list-style-type: none"> overall approach activities dates and duration implementing organization or actors
	4. Study design	Is there evidence of a sampling approach?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> any source of primary evidence sampling method, size and recruitment (e.g. NGO, key informants, self-recruited)
	5. Data collection	Is there evidence of a systematic data collection process?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> type of primary data collected (e.g. surveys, interviews, water samples, observation) data collection instruments
	6. Analysis	Is there description of data analysis?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> data analysis mentioned analytical approach described
Risk of Bias	7. Appropriateness of sampling	Was sampling appropriate given stated objectives?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> appropriate people targeted to answer research question appropriate method given study design
	8. Independence of data collection	Was data collection conducted by an independent and trained source?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> data collector independent of implementer or funder (note: data collected by a consultant with noted support of implementer will not be considered "independent" unless justified) training of data collectors mentioned
	9. Rigor in data collection and analysis	Were appropriate measures taken to provide rigor to the execution of the study?	0 if neither item below is included, 0.5 if one is included, and 1 if both items are included: <ul style="list-style-type: none"> rigor in data collection (e.g. pre-testing DC tools, training enumerators, auditing) rigor in data analysis (e.g. appropriate data analysis techniques given study design)
	10. External peer-review	Is there evidence of the document being subjected to external/independent review?	0 if there is no evidence of external review, and 1 if peer review was conducted by a source external to the publishing organization.
Appropriateness of conclusions	11. Interpretation	Is there a discussion and interpretation of the main findings?	0 if no information, 0.5 if discussion and interpretation is incomplete, and 1 if a complete discussion and interpretation is provided.
	12. Limitations	Were limitations to the information present in the document described?	0 if no information, 0.5 if limitations are incomplete, and 1 if full limitations are described.
	13. Conclusions	Were stated conclusions and implications grounded in evidence/data presented?	0 if conclusions are not stated or beyond the scope, 0.5 if partly beyond the scope, and 1 if conclusions are within the scope of the study.

^a Definitions: Quantitative evaluations were defined as studies with an experimental comparison group designed to attribute outcomes to a CLTS or CLTS-like intervention; qualitative studies were defined as those that used qualitative data collection methods and analytical techniques; and case studies and project reports included mixed methods studies, cross-sectional studies, and practitioner experiences, reports, or evaluations of CLTS projects. Most questions can receive a score of 0, 0.5, or 1, but some questions are only scored as 0 or 1.

Supplemental Material, Table S3. Full list of included literature in the systematic review (in order of Document ID by study type).

Doc ID	Quantitative evaluations (n=14)
60	Dickinson KL, Patil SR, Pattanayak SK, Poulos C, Yang J-H. 2015. Nature's Call: Impacts of Sanitation Choices in Orissa, India. <i>Econ. Dev. Cult. Change</i> 64:1–29; doi:10.1086/682958.
89	Cameron L, Shah M, Olivia S. 2013. Impact Evaluation of a Large-Scale Rural Sanitation Project in Indonesia. <i>World Bank Policy Res. Work. Pap.</i> 6360. Washington, DC: World Bank; doi:10.1596/1813-9450-6360.
109	Godfrey S, Van Der Velden M, Muianga A, Vigh M, Gunning JW, Elbers C. 2014. Impact study of the One Million Initiative rural water and sanitation programme in Mozambique. <i>Waterlines</i> 33:35–44; doi:10.3362/1756-3488.2014.005.
114	Pattanayak SK, Yang J-C, Dickinson KL, Poulos C, Patil SR, Mallick RK, et al. 2009. Shame or subsidy revisited: social mobilization for sanitation in Orissa, India. <i>Bull. World Health Organ.</i> 87:580–587; doi:10.2471/BLT.08.057422.
119	Briceno B, Coville A, Martinez S. 2015. Promoting Handwashing and Sanitation: Evidence from a Large-Scale Randomized Trial in Rural Tanzania. <i>World Bank Policy Res. Work. Pap.</i> 7164. Washington, DC: World Bank. Available: http://ssrn.com/abstract=2550526 [accessed 15 Dec 2016].
