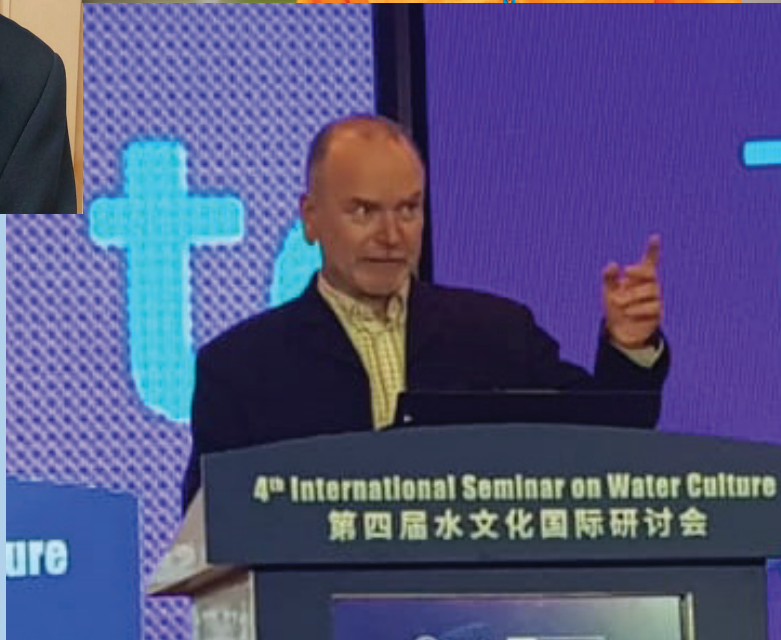


Vesi, yhteistyön voiteluaine

Petri Juutin 60-vuotisjuhlakirja



Riikka P. Juuti
(toim.)

Vesi, yhteistyön voiteluaine

Petri Juutin 60-vuotisjuhlakirja

Riikka P. Juuti (toim.)

Riikka P. Juuti (toim.)

Taitto ja kansi: Riikka Juuti

ISBN 978-952-03-4592-1 (painettu)

ISBN 978-952-03-4593-8 (verkkojulkaisu)

Painopaikka: PunaMusta Oy, Joensuu 2026



CADWES

Capacity Development in Water and Environmental Services
Research Team

Vesi, yhteistyön voiteluaine

Petri Juutin 60-vuotisjuhlakirja

Riikka P. Juuti (toim.)

SISÄLLYSLUETTELO

CADWES -tutkimusryhmän tervehdys.....	7
Petri S. Juuti ”Historian tutkijasta vesihuoltopalveluiden kehittäjäksi”.....	9
<i>Tapio S. Katko, Dosentti, Vanhempi vieraileva tutkija, Tietokirjailija</i>	
Petri Juuti - Distinguished Visiting Professor.....	27
<i>Johann Tempelhoff</i>	
Vuodet vierivät: veden merkitys ihmiskunnalle vain korostuu.....	33
<i>Heikki S. Vuorinen</i>	
Onnitteluja.....	36
CV Petri S. Juuti.....	41
Publication.....	43
A1 Journal article-refereed.....	43
A2 Review article in a scientific journal.....	47
A3 Book chapter.....	49
A4 Article in conference proceedings.....	67
B1 Journal article.....	67
B2 Book chapter.....	68
B3 Article in conference proceedings.....	69
C1 Scientific book.....	70
C2 Edited book.....	73
D1 Article in a trade journal.....	75
D2 Article in a professional research book.....	77
D4 Published development or research report or study.....	77
D5 Text book, professional manual or guide or a dictionary.....	78
E1 Popularised article, newspaper article.....	79

E2 Popularised monograph.....	81
E3 Edited popular book.....	81
G4 Doctoral dissertation (monograph).....	81
Other.....	81
Activities.....	84
Artikkeli: First Innovations of Water Supply and Sanitation.....	105
<i>Petri S. Juuti</i>	

CADWES -tutkimusryhmän tervehdys

Petri S. Juuti syntyi Ruokolahdella 12.6.1966, ja nyt meillä on ilo juhlistaa hänen 60-vuotissyntymäpäiväänsä. Tämä teos pyrkii kokoamaan yksiin kansiin hänen monivaiheisen ja vaikuttavan uransa. Tehtävä on toki mahdollon, sillä Petrin tutkijanura on ollut poikkeuksellisen laaja ja sisällöllisesti rikas.

Petrin tieteellinen matka alkoi jo opiskeluaikoina vuonna 1990 teoksella *“Miksi Ryti erosi?”*. Tästä on kulunut 36 vuotta. Filosofian tohtoriksi hän väitteli vuonna 2001, eli neljännesvuosisata sitten. Näiden vuosikymmenten aikana Petri on vakiinnuttanut asemansa yhtenä suomalaisen vesihuollon historian ja yhteiskunnallisen tarkastelun keskeisistä tutkijoista.

Petri tunnetaan vesihuoltoalalla väsymättömänä oikeudenmukaisuuden puolustajana, joka on uskaltanut ottaa kantaa myös vaikeisiin ja kipeisiin kysymyksiin. Hän on painottanut tutkimuksen käytännönläheisyyttä: tutkimusta tulee tehdä todellisia ongelmia varten ja todellisille ihmisille. Kuulijoita tai suurta yleisöä ei tule tukahduttaa liiallisella teoretisoinnilla, vaan tutkimustulosten on oltava ymmärrettäviä ja hyödynnettävissä.

Yhteistyö vesihuoltoklusterin ja vesihuoltolaitosten kanssa on ollut saumatonta ja mutkatonta jo yli kymmenen vuoden ajan. Tutkimusaiheet ovat nousseet käytännön tarpeista, ja niillä on ollut todellista merkitystä vesilaitosten toiminnalle ja päätöksenteolle.

Petrin työn merkityksellisyys on tunnustettu lukuisin tutkimusprofessorein kolmella eri mantereella, eri palkinnoin ja kunnianosoituksin. Neljä dosentuuria eri yliopistoissa sekä vastuu UNESCO-professorin hoitamisesta ovat näistä ehkä painavimmat. Ura ei kuitenkaan ole ollut ongelmaton – kuten monen historioitsijan ja pätkätutkijan kohdalla, arkeen ovat kuuluneet rahoituksen jatkuva hankinta ja epävarmuus. Ruusuilla ei ole aina tanssittu.

Tutkimusmatkat Etelä-Afrikkaan ovat Petrille olleet tärkeitä ja mukavia. Hän onkin viettänyt siellä laskutavasta riippuen kaksi-kolme vuotta. Vesi-
huollon tutkimusta arvostetaan siellä todella korkealle.

Vesihuolto ei koskaan tule valmiiksi, vaan se kohtaa jatkuvasti uusia haasteita. Viime vuosina erityisesti ikääntyvä infrastruktuuri ja korjausvelka, kustannukset, huoltovarmuus sekä kemikaalien saatavuus ja turvallisuus ovat olleet vilkkaan keskustelun kohteina. Petri on osallistunut yhteiskunnalliseen keskusteluun aktiivisesti ja johdonmukaisesti, tuoden esiin tutkitun tiedon merkitystä päätöksenteon pohjana.

Esimerkiksi helmikuussa 2020 julkiseen keskusteluun nousi vesihuollon yksityistäminen, jota kaavailtiin Jyväskylässä. Petri toimi vesihuollon asiantuntijana eduskunnan tulevaisuusvaliokunnan kuulemisessa 14.2.2025. Lisäksi CADWES-tutkimusryhmä antoi toukokuussa 2025 oman lausuntonsa hallituksen esityksestä eduskunnalle vesihuoltolain muuttamiseksi.

Petri on valinnut tähän juhlakirjaan itse yhden itselleen erityisen mieluisan artikkelin, joka löytyy teoksen lopusta otsikolla *“First Innovations of Water Supply and Sanitation”*. Muita tieteellisiä julkaisuja on ilmestynyt yli 400, joista noin 50 on vertaisarvioituja kirjoja.

Toivotan kaikille antoisia lukuhetkiä – ja Petrille väsymätöntä intoa jatkaa vesialan tutkimusta ja kehittämistä myös tulevina vuosina.

Olet meille rakas,

Riikka Juuti

Petri S. Juuti

”Historian tutkijasta vesihuoltopalveluiden kehittäjäksi”

Tapio S. Katko, Dosentti, Vanhempi vieraileva tutkija, Tietokirjailija

Vesi liittyy ihmiseen, luontoon, yhdyskuntiin ja yhteiskuntaan monin eri tavoin. Ihmiskunnan ensimmäiset kaupungit ja väestökeskukset alkoivat muodostua paikkoihin, joissa oli vettä saatavilla, alkuaikoina erityisesti kas-
telutarkoituksiin.

Tässä kirjoituksessa kuvaan dosentti Petri Juutin ammatillista ja tieteel-
listä uraa ja kirjallista tuotantoa siltä osin, kun sitä tunnen tai pystyn päätte-
lemään hänen ansio- ja julkaisuluettelostaan. Tässäkin kuten aina tulkinnat
ovat kirjoittajan tekemiä.

Petri suoritti historiatieteen maisteritutkinnon Tampereen yliopistossa
toukokuussa 1991. Hänen historian gradunsa ja sivugradunsa käsitteli ai-
hetta ”Miksi Ryti erosi?”¹. Opintojen aikana hän toimi tutkijana sisäasiain-
ministeriössä hankkeessa ”Suomen palotoimen historia.” (kuva 1).² Hanke
käsitteli jo ennakoivasti vesihuoltoa, onhan sammutusveden hankinta ollut
vesihuollon alkuaikoina sen suurin peruste. Petri toimi Tampereen yliopis-
ton historialaitoksen assistenttina vuonna 1992 ja yliassistenttina 2002–04.

Maaliskuusta 1994 lähtien Petri Juuti työskenteli Suomi-Viro yhdistys-
ten liiton (SVYL) pääsihteerinä kolme vuotta ja sen jälkeen Kustannus Pro

1 Juuti P. 1990. Miksi Ryti erosi? Sivugradu. [https://www.researchgate.net/
publication/313226298_Miksi_Ryti_erosi](https://www.researchgate.net/publication/313226298_Miksi_Ryti_erosi)

2 Juuti P. 1993. Suomen palotoimen historia. Yliopistopaino, Helsinki.

Estonian toimitusjohtajana. Hän perusti myös varhain KehräMedia Oy -pienkustantamon.

Tulin tuntemaan Petri Juutin seuraavasti. Tapasin syksyllä 1995 Tampereen vesilaitoksen toimitusjohtajan Esko Haumeen korkeakoulun käytävällä Hervannassa. Vilautin hänelle ensimmäisen tietokirjani käsikirjoitusta ja kysyin: ”Teidän laitos täyttää 100 vuotta kolmen vuoden kuluttua. Oletteko ehkä ajatelleet laatia siitä kirjaa?” Kysymys tuli kuitenkin ohitetuksi. Seuraavana syksynä pidimme Vesi- ja viemärilaitosyhdistyksessä juhlia, jossa Haume katseli painotuoretta kirjaa ja kysyi. ”Tehdäänkö samanlainen Tampereelta?” Vastasin tietysti myöntävästi. Pian tämän jälkeen Tampereen kaupungin vesilaitos tilasi 100-vuotishistoriateoksen sillä ehdolla, että tekijäksi tulee myös historian tutkija. Menin tapaamaan Tampereen yliopiston historialaitoksen johtajaa professori Pertti Haapalaa, joka kehotti ottamaan yhteyttä tutkija Petri Juutiin.