128	Crocker J, Geremew A, Atalie F, Yetie M, Bartram J. 2016. Teachers and Sanitation Promotion: An Assessment of Community-Led Total Sanitation in Ethiopia. <i>Environ. Sci. Technol.</i> 50:6517–6525; doi:10.1021/acs.est.6b01021.
129	Patil SR, Arnold BF, Salvatore AL, Briceno B, Ganguly S, Colford JM, et al. 2014. The Effect of India's Total Sanitation Campaign on Defecation Behaviors and Child Health in Rural Madhya Pradesh: A Cluster Randomized Controlled Trial. <i>PLoS Med.</i> 11:e1001709; doi:10.1371/journal.pmed.1001709.
131	Borja-Vega C. 2014. The effects of the Total Sanitation and Sanitation Marketing programme on gender and ethnic groups in Indonesia. <i>Waterlines</i> 33:55–70; doi:10.3362/1756-3488.2014.007.
136	Pickering AJ, Djebbari H, Lopez C, Coulibaly M, Alzua ML. 2015. Effect of a community-led sanitation intervention on child diarrhoea and child growth in rural Mali: a cluster-randomised controlled trial. <i>Lancet Glob. Heal.</i> 3:e701–e711; doi:10.1016/S2214-109X(15)00144-8.
137	Crocker J, Abodoo E, Asamani D, Domapielle W, Gyapong B, Bartram J. 2016. Impact Evaluation of Training Natural Leaders during a Community-Led Total Sanitation Intervention: A Cluster-Randomized Field Trial in Ghana. <i>Environ. Sci. Technol.</i> 50:8867–8875; doi:10.1021/acs.est.6b01557.
150	BDS-Center for Development Research. 2016. Outcome evaluation of community-led total sanitation and hygiene (CLTSH) Program in Ethiopia from 2012-2015. Addis Ababa, Ethiopia: UNICEF. Available: https://www.unicef.org/evaldatabase/files/Final_Report_of_CLTSH_Outcome_Evaluation-Designed_Ethiopia_2016-012.pdf [accessed 15 Mar 2017].
180	Schlegelmilch MP, Lakhani A, Saunders LD, Jhangri GS. 2016. Evaluation of water, sanitation and hygiene program outcomes shows knowledge-behavior gaps in Coast Province, Kenya. <i>Pan Afr Med J.</i> 23:145; doi:10.11604/pamj.2016.23.145.7546
186	Makotsi N, Kaseje D, Mumma J, Opiyo J, Lukorito L. 2016. Association of Community Led Total Sanitation to Reduced Household Morbidity in Nyando District. <i>International Journal of Sciences: Basic and Applied Research.</i> 28:1. Available: https://gssrr.org/index.php?journal=JournalOfBasicAndApplied&page=article&op=view&path%5B%5D=5825 [accessed 15 Mar 2017].

195	United Nations Children's Fund (UNICEF). 2016. Phased Approach to Total Sanitation (PhATS) in Haiyan-Affected Areas - End-line Assessment. New York: UNICEF. Available: http://www.reachresourcecentre.info/system/files/resource-documents/reach_phl_report_phats_endline_report_march_2016_o.pdf [accessed 15 Mar 2017].
	Qualitative studies (n=29)
5	Fernandez K. 2008. Children as agents of change: practitioners' perspectives on children's participation in Community-Led Total Sanitation [MSc Dissertation]. London: School of Oriental and African Studies. Available: http://www.communityledtotalsanitation.org/resource/children-agents-change [accessed 15 June 2015].
8	Hueso-González A. 2013. Pathways to sustainability in CLTS. Experiences from Madhya Pradesh and Himachal Pradesh [PhD Dissertation]. Valencia, Spain: Universitat Politecnica de Valencia. Available: http://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/FinalAbstractThesis.pdf [accessed 1 Oct 2016].
23	Adeyeye A. 2011. Gender and Community-Led Total Sanitation: A Case Study of Ekiti State, Nigeria. Trop. Resour. Bull. Yale Trop. Resour. Inst. 30: 1–27. Available: https://environment.yale.edu/tri/uploads/AAdeyeye2011.pdf [accessed 10 May 2016].
27	Brown A. 2010. Anthropological Consultation of CLTS Pilot Program North - West Vietnam 2009. Hanoi: SNV Vietnam.
42	Evans B, Colin J, Jones H, Robinson A. 2009. Sustainability and equity aspects of total sanitation programmes: A study of recent WaterAid-supported programmes in three countries. Global synthesis report. London: WaterAid. Available: www.wateraid.org/~media/Publications/community-led-total-sanitation.pdf [accessed 1 Sep 2016].
57	Questad A. 2012. Investigation of I-WASH's Community-led Total Sanitation and Alternative Decentralized Sanitation Models in Rural Ghana [MS thesis]. Cambridge, MA: Massachusetts Institute of Technology. Available: https://dspace.mit.edu/handle/1721.1/74490 [accessed 1 Jun 2016].
59	Dyalchand A. 2008. What Communication and Institutional Arrangements Influence Sanitation Related Social Norms in Rural India? Available: http://www.communityledtotalsanitation.org/resource/what-communication-and-institutional-arrangements-influence-sanitation-related-social-norms [accessed 1 Dec 2015].
77	Fawzi A, Jones H. 2010. Community-Led Total Sanitation (CLTS) for people in vulnerable situations: Identifying and supporting the most disadvantaged people in CLTS - A case study of Bangladesh. London: Water Aid. Available: http://www.ircwash.org/resources/community-led-total-sanitation-clts-people-vulnerable-situations-identifying-and [accessed 1 Jun 2016].
79	Akter T, Ali AM. 2014. Factors influencing knowledge and practice of hygiene in Water, Sanitation and Hygiene (WASH) programme areas of Bangladesh Rural Advancement Committee. Rural Remote Health 14: 2628. Available: http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=2628 [accessed 11 Nov 2016].
88	WaterAid India. 2008. Feeling the pulse: a study of the total sanitation campaign in five states. New Delhi: WaterAid India. Available: www.wateraid.org/~media/Publications/study-total-sanitation-campaign-india.pdf [accessed 1 Feb 2016].
93	Mukherjee N, Robiarto A, Saputra E, Wartono D. 2012. Achieving and Sustaining Open Defecation Free Communities: Learning from East Java. Washington, DC: The World Bank Water and Sanitation Program. Available: https://www.wsp.org/sites/wsp.org/files/publications/WSP_Indonesia_Action_Research_Report.pdf [accessed 1 Jun 2016].
99	Cole B, Pinfold J, Ho G, Anda M. 2014. Exploring the methodology of participatory design to create appropriate sanitation technologies in rural

	Malawi. <i>J. Water, Sanit. Hyg. Dev.</i> 4:51; doi:10.2166/washdev.2013.166.
100	Jamasy O, Shatifan N. 2009. CLTS – Learning from Communities in Indonesia. Brighton: Institute of Development Studies. Available: http://www.communityledtotalsanitation.org/resource/clts-learning-communities-indonesia [accessed 1 Jun 2016].
101	Kumar N, Shukla JP. 2008. Doing CLTS in a Countrywide Program Context in India: Public Good v Private Good. Ghaziabad, India: Knowledge Links. Available: http://www.communityledtotalsanitation.org/resource/doing-clts-countrywide-program-context-india-public-good-v-private-good [accessed 1 Jun 2016].
102	Mahbub A. 2008. Social Dynamics of CLTS: Inclusion of children, women and vulnerable. Paper for CLTS Conference at IDS Sussex, 16-18 Dec 2008. Brighton: Institute of Development Studies, 1–23. Available: http://www.communityledtotalsanitation.org/resource/social-dynamics-clts-inclusion-children-women-and-vulnerable [accessed 1 Jun 2016].