Tietokirjat ja CADWES-tutkimusryhmä

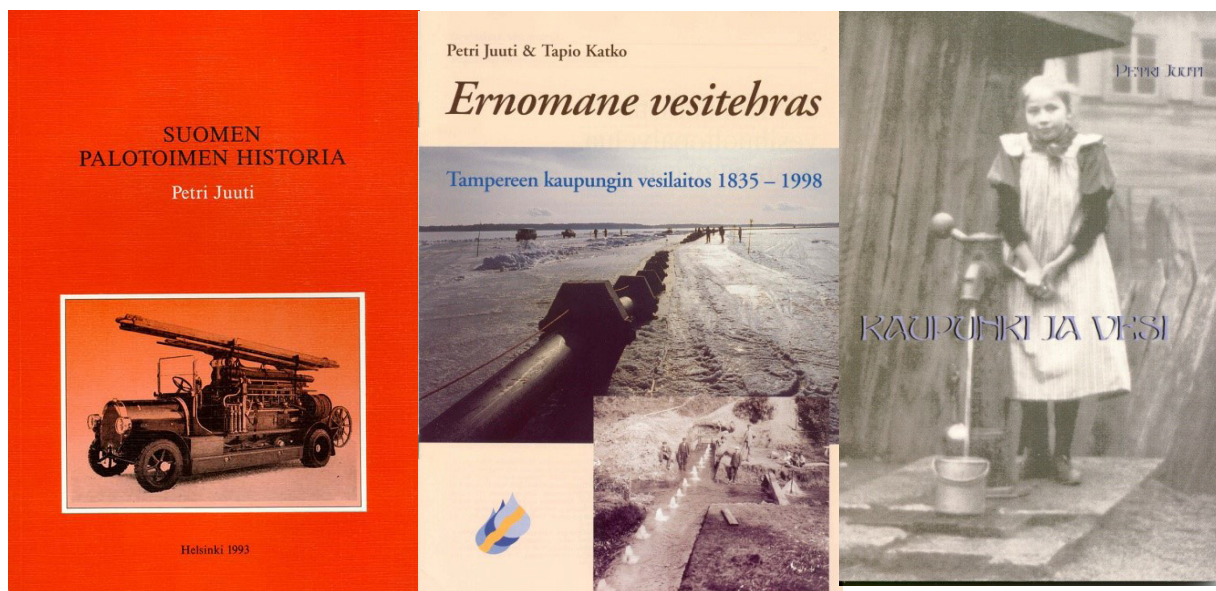
Ensimmäinen yhteinen tietoteoksemme ”Ernomane vesitehras” ilmestyi vuonna 1998 (kuva 1).³ Tässä hankkeessa haastattelimme Petrin johdolla runsaat 20 henkilöä, jotka olivat silloin tai aiemmin olleet vesilaitoksen tai kaupungin palveluksessa. Teimme vesilaitoksen historiasta muutamia uusia löydöksiä tai huonosti tunnettuja seikkoja kuten varhainen vesijohto vuodelta 1838, pohjaveden käyttöön liittynyt kova debatti 1910-luvulla sekä samoihin aikoihin esiintynyt vakava lavantautiepidemia. Petri arkistojen ammattilaisena järjesti myös Tampereen kaupungin pääkirjastoon edustavan näyttelyn juhlistamaan vesilaitoksen kehitystä 100 vuoden aikana.

Samana vuonna 1998 perustimme silloiseen Tampereen teknilliseen korkeakouluun yhteisen vesihuoltopalveluiden tutkimusryhmän Capacity Development of Water and Environmental Services (CADWES). Cadwes-ryhmän toiminta-ajatuksiksi tuli ”tuottaa korkeatasoisen moni- ja

3 Juuti P. & Katko T. 1998. Ernomane vesitehdas–Tampereen vesilaitos 1835–1998. tampub.uta.fi/handle/10024/66324

poikkitieteellisen tutkimukseen perustuvaa tietoa ja koulutusta vesihuolto- palveluiden ja vesivarojen kestävän käytön institutionaalisesta kehityksestä ja kehittämisestä: organisaatiot, hallinta, talous, lainsäädäntö, toimintapolitiikka, säännöt ja käytännöt”. Halusimme tutkia ja ymmärtää vesihuollon kehitystä ja kehittämistä pitkällä aikavälillä. Vesihuoltotekniikan lisäksi muista tieteenaloista mukana olivat historian tutkimus ja tulevaisuuden tutkimus.

Petri ja hänen pian Tampereen yliopistolle perustamansa Ympäristöhistorian tutkimusryhmä IEHG⁴ tuli samalla mukaan CADWES:n toimintaan. Alkuvaiheessa meillä oli myös kahden yliopiston yhteinen tutkimuskeskus ICES. Petri väitteli loppuvuodesta 2001 aiheesta ”Kaupunki ja vesi” (kuva 1), jossa hän perehtyi perin pohjin kaupunkien ja erityisesti Tampereen vesihuollon historiaan ja kehitykseen.⁵



Kuva 1. Petrin Juutin ensimmäisiä tietoteoksia: Suomen palotoimen historia 1993, Ernomane vesitehdas - Tampereen vesilaitos 1835–1998; sekä Kaupunki ja vesi -väitöskirja 2001.

4 [https://www.finna.fi/AuthorityRecord/melinda.\(FI-ASTERI-N\)000030369?lng=en-gb](https://www.finna.fi/AuthorityRecord/melinda.(FI-ASTERI-N)000030369?lng=en-gb)

5 Juuti P. 2001. Kaupunki ja vesi. Acta Electronica Universitatis Tamperensis 141. Väitöskirja. KehräMedia Oy. <https://trepo.tuni.fi/handle/10024/67155>

”Ernomane vesitehras” -hankkeesta saamiemme myönteisten kokemusten jälkeen syntyi ajatus tarjota vastaavia hankkeita myös muille maamme vesihuoltolaitoksille. Näin tutkimme Hämeenlinnan vesilaitoksen kehitystä 90 vuoden aikana. Hämeenlinnan jälkeen saimme hankkeen Kangasalta sekä kaksikielisen hankkeen Porvoosta.

Olen koonnut taulukkoon 1 kaikki tiedossa olevat Petri Juutin kirjoittamat tietokirjat, joista suurin osa on tehty kirjoittajaryhmällä ja joista monessa olen saanut olla mukana. Esitän taulukon jälkeen hankkeista muutamia esimerkkejä ja kokoan saamiemme kokemuksia ja havaintoja. Petri hoiti pääosin neuvottelut näistä hankkeista.

Vuonna 2005 Petri ideoi teoksen Kaivot ja käymälät, jossa oli runsaasti kuvia. Aihe liittyi Huussi-seuran kansainvälisiin Dry Toilet -konferensseihin, joita ryhdyttiin järjestämään kolmen vuoden välein vuodesta 2003 ja jossa CADWES-ryhmä oli aktiivisesti mukana.⁶ Kaikkiaan niitä pidettiin kuusi kertaa vuoteen 2018 saakka⁷.

Kotimaisten vesilaitosten historiahankkeissa teimme kaikissa vesilaitoksen henkilökunnan ja muidenkin sidosryhmien puolistrukturoituja teema-haastatteluja. Tilaaja yleensä hahmotti alussa kymmenkunta haastateltavaa. Kun hanke eteni, haastateltavia tuli lisää niin, että joka hankkeessa heitä oli ainakin 20 ja halukkaita jäi usein vielä ulkopuolelle. Haastattelut nauhoitettiin ja niistä purettiin muistiot. Muistikuvien ja tietojen keräyksen lisäksi haastattelujen kautta saatiin henkilökunta kiinnostuneeksi hankkeesta. Lähes joka laitokselta löytyi yksi tai useampi pääinformantti, jonka kautta saimme kerätyksi hiljaista tietoa ja esimerkiksi valokuvia. Valitsimme teokseen faktojen ja tietojen ohella toimintaan liittyviä tarinoita ja sattumia.

Eräällä vesilaitoksella meitä varoteltiin siitä, että haastateltava voi suhtautua meihin varauksellisesti, koska hän oli kokenut eläköitymisvaiheessa tulleen kohdelluksi epäreilusti. Meitä kuitenkin yllätti kahvitarjoilu sekä pitkä ja hyvin valmisteltu diaesitys haastattelun aiheesta. Useamman keran olemme todenneet, että lähtökohtaisesti tutkijaan ulkopuolisena haastattelijana suhtaudutaan myönteisesti ja luottamuksella. Arvioni mukaan noissa vesilaitosten historiahankkeissa on haastateltu noin 350 henkeä.

6 Katko 2016, 2000.

7 Katko et al., 2025, 73 (DMWS)

Taulukko 1. Petri Juutin kirjoittamat tietokirjat vuodesta 1990 vuoden 2026 maaliskuuhun mennessä. Useimmat näistä ovat ladattavissa sivulta: <https://www.cadwes.com/publications/books/>

Julkaisu-vuosi	Kaupunki kohde	Teoksen nimi	Kustantaja	Sivumäärä	Kirjoittajat	Muuta
1990	Suomi	Miksi Ryti erosi?	Tampereen yliopisto	79	PJ	
1993	Suomi	Suomen palotoimen historia	SAM		PJ	
1998	Tampere	Ernomane vesitehdas - Tampereen vesilaitos 1835–1998	Tampereen kaupungin vl	307	PJ, TK	Summary, Sammandrag
2000	Hämeenlinna	Terveyden ja ympäristön tähden – Hämeenlinnan vesilaitos 1910–2000	Hämeenlinnan vl	216	PJ, TK, RR	Summary, Sammandrag
2001	Tampere	Kaupunki ja vesi, väitöskirja	KehräMedia	283	PJ	
2003	Kangasala	Luonnollisesti vettä. Kangasalan vesilaitos 1952–2002	Kangasalan vl	201	PJ, KÄ, TK	Summary
2003	Porvoo	Aqua Borgoensis: Lähteet kertovat- Källorna berättar	Porvoon vl	467	PJ, RR, TK	Suomeksi Ruotsiksi
2004	Pääosin Suomi	From a Few to All: long-term development of water and environmental services in Finland	KehräMedia	176	PJ, TK	pääosin caseja
2005	EU	Water, Time and European cities. History matters for the futures	13 maata, 29 kaupunkia	253	PJ, TK	IWA PR Award 2006
2005	Suomi pääosin	Kaivot ja käymälät. Brief History of Wells and Toilets. Inc.	KehräMedia	160	PJ, KW	160 kuvaa
2005	Suomi	SINISTÄ PUNAISTA MUSTAA - Näkökulmia Suomen 1930-40-lukujen poliittiseen historiaan	Tampere University Press	175	PJ	
2006	Vaasa	Vaasan Vedet. Vasa och dess Vatten	Vaasan vl	530	PJ, TK	Suomeksi Ruotsiksi Summary
2007	Vantaa	Virtojen Vantaa. Vantaan Veden historia	Vantaan Vesi		PJ, RR	HSYn osaksi 2010

Vesi, yhteistyön voiteluaine

2007	Espoo	Veden Vuosisata. Espoon vesihuolto 1930-luvulta 2000-lu- vulle	Espoon vesi		PJ, RR	HSYn osaksi 2010
2007	Maailma	Governance in Water Sector: Comparing development in Kenya, Nepal, South Africa and Finland	Tampere University Press		PJ, TK, HM, EN, SR, HV	E-kirja
2007	Tampere	Watering the city of Tampere from the mid- 1800s to the 21st century	Tampere Water, IWHA	77	TK, PJ	Linked to IWHA conference
2007	Maailma	Environmental History of Water - Global views on community water supply and sanitation	IWAP	629	PJ, TK, HV	33 kirjoittajaa, 29 lukua
2007	Maailma	Pasts and Futures of Water. Abstract book	IWHA	211	IH, PJ, TK, RR, EV	English only
2008	Maailma	Water: a Matter of Life - Long-term strategic thinking in water ser- vices	KehräMe- dia	193	PJ, TK, RR	caseja ja teemoja
2009	Kajaani	Elämän virta – Kajaanin veden historia	Kajaanin vesi	301	PJ, RR, TK	Summary
2010	Riihimäki	Hyvän veden ja hyvien yhteyksien kaupun- ki. Riihimäen Veden historia	Riihimäen vesi	336	PJ, RR, PP, TK	Summary
2010	Pori	Näkymätönt Porri. Porin veden historia			PJ, TK, SL, RR	Summary
2010	Helsinki	Metropoli ja meri: 100 vuotta jätevedenpuhdis- tusta Helsingissä	HSY	158	PJ, RR, TK	
2011	Hämeenlin- nan seutu	Vinttikaivosta vesiy- htiöön	HS-Vesi	243	PJ, RR	
2011	Maailma	Water fountains in the cityscape	PWHS	76	AH, PJ, TK	
2012	Maailma	Water fountains in the worldscape	IWHA, KehräMe- dia	222	AH, PJ, TK	
2012	Vaasa	Yhteistyöllä voimaa. EPV 1952–2012	EPV Ener- gia Oy	224	PJ, RR	

2013	Maailma	Water Services Management and Governance: Past Lessons for a Sustainable Future	IWAP	196	TK, PJ , KS, RR	useita kirjoittajia
2013	Kurikka	Vesi ei jouda seisomaan. Kurikan vesihuollon historia.	Kurikan Vesihuolto Oy	272	PJ , RJ	
2015	Helsinki	Valkea kaupunki – mustat vedet	Tampere University Press	301	PJ	
2017	Suomi	Sata vuotta vesihuoltoa Suomessa	TamPub	288	PJ , TK, RR	11 casea
2017	Pääkaupunkiseutu	Historian hajuista tuok-sijien tulevaisuuteen	Tampere University Press	277	PJ	
2019	Global	Resilient water services and systems: the foundation of well-being	IWAP		PJ , HM, RR, KS, CS	useita kirjoittajia
2021	Suomi	Monimuotoinen vesihuolto	VEPATUKI	200	PJ	
2021	Tampere	Tampere ja vesi	VEPATUKI	548	PJ	
2022	Seinäjäki	Parhaaseen pohjave-teen ja tehokkaaseen jätevesihuoltoon – 100 vuotta Seinäjoen Veden historiaa	Seinäjoen Energia Oy	123	PJ , RJ, TK	
2022	Suomi	Vesihuollon myytit	Vastapaino	213	TK, PJ , RJ	
2023	Suomi	Vesihuoltolaitosten fyysisen omaisuuden kokonaisvaltainen hallinta	VEPATUKI	112	PJ	
2025	Kurikka	Meidän vesi: Kurikan Vesihuolto Oy:n historia.	Kurikan Vesihuolto Oy		PJ , RJ	
2025	Maailma	Dispelling Myths about Water Services	IWAP	194	TK, JH, PJ , RJ, EN	

HS-Vesi = Hämeenlinnan Seudun Vesi Oy

HSY = Helsingin seudun ympäristöpalvelut

IWAP = IWA Publishing

IWHA = International Water History Association

PWHS = Public Works Historical Society

SAM = sisäasiainministeriö

SDL = Suomen dosenttiliitto

vl = vesilaitos

Suomen vesihuoltolaitosten kehityskaaria on Petrin johdolla tutkittu aiemmin mainittujen jälkeen muun muassa Vaasassa. Tampereen vesilaitoksesta teimme englanninkielisen analyysin vuonna 2007 pitämäämme kansainvälisen vesihistorian seuran (IWHA) 5. konferenssiin jaettavaksi kaikille osanottajille. Petri toimi kyseisen järjestön hallituksessa vuosina 2009–17 ja sen presidenttinä vuosina 2017–19. Porin vesilaitoksen historia julkaistiin keväällä 2010 (kuva 2) ja Helsingin jätevedenpuhdistuksen historia samana vuonna. Tätä seurasivat Hämeenlinnan seudun, Kurikan ja Seinäjoen vesihuollon historioteokset. Vesihuollon lisäksi Petri tutki Riikan kanssa energia-alalta Etelä-Pohjanmaan Voima Oy:n kehitystä.

Kaikista tutkimushankkeista olemme tietokirjojen tai loppuraporttien lisäksi pyrkineet tekemään vertaisarvioidun artikkelin kotimaiseen tai kansainväliseen lehteen. Teokseen ”From a Few to All (2004)” kokosimme lähinnä case-hankkeita. ”Water, Time and European cities. History matters for the futures” teos puolestaan syntyi EU-hankkeessa Watertime⁸, jota koordinoi Greenwichin yliopisto PSIRU-ryhmä. Siinä pohdimme 29 vesihuoltolaitoksen pitkän aikavälin kehitystä ja mm. veden ominaiskäytön kehitystä sekä julkisen ja yksityisen sektorin yhteistyötä. Tässä ja monessa muussa kansainvälisessä hankkeessa syntyy perspektiiviä ja näkemystä siihen, kuinka vesihuollon järjestely- ja tuotantovastuut vaihtelevat eri maissa olosuhteiden mukaan.

Idea tutkia suihkukaivoja julkisessa tilassa syntyi Petrin kanssa keskustellessa IWHAn konferenssissa Alexandriassa Egyptissä joulukuussa 1993. Katselimme kadun toisella puolella olevaa suihkulähdettä ja aprikoimme, onkohan niistä tehty hyvää ja kattavaa esitystä. Kun sellaista ei löytynyt, päätimme tehdä sellaisen. Aineiston keräyksessä tosin kului useita vuosia. Kun lähetimme käsikirjoituksen vuorollaan monelle kansainväliselle kustantajalle, saimme usein samankaltaisen vastauksen: ”mielenkiintoinen hanke, mutta ei sovi meidän julkaisuprofiiliin”. Tuntuu kummalliselta, kun kustantajat tuntuivat etukäteen sementoineen julkaisuprofilinsa. Kirja ”*Water Fountains in the Wordscape*” julkaistiin lopulta vuonna 2012.

8 <https://blogs.gre.ac.uk/psiru/watertime/>



Kuva 2 Porin vesilaitoksen historiategoksen julkistamistilaisuus Kaanaan vesitornissa 27. toukokuuta 2010. Vas. Ilkka Mikkola, Petri Juuti, Sirpa Mannila, Riikka Juuti, Sami Louekari, Osmo Seppälä ja Osmo Purhonen.

Petrin aloitteesta teimme ensimmäisen IWA Publishing'n (IWAP) kustantaman teoksen *"Environmental History of Water"*, joka julkaistiin vuonna 2007 sopivasti pitämämme kansainvälisen konferenssin yhteydessä (kuva 3). Petri pyysi hankkeeseen yli 30 kirjoittajaa kaikkialta maailmasta ja se onnistui yli odotuksen. Sen jälkeen on IWAPn kautta julkaistu useampia yhteisteoksia: *Water Services Management and Governance* 2013, *Resilient water services and systems* 2019 sekä *Dispelling Myths about Water Services* 2025.

Osana Suomen satavuotisjuhlavuotta 2017 teimme kokoavan teoksen "Sata vuotta vesihuoltoa Suomessa". Vesihuollon myyteistä teimme porukalla ensin suomenkielisen teoksen vuonna 2022 ja sen pohjalta laajennetulla kirjoittajaryhmällä laadimme aiheesta uuden, englanninkielisen teoksen kansainvälisille lukijoille.



Kuva 3. Environmental History of Water -teoksen julkistaminen Tampereella 13. kesäkuuta 2007. Vas. Iikka Syväanne, Harri Mäki, Petri Juuti, Heikki Vuorinen, Johannes Haarhoff, Johann Tempelhoff, yksi kirjoittajista ja Riikka Juuti.

Muut ansiot

Petri on yksin tai yhdessä kollegojen kanssa julkaissut runsaat 300 tieteellistä artikkelia. Kotimaassa hän on pitänyt runsaat 40 esitelmää ja kansainvälisissä konferensseissa samoin runsaat 40 esitelmää tai posteria. Dosenttuureja Petrille on myönnetty seuraavasti:

- * Tampereen teknillinen yliopisto (Vesihuollon ja yhdyskuntien infrastruktuurin kehitys) 2017-
- * Turun yliopisto (Suomen historia), 2007-
- * Oulun yliopisto (Tekniikan historia), 2006-
- * Tampereen yliopisto (Ympäristöhistoria), 2004-

Väitöskirjoja Petri on ohjannut ja valvonut viisi kertaa (kuva 4).

Kesällä 2012 perustettiin Tampereen teknilliseen yliopistoon vesihuoltopalveluihin keskittyvä UNESCO-oppituoli. Tuossa vaiheessa UNESCO:n oppituolessa oli vesialalla kaikkiaan 27, kun niitä nykyään on noin 60. Oppituoli myönnettiin kansainvälisen akkreditoinnin pohjalta neljäksi vuodeksi.



Kuva 4. Väitöksen jälkeen 31. lokakuuta 2025. Vas. kustos Petri Juuti, vastaväittäjät professori Kirsti Korkka-Niemi (GTK) ja TkT Miimu Airaksinen (Metropolia) sekä väittelijä Japheth Koros.

Kun haimme sille jatkoa, tuli Petri ns. Co-Chairiksi 2017–20 ja vastaavasti vuodesta 2020 lähtien oppituolin haltijaksi. Vaikka oppituoli ei sinänsä tuo resursseja, sen kautta on kuitenkin saatu lisää näkyvyyttä ja laajennettu erityisesti kansainvälistä yhteistyöverkostoa (kuva 5).⁹

Petri Juuti ja Riikka Juuti ottivat vastuun CADWES-tutkimusryhmän vedosta, kun jäin eläkkeelle loppuvuodesta 2019. Petri ryhtyi pian ideoimaan yhdessä noin 10 vesihuoltolaitosten kanssa yhteistä tutkimusklusteria VEPATUKI¹⁰, jossa keskitytään vuoden ajaksi yhteisesti sovittuun teemaan (Taulukko 2). 3. Muita Petri johtamia tutkimushankkeita ovat olleet:

- * Suomen Kulttuurirahaston tukema Argumenta -seminaarisarja 2011–13
- * Suomen Akatemia (mukana hankkeissa SYTTY, GOWLOP, AKVA, REWAGONS)

9 CADWES - UNESCO Chair <https://www.cadwes.com/unesco-chair/>

10 <https://www.cadwes.com/vepatuki/julkaisut-vepatuki/>; <https://www.cadwes.com/vepatuki/julkaisut-vepatuki2/>



Kuva 5. UNESCO-oppituolin vuosikonferenssi kesäkuussa 2018.

Taulukko 2. Petri Juutin kirjoittamat tietokirjat osana VEPATUKI-tutkimusklasteria vuodesta 2021 lähtien.

Julkaisu-vuosi	Kaupunki kohde	Teoksen nimi	Kustantaja	Sivumäärä	Muuta
2021	VEPATUKI	Monimuotoinen vesihuolto	Kehrä-media	200	monialayritykset
2023	VEPATUKI	Vesihuoltolaitosten fyysisen omaisuuden kokonaisvaltainen hallinta	Kehrä-media	114	ikäntyvän infran haaste
2024	VEPATUKI	Vesihuollon johtaminen ja kehittäminen	Kehrä-media	80	vesihuoltolain uudistus, varautuminen
2025	VEPATUKI	Vesihuollon regulointi ja sen tarve Suomessa	Kehrä-media	106	& Juuti R.

Petri Juutille on myönnetty seuraavat tunnustukset ja palkinnot:

- 2019 Hubei University, China 2019- , Guest Professor
- 2011 Tampereen seudun dosenttiyhdistys, Vuoden dosentti
- 2008 ja 2006: International Water Association, Best scientific book: “Highly commended”
- 2007 Suomen vesiyhdistys, kirjoittajapalkinto
- 2005 ja 2003 Miskolcin yliopisto, Unkari, opintojen ohjaaja.

Petri ja Riikka Juuti ovat myös ansiokkaasti jatkaneet vuodesta 2009 alkanutta täydennyskoulutusohjelmaa VETO – Vesihuollon johtaminen ja kehittäminen. Kevääseen 2026 mennessä ohjelmaan on osallistunut kaikkiaan 135 vesihuoltoalan asiantuntijaa. Pitkäaikaisin tutkimusryhmämme kurssi ”Water and Society” on osaltaan Petrin suunnittelema ja ideoima ja edelleen kurssitarjonnassa. Petri on myös ollut toteuttamassa useampaa Nordforskin tukemaa tutkijakoulutuskurssia vuosina 2001, 2005, 2007 sekä 2012–14.

Vuodesta 2011 Petri on vierailut useita kertoja Etelä-Afrikan yliopistoissa ja toiminut siellä seuraavasti: Extraordinary Professor at North-West University, South Africa 2013-2016 3/4; Visiting Professor at University of Johannesburg, South Africa, July-August 2007, September-October 2009 and October-December 2010 & 2013; Visiting Professor at North-West University, South Africa, May-July 2011 and October-December 2012.