103	Priyono E. n.d. Institutional Dimensions of Scaling up of CLTS in Indonesia. Bekasi, Indonesia: AKADEMIKA-Center for Public Policy Analysis. Available: http://waterwiki.net/images/o/oc/InstitutionalDimensionsScalingUpCLTSIndonesia.pdf [accessed 1 Jun 2016].
105	Crocker J, Shields KF, Venkataramanan V, Saywell D, Bartram J. 2016. Building capacity for water, sanitation, and hygiene programming: Training evaluation theory applied to CLTS management training in Kenya. <i>Soc. Sci. Med.</i> 166:66–76; doi:10.1016/j.socscimed.2016.08.008.
112	Kappauf L. 2011. Opportunities and Constraints for more Sustainable Sanitation through Sanitation Marketing in Malawi: Case study from Mzimba and Lilongwe Districts [MS Thesis]. 8: 137. Loughborough: Water, Engineering, and Development Centre, Loughborough University. Available: http://wedc.lboro.ac.uk/resources/pubs/KAPPAUF_Leonie_-_Opportunities_and_Constraints_for_more_Sustainable_Sanitation_through_Sanitation_Marketing_in_Malawi.pdf [accessed 1 Jun 2016].
118	Roma E, Jeffrey P. 2010. Evaluation of community participation in the implementation of community-based sanitation systems: a case study from Indonesia. <i>Water Sci. Technol.</i> 62:1028; doi:10.2166/wst.2010.344.
125	Shutt C. 2010. CLTS in East Africa: a pathway to child and youth empowerment? In: <i>Tales of Shit: Community-Led Total Sanitation in Africa</i> (Bongartz P, Musyoki SM, Milligan A, Ashley H, eds). Participatory Learning and Action 61. London: IEED, 97-106.
133	Engel S, Susilo A. 2014. Shaming and Sanitation in Indonesia: A Return to Colonial Public Health Practices? <i>Dev. Change</i> 45:157–178; doi:10.1111/dech.12075.
138	Sigler R, Mahmoudi L, Graham JP. 2015. Analysis of behavioral change techniques in community-led total sanitation programs. <i>Health Promot. Int.</i> 30:16–28; doi:10.1093/heapro/dau073.
144	Venkataramanan V. 2016. CLTS Learning Series: Lessons from CLTS Implementation in Seven Countries. Chapel Hill, USA: The Water Institute at UNC. Available: https://waterinstitute.unc.edu/files/2016/01/CLTS-Learning-Series-Final-Report_011416.pdf [accessed 1 Feb 2016].
169	Bardosh K. 2015. Achieving “Total Sanitation” in Rural African Geographies: Poverty, Participation and Pit Latrines in Eastern Zambia. <i>Geoforum</i> 66:53–63; doi:10.1016/j.geoforum.2015.09.004.
172	Lawrence JJ, Yeboah-Antwi K, Biemba G, Ram PK, Osbert N, Sabin LL, Hamer DH. 2016. Beliefs, Behaviors, and Perceptions of Community-Led Total Sanitation and Their Relation to Improved Sanitation in Rural Zambia. <i>Am. J. Trop. Med. Hyg.</i> 94:3; doi:10.4269/ajtmh.15-0335.
173	McMichael C, Robinson P. 2016. Drivers of sustained hygiene behaviour change: A case study from mid-western Nepal. <i>Soc. Sci. Med.</i> 163:28-36; http://dx.doi.org/10.1016/j.socscimed.2016.06.051 .

176	Gerwel-Jensen L, Rautanen SL, White P. 2015. Strengthening behaviour change communication in western Nepal: how can we do better? <i>Waterlines</i> . 34:4; http://dx.doi.org/10.3362/1756-3488.2015.030 .
198	Davis I. 2015. A gender case study of the experience and outcomes of Fonds D'Appui pour l'assainissement (FAA) Community-led Total Sanitation (CLTS) interventions in Madagascar [Thesis]. Australia: International WaterCentre. Available: http://wsscc.org/resources-feed/gender-case-study-experience-and-outcomes-of-faa-clts-interventions-in-madagascar/ [accessed 15 Mar 2017].
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Case studies and project reports (n=157)	
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