Omasta puolestani voin todeta, että on ollut hienoa saada tehdä moni- ja poikkitieteistä tutkimusta ja myös opetusta Petri Juutin kanssa. Olen useamman kerran havainnut, kuinka Petrin tapa kirjoittaa ja tehdä tutkimusta eroaa välillä paljonkin tavoista, joihin itse olen tottunut. Tämä ei kuitenkaan ole este yhteistyölle – pikemminkin päinvastoin. Yhdistettynä tulevaisuuden tutkimukseen, jota myös ryhmässämme harrastetaan, voidaan saada sellaisia tuloksia, joita yksin tutkimalla tuskin voitaisiin saavuttaa. Oma arvonsa on myös tulla tuntemaan ja arvostamaan muita tieteenaloja ja niiden lähestymistapoja.



United Nations
Educational, Scientific
and Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

联合国教育、
科学及文化组织

منظمة الأمم المتحدة
للتربية والعلم والثقافة

UNITWIN/UNESCO Chairs Programme

Prof. Keijo Hämäläinen
President
Tampere University
Korkeakoulunkatu 5
33720 Tampere
Finland

Ref: ED/FLI/23/359

08 December 2023

Subject: Validity of the Agreement of the UNESCO Chair in Sustainable Water Services, Tampere University, Finland (ID 2012FI0973)

Dear President,

We wish to refer to your request for the renewal of the Agreement between UNESCO and Tampere University concerning the UNESCO Chair in Sustainable Water Services, established in May 2012. I am pleased to inform you that the above-mentioned Agreement shall remain valid until 30 June 2028.

A new standard UNESCO Chair logo is enclosed for the use of this Chair in all multimedia materials, social media, websites, brochures and other materials and documents, including when materials are re-printed and/or re-produced. Guidance on the use of the new logo is outlined in the revised [UNITWIN/UNESCO Chairs Programme guidelines and procedures](#) (March 2022).

Moreover, please note that all promotional and information materials published by the Chair or the Host Institution, bearing the UNESCO Chair logo (example: pamphlets and other electronic documents) should bear the disclaimer:

"The designations employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The ideas and opinions expressed in this publication are those of the authors; they are not necessarily those of UNESCO and do not commit the Organization."

We invite you to consult the above-mentioned [UNITWIN/UNESCO Chairs Programme guidelines and procedures](#), regarding some changes in terms of administrative procedures. Should the University wish to continue to host the abovementioned UNESCO Chair, a formal request is to be submitted to UNESCO **by 31 December 2027, or six months before the end of the validity of the current agreement through the dedicated online platform**. The renewal of the Chair may require the signature of a new agreement.

To ensure that all UNESCO Chairs and Networks are contributing to UNESCO's programme and priorities, a revised set of criteria will be used in the evaluation of requests for renewal, as published in Annex B of the revised guidelines.

The Chair is encouraged to continue its engagement with UNESCO and to explore opportunities, notably with the Sector on Natural Sciences and with other UNESCO Chairs and Networks. A database of the programme members is updated regularly on the [UNITWIN Programme webpage](#).

Finally, I invite the Chairholder and the Chair's team to contact the designated focal points, Ms Sarantuyaa Zandaryaa (e-mail: s.zandaryaa@unesco.org) and Mr Patrice Moix (e-mail: p.moix@unesco.org), Groundwater Sustainability and Water Cooperation Section, to seek out additional partnership prospects.

For all other issues, please contact the UNITWIN Programme team at unitwin@unesco.org.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Sobhi Tawil', with a horizontal line underneath.

Sobhi Tawil (PhD)
Director
Future of Learning and Innovation

聘

LETTER OF A

兹聘任
Juuti, Petri Sakari
为湖北大学
客座教授

聘期：3年（2019年5月~2022年4月）



校长 谢红星

湖大客聘字第 20190006 号

书

APPOINTMENT

Hubei University



This is to appoint
Prof. Juuti, Petri Sakari,
as Guest Professor
of Hubei University
on the day of 8th May 2019

President of Hubei University



Elise, Johann and Petri 2025.



Petri Juuti - Distinguished Visiting Professor

Johann Tempelhoff

Amongst Global North scholars working in the field of water history, Petri Juuti is synonymous with a broad focus on water studies. In many respects he is an exemplary practitioner of transdisciplinary research.

Starting out first and foremost as a water historian of urban history his study water on, Finland's city of Tampere's in 2005, is youthful scholarship of a high standing. It soon caught the attention of engineers, such as Tapio Katko – a prolific water engineer with a keen interest in history and a major track record in UN related fieldwork and research in Africa.

As Katko and Juuti started collaborating in a variety of fields in water studies Juuti developed a keen interest in the African countries of the Global South and matters of water management. Especially in the democracies of East and Southern Africa, the Tampere water scholars were instrumental, especially in the field of engineering and management, to help African students in Tampere to study, under sound supervision in the field of modern engineering, management and environmental research.

Petri, in his early works focused a lot on the cultural history of water in the Finnish realm. It was important. He was able to reimagine the Finnish past in the confines of the household and the role water played in the rural household. His colleague, Tapio, was familiar with urban municipal water, its infrastructure, management and maintenance. In the confines of CAD-WES, Juuti, whilst working at the University of Tampere, also engaged with colleagues at the Tampere University of Technology. It was here where he honed his skills in transdisciplinary research.

Later, once Petri married his wife and colleague Riikka, the team were able to conduct several important research projects on municipal water and sanitation, management and engineering.

Personally Petri and I became friends and colleagues in the early 2000s, thanks to UNESCO's growing interest in the international history of water. It was at the International Water History Association (IWHA) where Petri, Riikka and I, in the organisation's council for several years. Coming from the Global South their collegiality was valuable to me. As an African, I enjoyed their typical Finnish humour and collegial engagements on several research and teaching projects. The Juutis meanwhile also discovered the sunshine and the plains of Africa, where snow and severe cold temperatures were the exception to the rule. They also discovered South Africa's Kruger National Park, and Africa's most famous city, Cape Town.

Besides engaging with South African colleagues, the Juutis also provided guidance to their postgraduate students, from Africa, working on water and sanitation management and engineering topics in various parts of the continent. The research produced by these African students (fluent in Finnish and English) has, up to the present, contributed substantially to dealing with many critical water issues in many parts of Africa.

A striking feature in Petri's academic work is the fact that he has maintained an important focus on Finland. What was learnt at the time of African fieldwork about indigenous societies in the young states of Africa, were often applied in their research on Finnish water and sanitation matters. Their focus on water management, engineering and history transcended the boundaries of Global North and South scholarship.

As friends of my wife and I, Riikka and Petri, have travelled with us to Lesotho, southern Africa's mountain water Kingdom, as well as Madagascar. Sharing African experiences with the Juutis were most pleasant for all.

Whilst visiting Finland, my wife, Elise, and I learnt a lot about Finland – an exemplary state in the northern parts of Europe. We got to learn a lot about Finnish customs and the way of life of a people who are said to be the world's happiest nation. Finnish history is dear to Petri. His family's his-



Water transport (Johann T.)

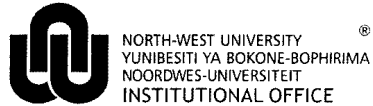
tory has left deep footprints in the eastern parts of Finland where Finnish nationalism was of functional importance to maintain customs, based on Western standards, such as a liberal democracy and a deep respect for the country's history.

As friend, Patri's love of running, especially marathons, in many parts of the world, has also constantly inspired me to also enjoy my physical training and the sound opportunities for making more friends through the channels of sporting activities.

Amongst academics at several South African universities, Petri and Riikka, have built up ties of long-standing friendship. They are also respected for their valued insights on local water problems, and how similar trends, especially in the fields of water and sanitation in urban areas, can be resolved by taking note of many of Europe's mid-sized countries.

Johann Tempelhoff, Extraordinary professor in the, research Focus Area for Social Transformation, Faculty of Humanities, at North-West University's Vaal Campus in Gauteng South Africa.

2026.03.16.



Private Bag X1290, Potchefstroom, South Africa, 2520
Tel: 018 299-4900
Fax: 018 299-4910
Web: <http://www.nwu.ac.za>
Human Capital Operations
Tel: 018 299-4806
Fax: 018 299-4800
Email: mariana.strydom@nwu.ac.za

STRICTLY CONFIDENTIAL

Prof PS Juuti
School of Basic Sciences
Internal Box 125
NWU

6 May 2014

Dear Prof Juuti

EXTRAORDINARY APPOINTMENT

It is a pleasure to inform you that it has been decided to appoint you as Extraordinary Professor in the School of Basic Sciences at the Vaal Triangle Campus of the North-West University.

The Director, Prof TC Rabali, will discuss and arrange with you your part in the activities of the School of Basic Sciences.

We would like to draw your attention to the following terms of the nomination:

The term of nomination is from 1 November 2013 to 31 October 2016. You are nominated for a term of three years and the Council may at the recommendation of the School of Basic Sciences nominate you for a further term of three years. You or the Council may terminate your nomination with one calendar month's mutual notice. When your nomination is terminated for any reason whatsoever, you may no longer use any academic title to which you were entitled in terms of your nomination.

You are nominated to participate actively in the training of undergraduate and, in particular, postgraduate students in the School of Basic Sciences and may also be involved in the evaluation/assessment of students. You will receive your instructions in this regard from the Director of the School of Basic Sciences.

You may further, at the discretion of and in consultation with the director, in accordance with the decisions of the Council, the Senate and the relevant regulations, actively participate in the activities of the School of Basic Sciences.

You will not receive membership of a Faculty Board or the Senate of the University in terms of your appointment. You do not acquire the right or capacity to represent or commit the North-West University in any way to external parties as a result of your nomination.

You may when so requested attend the meeting of a Faculty Board or the Senate of the University in an advisory capacity.

You may indicate your affiliation to the North-West University during your term of nomination and it is advantageous for the University should you do so in any publication that you may author or co-author.

You are not obliged to make an inaugural speech, but the relevant Director may in consultation with you arrange that upon acceptance of this nomination you will give a public lecture, to be dealt with within the School of Basic Sciences.


Remuneration, where relevant, takes place per day in accordance with the prescribed tariff, as determined from time to time by the Council. Travel costs, supervisor's fees, study leader's fees and examiners' fees, where relevant, will be paid in accordance with the prescribed tariff.

Confidential information with regard to university matters must be dealt with as such.

We would like to extend a hearty word of congratulations to you on your nomination and would appreciate receiving written confirmation from you should you accept the nomination by completing and returning the attached acceptance and personal information forms.

May you be blessed in your work.

Yours sincerely


PP MASHUDU MUNDALAMO
DIRECTOR: HC OPERATIONS



Prof. Johann Tempelhoff
Extraordinary Professor
Research Niche for the Cultural
Dynamics of Water
Email: johann.tempelhoff@nwu.ac.za
Mobile/Whatsapp: +27825629510
PO Box 1174, Vanderbijlpark
South Africa 1900
Admin. communications: 016 910-
3111
Web: <http://www.nwu.ac.za>

23 July 2024

Professor Petri Juuti
UNESCO Chair
Tampere University
Tampere
Finland

Dear Prof Juuti,

INVITATION TO THE RESEARCH GROUP FOR THE CULTURAL DYNAMICS OF
WATER IN SOUTHERN AFRICA (CUDYWAT), AT NORTH-WEST UNIVERSITY,
AS VISITING RESEARCH PROFESSOR

I am pleased to note the shared research interest between you and our
Research Group for the Cultural Dynamics of Water in Southern Africa
(CuDyWat).

Your research niche sits at the interface between water governance, water
engineering, water management and the historical precedents that brought
us to where we are today — issues that are crucial for the developing South
Africa. My research group encourages such collaboration.

As discussed earlier, also our research colleagues in Public Management,
specializing in Afrocentric Governance of Public Affairs (AGOPA) will be
partnering in the collaboration.

I therefore herewith invite you to spend some time as visiting research
professor in the CUDYWAT, at North-West University.

I understand that your research could possibly bring you to South Africa
during the years 2024-2030, and this invitation remains valid during these
periods.

We wish you success with your ongoing research endeavours.

Prof. Johann Tempelhoff
Extraordinary Professor
North-West University
South Africa

Johann
Tempelhoff

Digitally signed by
Johann Tempelhoff
Date: 2024.07.23
10:56:17 +02'00'



Kirjallisuuspalkinto

Petri Juuti

*Suomen Vesiyhdistys ry luovuttaa
tunnustuksena vesialaa edistävästä
julkaisutoiminnasta*

Helsinki 22.3. 2007

Puheenjohtaja

Sihteeri

Vuodet vierivät: veden merkitys ihmiskunnalle vain korostuu

Heikki S. Vuorinen

On ilo kirjoittaa Petri Juutin juhlakirjaan omia muisteloitani. Tutustuin Petriin vuosituhannen vaihteessa. Vasta nyt voin täysin hahmottaa tämän kohtaamisen perustavanlaatuista merkitystä minulle. Tutustuminen Petriin mahdollisti minulle myös tutustumisen toiseen merkittävään veden historiaa tutkivaan henkilöön, Tapio Katkoon. He osoittivat minulle lopullisesti todeksi tosiasian, että hyvälaatuinen juomavesi on ollut yksi keskeisimmistä tekijöistä, jotka ovat taanneet ihmiskunnan selviytymisen kautta aikojen.

Muistan Petrin taidot ja optimismin, kun minulla oli tilaisuus yhdessä hänen ja Tapion kanssa toimittaa vuonna 2007 ilmestynyttä *Environmental History of Water -Global views on community water supply and sanitation* -kirjaa, johon näkee edelleen viitattavan. Tämän jälkeenkin yhteistyöni Petrin kanssa jatkui enemmän tai vähemmän satunnaisesti. Erityisen merkittävää minulle oli, että hänen kauttaan sain yhteyksiä antiikin vesihuoltoa tutkineisiin kreikkalaisiin, minkä tuloksena ilmestyi viimeinen yhteinen artikkelimme vuonna 2021: *Water quality and life expectancy : Parallel courses in time*.

Muistan Petrin paitsi väsymättömänä vesihistorian eri alueita tutkivana työmyyränä, myös hyvin monipuolisena ihmisenä. Hän hallitsee niin kirjojen painamisen kuin juoksemisen salat. En voi myöskään unohtaa sitä

verkostoitumisen laajuutta ja kansainvälisiä yhteyksiä, mitä Petrillä on. Aikana, jolloin epäluottamus ja syrjintä lisääntyvät Petrin työ Afrikan vesihuollon parsissa on ikimuistettavaa rikkoessaan Euroopan ja Afrikan välisiä rajoja. Ilmastomuutoksen edetessä tarve löytää ja turvata puhdasta juomavettä kasvavalle ihmiskunnalle aina vain kasvaa. En voi muuta kuin toivoa Petrille voimia ja terveyttä jatkaa työtään veden historian ja nykyisyyden eri puolien parissa.

Heikki S. Vuorinen

Professori h.c., LKT, lääketieteen historian dosentti HY ja TaY



O K L E V É L

Dr. Petri Juuti

részére

*A MISKOLCI EGYETEM HALLGATÓINAK 2003. ÉVI
TUDOMÁNYOS DIÁKKÖRI KONFERENCIÁJÁN*

Pál Viktor

hallgató(k) által

ELŐADOTT DOLGOZAT KONZULTÁLÁSÁÉRT

Miskolc, 2003. december hó

[Handwritten signature]

(Dr. Szabó Miklós)

a Tudományos Diákköri Tanács elnöke

[Handwritten signature]

(Dr. Besenyei Lajos)

rektor

Dear Petri,

Receive our warmest congratulations on your 60th Birthday! You have already inspired so many in the research world, written much, and, more importantly, stretched many on the track!!! Lastly, 60 is a great achievement, but its far from sunset, its perhaps time for new tyres!

Blessings, from Carlyne, David, Kayla, Serah and I (Japheth).



Onnittelut VEPATUKI- klusterin vetäjälle

Onnittelut Petrille hienosta urasta vesihuollon historioitsijana VEPATUEn puolesta! Vesihuollon tärkeitä tietoja ja tapahtumia on saatu meille ja tuleville sukupolville tiedoksi ja talteen. Kirjoittamiasi artikkeleita ja tuloksia on ilo lukea ja tutkia!

Tutkimusklusterin myötä olemme oppineet uusia näkökulmia vesihuollon asioihin ja ilmiöihin. Myös kansainvälistä näkemystä on tuotu meille ja julkisuuteen, verrattavaksi niin tuttuun ja turvalliseen. Yhdessä toki haluamme vesihuollon sellaisena säilyvänkin. Vesihuolto onkin ehkä kuin maraton-juoksu, sitkeys tuo parhaat tulokset.

VETO-koulutuksen myötä monet vesihuollon päättäjät ovat oppineet ymmärtämään alaa syvällisesti ja löytäneet sen kaverin, jolle kilauttaa. Myös Petri, sinä olet sellainen. Onnea vielä!

Anna Halinen

Toimitusjohtaja

Huittisten Puhdistamo Oy

VEPATUKI-klusteri

Onnittelut 60-vuotiaalle!

Juha Kotiranta

Toimitusjohtaja

Kurikan Vesihuolto Oy

VEPATUKI-klusteri



FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT
Office of the Executive Dean: Prof. T. Marwala

Executive Secretary
Rita Maritz, Tel. 011-5592114 or 6165, Fax. 011-5592054, ritam@uj.ac.za

June 2009

Dr Petri Juuti
Department of History
University of Tampere
Tampere
Finland

INVITATION TO THE UNIVERSITY OF JOHANNESBURG

I am pleased to note the research collaboration between yourself and Prof Johannes Haarhoff from the Department of Civil Engineering Science at the University of Johannesburg. My faculty is keen to establish the collaboration further and I therefore invite you to spend some time during the second half of 2010 as a visiting professor and researcher in the Faculty of Engineering and the Built Environment at the University of Johannesburg. Prof Johannes Haarhoff will be your host.

Water management is a crucial issue for the future of South Africa. Your pioneering work in Finland on the historical development of water services, the strategic decisions that were made in the past, and how they guide and constrain our future options, is of great interest and importance to us. The soon to be completed study of the early development of the water supply systems of Cape Town, Grahamstown, Durban and Johannesburg, as well as the new project on Pretoria, provides promising material for the application of your hypotheses to South Africa.



Prof T Marwala

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

4 March 2013

Dr Petri Juuti
University of Tampere
Tampere
Finland

Dear Dr Juuti

INVITATION TO THE UNIVERSITY OF JOHANNESBURG

I am pleased to note the research collaboration between yourself and Professor Johannes Haarhoff from the Department of Civil Engineering Science at the University of Johannesburg, and that some joint publications have been produced. My faculty is keen to continue this collaboration and I therefore invite you to spend some more time during the second semesters of 2014-2016 as a Visiting Professor and researcher in the Faculty of Engineering and the Built Environment at the University of Johannesburg. Prof Johannes Haarhoff will be your host.

I wish you success with your ongoing research programme in the area of water history and management.

Yours sincerely



Prof T Marwala
Executive Dean
FACULTY OF ENGINEERING AND
THE BUILT ENVIRONMENT



CV Petri S. Juuti

UNESCO Chair in Sustainable Water Services

Guest Professor, Hubei University, China

Visiting Research Professor, North-West University, South Africa

Docent/Associate Professor In Development of Water Services and Municipal Infrastructure (University of Tampere),

Environmental History (University of Tampere),

History of Technology (Oulu) and Finnish History (Turku)

<https://orcid.org/0000-0002-1387-7237>

Build Environment

Tampere University

PO Box 600, FI-33014 Tampere

Finland

petri.juuti@tuni.fi

p.+ 358 50 447 8805

Petri Juuti

Tutkimuspäällikkö, Rakennetun ympäristön tiedekunta

FT, dosentti (TTY, TAY, Oulu, Turku)

PL 600

33014 TAMPEREEN YLIOPISTO

petri.juuti@tuni.fi

p.+ 358 50 447 8805

Petrin dosentuurit: Vesihuollon ja yhdyskuntien infrastruktuurin kehitys (Tampereen yliopisto), Ympäristöhistoria (Tampereen yliopisto), Tekniikan historia (Oulun yliopisto) ja Suomen historia (Turun yliopisto).

The head of the CADWES and IEHG research teams is historian, UNESCO professor and Associate Professor/Docent in Finnish History (in University of Turku, Finland), Associate Professor in Environmental History (in University of Tampere, UTA, Finland), and in History of Technology (in University of Oulu, Finland). He is currently working in Tampere University and is also visiting research professor in North-West University, South Africa.

Previously he has acted as Head of Publications (2014-15, UTA), Visiting Professor in University of South Africa (2017-21), North-West University (2011, 2012, 2016) and University of Johannesburg (2007, 2009, 2010, 2013), South Africa, Senior researcher in WaterTime -project funded by European Commission, Assistant Professor (2002-2004) and earlier as researcher in University of Tampere, Tampere University of Technology and Ministry of the Interior and has also worked in business life.

His major area of interest is environmental history, especially the interaction between the society and the nature has been in the focus in his research projects. He is also interested in water history, urban environment, city-service development, urban technology, pollution, public policy, political history, development studies, and economic history. He is the author or co author of more than 40 referee articles and over 50 books, few latest ones are *Dispelling Myths about Water Services* (IWAP 2025, London & New York), *Resilient water services and systems*, 2019 (IWAP 2019, London & New York), *Valkea kaupunki, mustat vedet* (2015) *Water Services Management and Governance. Lessons for a Sustainable Future* (2013), *Metropoli ja meri* (2010), *Brief History of Wells and Toilets* (2005), *Water, Time and European Cities* (2005), *Environmental History of Water* (2007), etc.

He has been granted four international and two national awards. He was also an extraordinary professor in the North-West University, South Africa. Now he is guest professor in Hubei University, China and visiting professor in North-West University, South Africa. He was member of the executive council of International Water History Association, IWHA from 2009 to 2017 and President from 2017 to 2019). Hobbies: reading, marathon running (PB 3:12, total number of marathons over 700), movies, travelling.

Publication

A1 Journal article-refereed

Development of Joint Rural Water Services in Finland, 1872–2022

Katko, T. S., Arvonen, V., Juuti, P., Juuti, R. & Nealer, E., 9 Jul 2025, In: *Earth*. 6, 3, 18 p., 76.

Research output: Contribution to journal › Article › Scientific › peer-review

Accelerating Safe Water and Sanitation Access in Urban Periphery and Low-Income Areas: The Case of Kenya

Koros, J. K., Juuti, P. S., Juuti, R. P. & Mutie, J., 4 Jul 2025, (E-pub ahead of print) In: *Public Works Management and Policy*. 28 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Leaving No One Behind: Prospects for User-Owned Urban Water Utilities in Kenya

Koros, J. K., Juuti, P., Juuti, R., Hukka, J. & Asokan, S. M., 2024, In: *Public Works Management and Policy*. 29, 2, p. 231-257 27 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Banca pública colectiva para el bien común en la región nórdica: Collective Public Banking for the Common Good in the Nordic Region

Juuti, P. S., Juuti, R. P. & McDonald, D. A., 2024, In: *Ola Financiera*. 17, 49, p. 126-163 38 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Managing Contested Water: The Case of Fracking in South Africa

Koros, J. K., Juuti, P., Juuti, R. & Manik, S., 11 Sept 2023, In: *Alternation Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa*. 30, 1, p. 103-132 30 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Groundwater Option in Raw Water Source Selection and Related Policy Changes in Finland

Juuti, P. S., Juuti, R. P., Katko, T. S., Lipponen, A. M. & Luonsi, A. O., 7 Jul 2022, In: *Public Works Management and Policy*. 26 p., 1087724X221100554.

Research output: Contribution to journal › Article › Scientific › peer-review

Managing Water and Wastewater Services in Finland, 1860–2020 and beyond

Katko, T. S., Juuti, P., Juuti, R. & Nealer, E., 30 Apr 2022, In: *Earth*. 3, 2, p. 590–613 24 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Boldly boring: public banks and public water in the Nordic region

Juuti, P. S., Juuti, R. P. & McDonald, D. A., 2022, In: *Water International*. 47, 5, p. 791-809

Research output: Contribution to journal › Article › Scientific › peer-review

Governance and Practices for Achieving Sustainable and Resilient Urban Water Services

Laitinen, J., Katko, T. S., Hukka, J., Juuti, P. & Juuti, R., 2022, In: *Water*. 14, 13, 11 p., 2009.

Research output: Contribution to journal › Article › Scientific › peer-review

Resilient Urban Water Services for the 21th Century Society: Stakeholder Survey in Finland

Laitinen, J., Kallio, J., Katko, T. S., Hukka, J. & Juuti, P., 9 Jan 2020, In: *Water*. 12, 1, 12 p., 187.

Research output: Contribution to journal › Article › Scientific › peer-review

Genesis of Water supply and sanitation services in Finland

Rajala, R. P., Juuti, P. S. & Katko, T. S., Apr 2019, In: *Ympäristöhistoria: finnish journal of environmental history*. 8, 1, p. 18-28 11 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Suomen vesihuollon kehitys kansainvälisessä kontekstissa

Katko, T. .. S. & Juuti, P., 2018, In: *Tekniikan Waiheita*. 36, 2, p. 5-24 20 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Sata vuotta vesihuoltoa Suomessa

Juuti, P., Katko, T. S. & Rajala, R., Dec 2017, In: *Vesitalous*. 58, 6, p. 13-15 3 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Vesihuollon ammattilaiset ovat verkostoituneet kautta aikojen

Katko, T. S., Juuti, P. & Rajala, R., Dec 2017, In: *Vesitalous*. 58, 6, p. 16-19 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Editorial: Information to support decision-making

Juuti, P. S., May 2017, In: *Ympäristöhistoria: finnish journal of environmental history*. 2017, 1, p. 5-6

Research output: Contribution to journal › Editorial › Scientific › peer-review

Short Global History of Fountains

Rajala, R. P., Juuti, P. S., Antoniou, G. P., Dragoni, W., El-Gohary, F., De Feo, G., Katko, T. S., Zheng, X. Y., Drusiani, R. & Angelakis, A. N., 2015, In: *Water*. 7, 5, p. 2314-2348 35 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Lähteet Suomen vesihuollossa

Katko, T. & Juuti, P. S., 2014, In: *Vesitalous*. 4, p. 15-18 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Hyvän veden ja hyvien yhteyksien kaupunki - Riihimäen Veden historia

Juuti, P., Rajala, R., Pietilä, P. & Katko, T., 2011, In: *Vesitalous*. 52, 5, p. 36-40

Research output: Contribution to journal › Article › Scientific › peer-review

Private initiatives in Finland and South Africa: Proposals for waterworks by von Nottbeck and Marks

Juuti, P. S., Mäki, H. R. & Rajala, R. P., 2011, In: *Water History*. 3, 1, p. 29-43 15 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Lessons from Finnish Water History

Juuti, P., 2011, In: *Ympäristöhistoria: finnish journal of environmental history*. 2011, 2, p. 33-60

Research output: Contribution to journal › Article › Scientific › peer-review

Integration of water and wastewater utilities

Katko, T. S., Kurki, V. O., Juuti, P. S., Rajala, R. P. & Seppälä, O. T., 2010, In: Journal - American Water Works Association. 102, 9, p. 62-70

Research output: Contribution to journal › Article › Scientific › peer-review

Water and the city

Katko, T. S., Juuti, P. S. & Tempelhoff, J., 2010, In: Environment and History. 16, 2, p. 213-234

Research output: Contribution to journal › Article › Scientific › peer-review

Integration of water and wastewater utilities: A case from Finland

Katko, T. S., Kurki, V., Juuti, P. S., Rajala, R. P. & Seppälä, O., 2010, In: Journal - American Water Works Association. 102, 9, p. 62-70 9 p., 9.

Research output: Contribution to journal › Article › Scientific › peer-review

Shared history of water supply and sanitation in Finland and Sweden, 1860-2000

Juuti, P., Katko, T., Persson, K. M. & Rajala, R., 2009, In: Vatten. 65, 3, p. 165-175

Research output: Contribution to journal › Article › Scientific › peer-review

Writing the history of water services

Katko, T. S., Juuti, P. S. & Rajala, R. P., 2009, In: Physics and Chemistry of the Earth. 34, 3, p. 156-163 8 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Water Services in Espoo, Finland, from the 1930s to the 2000s - positive challenge or burden of history?

Rajala, R. & Juuti, P., 2009, In: E-water. 2009, 1, p. 1-18

Research output: Contribution to journal › Article › Scientific › peer-review

Vaasan Vesi - aina ajan hermolla

Juuti, P. & Katko, T. S., 2007, In: Vesitalous. 4, p. 27-31

Research output: Contribution to journal › Article › Scientific › peer-review

History of water and health from ancient civilizations to modern times

Vuorinen, H. S., Juuti, P. & Katko, T. S., 2007, In: Water Science & Technology: Water Supply. 7, 1, p. 49-57

Research output: Contribution to journal › Article › Scientific › peer-review

Evolution of water and sewerage services in Hämeenlinna, Finland, 1800-2000

Juuti, P. S., Katko, T. S., Rajala, R. P. & Seppälä, O. T., 2007, In: E-water. 2007, p. 19 s 6.

Research output: Contribution to journal › Article › Scientific › peer-review

Many Ps needed for sustainable water services: Expansion of the scope of public-private partnerships

Hukka, J. J., Juuti, P. S., Katko, T. S. & Seppälä, O. T., 2006, In: Public Works Management and Policy. 11, 2, p. 104-109 6 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Revisiting private water proposals and concessions of the 1870 and 1880s in Finland

Juuti, P. S., Katko, T. S. & Hukka, J. J., 2006, In: *Water International*. 31, 3, p. 288-294

Research output: Contribution to journal › Article › Scientific › peer-review

Key long-term strategic decisions in water and sanitation services management in Finland, 1860-2003

Katko, T. S., Juuti, P. S. & Pietilä, P. E., 2006, In: *Boreal Environment Research*. 11, p. 389-400

Research output: Contribution to journal › Article › Scientific › peer-review

For the quality of life evolution of and lessons learnt from water and sanitation services in Porvoo, Finland, 1900-2000

Juuti, P. S., Katko, T. S. & Rajala, R. P., 2005, In: *Natural Resources Forum*. 29, p. 109-119 11 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Water pollution control and strategies in Finnish pulp and paper industries in the 20th century

Katko, T. S., Luonsi, A. A. O. & Juuti, P. S., 2005, In: *International Journal of Environment and Pollution*. 23, 4, p. 368-387

Research output: Contribution to journal › Article › Scientific › peer-review

For The quality of life - Evolution and lessons learnt of water and sanitation services in Porvoo, Finland, 1900- 2000

Juuti, P. S., Katko, T. S. & Rajala, R. P., 2005, In: *Natural Resources Forum*. 29, 2, p. 109-119

Research output: Contribution to journal › Article › Scientific › peer-review

For the quality of live

Juuti, P., Katko, T. & Rajala, R., 2005, In: *Natural Resources Forum*. 2005, 29, p. 109-119

Research output: Contribution to journal › Article › Scientific › peer-review

Vesihuollon historiaa Kapkaupungissa - lyhyt historia 1600-luvulta 2000-luvun haasteisiin

Juuti, P. & Mäki, H., 2005, In: *Vesitalous*. XLVI, 5, p. 43-48

Research output: Contribution to journal › Article › Scientific › peer-review

Historian hallinta on myös tulevaisuuden hallintaa

Juuti, P. & Katko, T., 2004, In: *Vesitalous*. 4, p. 21-23

Research output: Contribution to journal › Article › Scientific › peer-review

An early attempt to privatize - Any lessons learned?

Katko, T. S., Juuti, P. S. & Hukka, J. J., Jun 2002, In: *Water International*. 27, 2, p. 294-297 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

An Early Attempt to Privatize - Any Lessons Learnt?

Katko, T. S., Juuti, P. S. & Hukka, J. J., 2002, In: *Water International*. 2002. Vol. 27, no. 2., p. 294-297

Research output: Contribution to journal › Article › Scientific › peer-review

From polluted to swimmable waters: Tampere city water and sewage works, 1835-1998

Juuti, P. & Katko, T., Sept 1999, In: *Water International*. 24, 3, p. 204-210 7 p.

Research output: Contribution to journal › Article › Scientific › peer-review

Tampereen vesi- ja viemärlaitostoiminnan historia

Juuti, P. & Katko, T. S., 1999, In: Vesitalous. 1, p. 3-5

Research output: Contribution to journal › Article › Scientific › peer-review

From Polluted to Swimmable Waters: Tampere City Water & Sewer Works, 1835-1998

Juuti, P. S. & Katko, T. S., 1999, In: Water International. 24, 3, p. 204-210

Research output: Contribution to journal › Article › Scientific › peer-review

Vesihuollon 10 000 vuotta

Juuti, P. & Katko, T., 1999, In: Tekniikan Waiheita. 17, 4, p. 43-61

Research output: Contribution to journal › Article › Scientific › peer-review

From Polluted to Swimmable Water

Juuti, P. & Katko, T., 1999, In: Water International. Volume 24, Number 3, p. 204-210

Research output: Contribution to journal › Article › Scientific › peer-review

A2 Review article in a scientific journal

Water-Driven Music Technologies through Centuries

Valipour, M., Briscoe, R., Falletti, L., Juuti, P., Katko, T. S., Rajala, R., Kumar, R., Khan, S., Chnaraki, M. & Angelakis, A., 2021, In: J — Multidisciplinary Scientific Journal. 4, 1, p. 1-21 22 p.

Research output: Contribution to journal › Review Article › peer-review

Water quality and life expectancy: Parallel courses in time

Angelakis, A. N., Vuorinen, H. S., Nikolaidis, C., Juuti, P. S., Katko, T. S., Juuti, R. P., Zhang, J. & Samonis, G., 2021, In: Water. 13, 6, 752.

Research output: Contribution to journal › Review Article › peer-review

Rehabilitation of aging urban water systems: Strategic thinking required

Katko, T. S., Hukka, J. J., Juuti, P. S. & Rajala, R. P., 1 Jul 2018, In: Geosciences. 8, 7, 8 p., 230.

Research output: Contribution to journal › Review Article › peer-review

Vesi, ongelma ennen ja nyt?

Juuti, P., May 2017, In: Ympäristöhistoria: finnish journal of environmental history. 2017, 1, p. 54-65

Research output: Contribution to journal › Review Article › peer-review

Local narratives in the long term water conflicts: Case of Turku Region in Finland

Juuti, P. S., Kurki, V. & Rajala, R., May 2017, In: Ympäristöhistoria: finnish journal of environmental history. 2017, 1, p. 39-49

Research output: Contribution to journal › Review Article › peer-review

Sata vuotta Suomen suurimmasta lavantautiepidemiasta

Juuti, P. & Rajala, R., 2017, In: Vesitalous. 2017, 1, p. 12-14 3 p.

Research output: Contribution to journal › Review Article › peer-review

Valkea kaupunki, mustat vedet

Juuti, P. & Rajala, R., 2017, In: Vesitalous. 2017, 1, p. 15-17 3 p.

Research output: Contribution to journal › Review Article › peer-review

Water fountains in Tampere, Finland

Juuti, P., 2015, In: *Ympäristöhistoria: finnish journal of environmental history*. 2015, 1, p. 37-44
Research output: Contribution to journal › Review Article › peer-review

Water supply and sanitation services in finland before world war 2

Juuti, P. & Katko, T., 2014, In: *Flux*. 97-98, 4, p. 80-87 8 p.
Research output: Contribution to journal › Review Article › peer-review

A Case for Strong Municipal Governance: The Water Supply of Pretoria 1855-1935

Haarhoff, J., Juuti, P. & Mäki, H., 2012, In: *South African Historical Journal*. 64, 4, p. 769-786 18 p.
Research output: Contribution to journal › Review Article › peer-review

Hei hei (viimeinenkin) akateeminen vapaus

Juuti, P., 2012, In: *Ympäristöhistoria: finnish journal of environmental history*. 2012, 2, p. 4-5 2 p.
Research output: Contribution to journal › Review Article › peer-review

Bye bye (what little was left of) academic freedom

Juuti, P., 2012, In: *Ympäristöhistoria: finnish journal of environmental history*. 2012, 2, p. 4-5 2 p.
Research output: Contribution to journal › Review Article › peer-review

Early Experiences of Sanitation in South African and Finnish Cities

Juuti, P. & Mäki, H., 2011, In: *Ympäristöhistoria: finnish journal of environmental history*. 2011, 1, p. 52-67 15 p.
Research output: Contribution to journal › Review Article › peer-review

Kokemuksia ja havaintoja ympäristöhistorian tutkimuksesta 2000-luvulla

Juuti, P., 2011, In: *Ympäristöhistoria: finnish journal of environmental history*. 2011, 1, p. 4-5 2 p.
Research output: Contribution to journal › Review Article › peer-review

Globaali katsaus ympäristöhistoriaan

Juuti, P., 2011, In: *Historiallinen Aikakauskirja*. 109, 4, p. 491-493 3 p.
Research output: Contribution to journal › Review Article › peer-review

Durban and Porvoo - Governing Water Supply in South Africa and Finland

Juuti, P. & Mäki, H., 2009, In: *E-water*. 2009, 5, p. 1-21
Research output: Contribution to journal › Review Article › peer-review

Miksi te haluatte tehdä Espoosta jätevesikaupungin?

Juuti, P. & Rajala, R., 2009, In: *Vesitalous*. 50, 3, p. 58-61
Research output: Contribution to journal › Review Article › peer-review

Tautia hanasta

Juuti, P. & Rajala, R., 2008, In: *Vesitalous*. 2008, 5, p. 16-17
Research output: Contribution to journal › Review Article › peer-review

Vesihistoria veti Tampereelle

Juuti, P. & Mäki, H., 2007, In: *Tekniikan Waiheita*. 25, 4, p. 30-31
Research output: Contribution to journal › Review Article › peer-review

A short comparative history of wells and toilets in South Africa and Finland

Haarhoff, J., Juuti, P. & Mäki, H., 2006, In: *The Journal for Transdisciplinary Research in Southern Africa*. 2, 1, p. 103-129

Research output: Contribution to journal › Review Article › peer-review

Kaupungit ja vesi

Juuti, P., 2002, In: *Vesitalous*. 20, 1/2002, p. 17-22

Research output: Contribution to journal › Review Article › peer-review

A3 Book chapter

Water Crisis from Early Crises to COVID19 in Finland

Juuti, P., Juuti, R. & Zheng, X. Y., 16 Jan 2023, *Water History and Water Civilization Studies*. China: SOCIAL SCIENCES ACADEMIC PRESS, Vol. 2. p. 267-287 21 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

SDG 6 - Changing International Policies on Safe Water and Sanitation after World War Two

Juuti, P., Juuti, R., Hukka, J. & Katko, T. S., 2022, *Before the UN Sustainable Development Goals: A Historical Companion*. Gutmann, M. & Gorman, D. (eds.). Oxford University Press, p. 176-209

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

A Few water fountains in Tampere, Finland: Cultural attestation of water management

Juuti, P. & Rajala, R., 2021, *The Cultural Dynamics in Water Management from Ancient History to the Present Age*. Zheng, X. Y. (ed.). IWA Publishing, p. 69-78 10 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

The Success of Public Water in Battling Covid-19 In Finland

Juuti, P. & Rajala, R., 2020, *Public Water and Covid-19: Dark Clouds and Silver Linings*. McDonald, D. A., Spronk, S. & Chavez, D. (eds.). Municipal Services Project (Kingston, Canada), Transnational Institute (Amsterdam, Netherlands) and Latin American Council of Social Sciences (CLACSO) (Buenos Aires, Argentina), p. 427-432

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Historical development paths and means for winning the challenge of aging water services infrastructure

Rajala, R., Juuti, P., Hukka, J. & Katko, T. S., 2019, *Resilient Water Services and Systems: The Foundation of Well-Being*. IWA Publishing, p. 15-30 16 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Nature and extent of potable water consumption in Tampere (Finland) and Carletonville (South Africa)

Rajala, R., Juuti, P. & Nealer, E., 2019, *Resilient Water Services and Systems: The Foundation of Well-Being*. IWA Publishing, p. 149-162 14 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Relevance of the resilience concept and long-term thinking for WSS providers

Juuti, P., Mattila, H., Rajala, R., Schwartz, K. & Staddon, 2019, *Resilient Water Services and Systems: The Foundation of Well-Being*. IWA Publishing, p. 227-236 10 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Resiliency is the key for sustainable water services.

Juuti, P., Mattila, H., Rajala, R., Schwartz, K. & Staddon, C., 2019, *Resilient Water Services and Systems: The Foundation of Well-Being*. IWA Publishing. IWA Publishing, p. 1-8 8 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Water security and resilience

Staddon, Juuti, P., Katko, T. S., Mattila, H., Rajala, R. & Schwartz, K., 2019, *Resilient Water Services and Systems: The Foundation of Well-Being*. IWA Publishing, p. 9-14 6 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Water Cooperatives in Tampere, Finland: the case of Pispala

Juuti, P. & Rajala, R., 2018, *WATERLAT GOBACIT network. Working papers. Challenges and opportunities facing water-service co-operatives: cases from Argentina and Finland*. 4 ed. WATERLAT-GOBACIT Research Network, Vol. 5. p. 23-32 10 p. (WATERLAT GOBACIT; vol. 5, no. 4).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhdyskuntien vesihuolto – kehityksen ja elämän ehto

Juuti, P., Katko, T. S. & Rajala, R., 5 Oct 2017, *Miten Suomesta tuli tekniikan maa. Luku 4: Mikä maa, mikä tekniikka? Tekniikan Museon julkaisuja 8. : How Finland Became a Country of Technology*. Männistö-Funk, T. (ed.). Helsinki: Tekniikan museo, Vol. 8. p. 197-231 34 p. (Tekniikan Museon julkaisuja 8).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Water services heritage and institutional diversity

Katko, T. S., Juuti, P., Pietilä, P. & Rajala, R., 2015, *Water and Heritage: material, conceptual and spiritual connections*. Willems, W. & van Schaik, H. (eds.). Sidestone Press, p. 297-312

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

History of water and sanitation services in Finland in the urban-rural mixture : The Case of the City of Tampere, Finland

Katko, T. S. & Juuti, P. S., 2014, *A History of Water: Water and Urbanization: Series III, Volume 1*. Tvedt, T. & Oestigaard, T. (eds.). London: I. B. Tauris, p. 498-519 22 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Meren ja metsäteollisuuden kaupunki -johdanto

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 10-19

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Ämpärillinen vettä -vesihuolto ennen vesilaitosta Kotkassa ja muualla

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 20-41

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kaupunki kuivaksi ja jätteet mereen -viemärit Kotkaan kolmantena Suomessa

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 42-73

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vettä Langinkoskelta

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 74-139

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kasvun kausi

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 140-251
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Utti-hanke ratkaisee Kotkan vesiongelmat

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 252-351
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kotkan Vesi

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 352-385
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kymen Vesi Oy

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 386-445
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Jätevedenpuhdistus

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 446-533
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhteenveto

Juuti, P. & Rajala, R., 2014, *Langinkoskelta Kuivalaan*. TamPub & Kymen Vesi Oy, p. 534-541
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

History of water and sanitation services in the urban-rural context - The Case of the City of Tampere, Finland

Katko, T. S. & Juuti, P. S., 2014, *A History of Water. Series 3, Vol. 1. Water and Urbanization*. Tvedt, T. & Oestigaard, T. (eds.). I.B.Tauris, p. 498-519
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Safety of lead water pipes: history and present

Vuorinen, H. S., Juuti, P. S. & Katko, T. S., 2013, *Water Services Management and Governance : Lessons for a Sustainable Future*. Katko, T. S., Juuti, P. S., Schwartz, K. & Rajala, R. P. (eds.). IWA Publishing, p. 89-96 7 p.
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Integration of water and wastewater utilities

Katko, T. S., Kurki, V. O., Juuti, P. S., Rajala, R. P. & Seppälä, O. T., 2013, *Water Services Management and Governance : Lessons for a Sustainable Future*. Katko, T. S., Juuti, P. S., Schwartz, K. & Rajala, R. P. (eds.). IWA Publishing, p. 29-40 12 p.
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Reforming water services in the Helsinki metropolitan area

Juuti, P. & Rajala, R. P., 2013, *Water Services Management and Governance: Lessons for a Sustainable Future*. Juuti, P., Katko, T., Schwartz, K. & Rajala, R. (eds.). London / New York: IWA Publishing, p. 178-188 11 p.
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Putket puuta, miehet rautaa. Vettä kaivoista, lähteistä ja Kyrönjoesta

Juuti, P. & Rajala, R., 2013, *Vesi ei jouda seisomaan. Kurikan vesihuollon historia*. TamPub & Kurikan Vesihuolto OY, p. 28-67

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Moderni kauppala, modernit palvelut

Juuti, P. & Rajala, R., 2013, *Vesi ei jouda seisomaan. Kurikan vesihuollon historia*. TamPub & Kurikan Vesihuolto OY, p. 68-117

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kurikan kaupungin vesihuolto

Juuti, P. & Rajala, R., 2013, *Vesi ei jouda seisomaan. Kurikan vesihuollon historia*. TamPub & Kurikan Vesihuolto OY, p. 118-171

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Muistoja Jurvan vesiasioista

Juuti, P. & Rajala, R., 2013, *Vesi ei jouda seisomaan. Kurikan vesihuollon historia*. TamPub & Kurikan Vesihuolto OY, p. 172-219

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Haja-asutusalueiden ratkaisut

Juuti, P. & Rajala, R., 2013, *Vesi ei jouda seisomaan. Kurikan vesihuollon historia*. TamPub & Kurikan Vesihuolto OY, p. 220-255

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Loppuluku. Kurikan vesihuollon kehitysvaiheet pähkinänkuoressa

Juuti, P. & Rajala, R., 2013, *Vesi ei jouda seisomaan. Kurikan vesihuollon historia*. TamPub & Kurikan Vesihuolto OY, p. 256-265

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Urban water conflicts in recent European history: Changing interactions between technology, environment and society

Barraque, B., Juuti, P. S. & Katko, T. S., 2012, *Urban water conflicts*. Barraque, B. (ed.). CRC Press, p. 15-32 (Urban water series, UNESCO IHP; vol. 7).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Precious and treasured water : the role of fountains and water in Islam and Tunis

Hukka, J. J. & Juuti, P. S., 2012, *Water Fountains in the Worldscape*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Saarijärvi: International Water History Association and Kehrä Media Inc., p. 85-90 6 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Johdanto

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 11-16

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Päreevalosta sähkölamppuun

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 17-29

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Pohjalaisen yhteistyön voimaa

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 30-46
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Virtaa joka taloon

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 47-104
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Energiakriisin varjossa

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 105-144
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Sähkömarkkinat vapautuvat

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 145-166
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Veijareita ja vartijoita

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 167-182
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kohti vähäpäästöistä energiaa

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 183-202
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Loppuluku

Juuti, P. & Rajala, R., 2012, *Yhteistyöllä Voimaa. EPV 1952-2012*. TamPub & EPV Energia Oy, p. 203-213
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Urban water conflicts in recent European history : Changing interactions between technology, environment and society

Barraqué, B., Juuti, P. & Katko, T., 2012, *Urban Water Conflicts*. Barraqué, B. (ed.). Paris: UNESCO, p. 15-32 (Urban Water series - UNESCO-IHP).
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Comparative analysis of the omnipresent water fountains

Hynynen, A. J., Juuti, P. S. & Katko, T. S., 2012, *Water Fountains in the Worldscape*. Hynynen, A. J., Juuti, P. S. & Katko, T. S. (eds.). International Water History Association and Kehä Media Inc., p. 138-211
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Visible and invisible cities and water fountains

Juuti, P. S., Katko, T. S. & Hynynen, A., 2011, *Water fountains in the cityscape: 30 Essays in public works history*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Kansas City: APWA American Public Works Association, Vol. 2011. p. 1-33 p.
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Religion and contemplation

Juuti, P. S., Katko, T. S. & Hynynen, A., 2011, *Water fountains in the cityscape: 30 Essays in public works history*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Kansas City: APWA American Public Works Association, Vol. 2011. p. 51 p.
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

The powers that be

Juuti, P. S., Katko, T. S. & Hynynen, A., 2011, *Water fountains in the cityscape: 30 Essays in public works history*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Kansas City: APWA American Public Works Association, Vol. 2011. p. 23 1 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Joy and celebration

Juuti, P. S., Katko, T. S. & Hynynen, A., 2011, *Water fountains in the cityscape: 30 Essays in public works history*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Kansas City: APWA American Public Works Association, Vol. 2011. p. 41 1 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

The fountain - a harbinger of a new era in Tampere, Finland

Juuti, P. S., Katko, T. S. & Hynynen, A., 2011, *Water fountains in the cityscape: 30 Essays in public works history*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Kansas City: APWA American Public Works Association, Vol. 2011. p. 63-70 7 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Concluding remarks

Juuti, P. S., Katko, T. S. & Hynynen, A. J., 2011, *Water fountains in the cityscape: 30 Essays in public works history*. Hynynen, A., Juuti, P. & Katko, T. (eds.). Kansas City: APWA American Public Works Association, Vol. 2011. p. 71-72 2 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kunnallisen vesihuollon yhteistyöhankkeet historiassa

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 8-42

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Case Hämeenlinna

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 43-65

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

PARAS-hanke käynnistää pk-seudun vesilaitosten yhdistämisen

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 66-79

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Pääkaupunkiseudun vesihuollon visio murskataan: VVR-työryhmän esitys sivuutetaan

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 88-122

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Lopullinen päätös

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 123-128

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Toteutuksen suunnittelu, jonka aikana YTV malli muuttui kuntayhtymäksi

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 129-169

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

HSY Veden käynnistyminen 1.1.2010

Juuti, P. & Rajala, R., 2011, *Veden vai metropolipolitiikan ehdoilla?*. University of Tampere, p. 170-182
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Ja alussa oli vesi

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 15-18
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuollon alkutaival – kehitys 1910 asti

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 19-50
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kasvun ja veden kausi – I vesilaitoksesta II maailmansotaan

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 51-74
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Laajentumisen aika

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 75-118
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuoltoa kuntiin

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 119-176
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Uuden vuosituhannen tiennäyttäjät – HS-Veden alkutaival

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 177-222
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesi on parasta kylmänä – loppusanat

Juuti, P. & Rajala, R., 2011, *Vinttikaivosta vesiyhtiöön*. Juuti, P. & Rajala, R. (eds.). Saarijärvi: TamPub, p. 223-231
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Water and Sanitation Services in History: Motivations, Expectations and Experiences.

Juuti, P. S., Nygård, H. & Katko, T. S., 2010, *A History of Water. Series II, Volume 1: Ideas of water from Ancient Societies to the Modern World.* Tvedt, T. & Oestigaard, T. (eds.). London & New York: IB Tauris, p. 231-249
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Mihin jätevedenpuhdistusta tarvitaan?

Juuti, P. & Rajala, R., 2010, *Metropoli ja meri - 100 vuotta jätevedenpuhdistusta Helsingissä*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 13-35
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Jätevedenpuhdistuksen ja viemäröinnin vaiheita Helsingissä

Juuti, P. & Rajala, R., 2010, *Metropoli ja meri - 100 vuotta jätevedenpuhdistusta Helsingissä*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 36-90

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Pääkaupunkiseudun moderni jätevedenpuhdistus ja Viikinmäen puhdistamo

Juuti, P. & Rajala, R., 2010, *Metropoli ja meri - 100 vuotta jätevedenpuhdistusta Helsingissä*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 91-113

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Tavoitteena puhdas asuin ympäristö

Juuti, P. & Rajala, R., 2010, *Metropoli ja meri - 100 vuotta jätevedenpuhdistusta Helsingissä*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 114-134

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kohti puhtaampaa Itämerä

Juuti, P. & Rajala, R., 2010, *Metropoli ja meri - 100 vuotta jätevedenpuhdistusta Helsingissä*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 135-142

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Johdanto: vesirikas Riihimäki

Juuti, P., Pietilä, P. & Rajala, R., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*. Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 26-33

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilinna, Riihimäen maamerkki

Juuti, P. & Rajala, R., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*.

Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 148-183

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuollon haasteet ennen ja nyt

Juuti, P. & Rajala, R., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*.

Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 278-299

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Hyvien yhteyksien ja hyvän veden kaupunki

Juuti, P., Rajala, R. & Pietilä, P., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*. Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 314-333

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kaivoista ja käymälöistä kohti kunnallista vesihuoltoa

Juuti, P., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*. Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 34-63

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

"Poika, nyt lähdettiin hommiin" - vesilaitos syntyy

Juuti, P., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*. Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 64-109

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuollon historia pähkinänkuoressa

Juuti, P., 2010, *Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia*. Juuti, P., Rajala, R., Pietilä, P. & Katko, T. (eds.). TamPub, p. 300-313

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuollon piikkiä historia, lyhyt oppimäärä

Juuti, P., 2010, *Näkymätönt Porrii*. Juuti, P., Katko, T., Louekari, S. & Rajala, R. (eds.). TamPub & Porin Vesi, p. 20-67

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Johdanto -Pori, kaupunki joen varrella

Juuti, P., 2010, *Näkymätönt Porrii*. Juuti, P., Katko, T., Louekari, S. & Rajala, R. (eds.). TamPub & Porin Vesi, p. 10-19

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Viemärin ja vesilaitosten synty yleensä Euroopassa ja erityisesti Porissa

Juuti, P., 2010, *Näkymätönt Porrii*. Juuti, P., Katko, T., Louekari, S. & Rajala, R. (eds.). TamPub & Porin Vesi, p. 98-139

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitos Poriin vuonna 1935

Juuti, P., 2010, *Näkymätönt Porrii*. Juuti, P., Katko, T., Louekari, S. & Rajala, R. (eds.). TamPub & Porin Vesi, p. 140-235

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuoltoa espoossa ennen kunnallista vesilaitosta

Juuti, P. & Rajala, R., 2009, *Vesihuoltoyhteistyötä yli rajojen: PK-seudun yhteistyöhankkeet ja yhdistämissuunnitelmat ennen ja nyt Espoon näkökulmasta*. Juuti, P. & Rajala, R. (eds.). University of Tampere, p. 5-26

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Päijänne-tunneli ja kolmisopimus

Juuti, P. & Rajala, R., 2009, *Vesihuoltoyhteistyötä yli rajojen: PK-seudun yhteistyöhankkeet ja yhdistämissuunnitelmat ennen ja nyt Espoon näkökulmasta*. Juuti, P. & Rajala, R. (eds.). University of Tampere, p. 27-38

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Ensimmäiset fuusiosuunnitelmat

Juuti, P. & Rajala, R., 2009, *Vesihuoltoyhteistyötä yli rajojen: PK-seudun yhteistyöhankkeet ja yhdistämissuunnitelmat ennen ja nyt Espoon näkökulmasta*. Juuti, P. & Rajala, R. (eds.). University of Tampere, p. 39-76

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhdistymishankkeet 2000-luvulla

Juuti, P. & Rajala, R., 2009, *Vesihuoltoyhteistyötä yli rajojen: PK-seudun yhteistyöhankkeet ja yhdistämissuunnitelmat ennen ja nyt Espoon näkökulmasta*. Juuti, P. & Rajala, R. (eds.). University of Tampere, p. 77-130

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Loppuluku – haasteita riittää tulevaisuuteen

Juuti, P. S. & Rajala, R., 2009, *Vesihuoltoyhteistyötä yli rajojen: PK-seudun yhteistyöhankkeet ja yhdistämissuunnitelmat ennen ja nyt Espoon näkökulmasta*. Juuti, P. & Rajala, R. (eds.). University of Tampere, p. 131-144

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Palo, jano, terveys, hygienia

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 13-20

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Virta: Kajaani, kaupunki joen varrella

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 21-36

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Syntymä ja kuolema: Laitoksen perustamiseen johtanut kehitys

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 37-46

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Tuli: Pelko ja pelastus

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 47-64

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesi: Vesilaitoksen alkutaival 1920-luvulta 1970-luvulle

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 65-92

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Lähde: Pohjavedenottamot

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 93-136

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Saasta: Jätevesien puhdistus ja viemärointi

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 137-174

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kokemus: Kajaanin vesihuollon ammattilaisten kokemukset ja näkemykset

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 175-228

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhteistyö

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 229-256

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Visio: Historian havinaa ja tulevaisuuden haasteita

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 257-270

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Fire, Thirst, Health and Hygiene: Root Causes for the Introduction of Water Supply and Sanitation in Kajaani

Juuti, P., Rajala, R. & Katko, T. S., 2009, *Elämän virta: Kajaanin veden historia*. Juuti, P., Rajala, R. & Katko, T. (eds.). TamPub, p. 275-286

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Introduction: Evolution and futures of water management: strategic decisions, challenges and effectiveness

Juuti, P. S., Katko, T. S. & Rajala, R. P., 2008, *Water: a Matter of Life - Long-term strategic thinking in water services*. 193 p. *KehräMedia Inc.* Juuti P.S., K. T. S. & Rajala, R. P. (eds.). p. 6-20

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

A Brief History of Water Supply in Finland and South Africa

Juuti, P. & Mäki, H., 2008, *Water: a Matter of Life. Long-term strategic thinking in water services*. Tampere University Press, p. 111-132

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Tausta: Jätevedenpuhdistuksen alku, tehtävän määrittely ja keskeiset käsitteet

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 7-18

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuollon alku Espoossa: ensimmäiset päätökset

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 19-38

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhteistyötarpeet ja synergiaedut : miksi hoitaa kaikkien jätevedet?

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 39-64

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vaatusuunnitelma paremmasta puhdistustuloksesta ohjaa jätevedenpuhdistuksen päätöksentekoa

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 65-72

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Espoo päättää siirtyä kärkipaikalle

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 73-76

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Tutkimustoiminnalla turvallisuutta ja toimintavarmuutta: päätös panostaa omaan jätevesilaboratorioon

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 77-84

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Voimaa historiallisesta yhteistyöstä

Juuti, P. & Rajala, R., 2008, *Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntäprosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa*. Juuti, P. & Rajala, R. (eds.). TamPub, p. 85-100

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Part II: Period of Slow Development. Ch 8. Introduction: pp. 99-102. Conclusions

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 99-102 4 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Part III: Modern Urban Infrastructure. Ch 20 Introduction

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 509-510

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Water is the Beginning of All: Global Water Services and Challenges

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 3-8

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Conclusions

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 259-262

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Conclusions

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 501-506

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Part III: Modern urban infrastructure. Introduction

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, *Environmental History of Water - Global views on community water supply and sanitation*. Juuti, P. S., Katko, T. S. & Vuorinen, H. S. (eds.). p. 265-269

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Part I: Early systems and innovations. Ch 3 Introduction: Early cultures and water

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 11-16

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Part III: Modern Urban Infrastructure. Ch 20 Introduction

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 265-270

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Conclusions: Does History Matter? Present Water Governance Challenges and Future Implications

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 589-592

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Epilogue: Local Solutions Based on Local Conditions

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 593-598

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Birth and expansion of public water supply and sanitation in Finland until World War II

Juuti, P. S. & Katko, T. S., 2007, *Environmental History of Water - Global views on community water supply and sanitation*. p. 117-130

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Privatisation of water services in historical context, Mid-1800s to 2004

Juuti, P. S., Katko, T. S. & Hukka, J. J., 2007, *Environmental History of Water - Global views on community water supply and sanitation*. Juuti, P. S., Katko, T. S. & Vuorinen, H. S. (eds.). p. 235-257

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Conclusions

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2007, 2007. *Environmental History of Water - Global views on community water supply and sanitation*. IWA Publishing. Juuti P.S., K. T. S. & Vuorinen, H. S. (eds.). p. 93-96

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

First innovations of water supply and sanitation

Juuti, P., 2007, *Environmental History of Water - Global views on community water supply and sanitation*. Juuti, P., Katko, T. & Vuorinen, H. (eds.). IWA Publishing, p. 17-44

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Water supply in the Cape Settlement from the mid-17th to the -19th centuries

Juuti, P., Mäki, H. & Wall, K., 2007, *Environmental History of Water - Global views on community water supply and sanitation*. Juuti, P., Katko, T. & Vuorinen, H. (eds.). IWA Publishing, p. 165-172

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Sister towns of industry: Water supply and sanitation in Miskolc and Tampere from the late 1800s to the 2000s

Juuti, P. & Pál, V., 2007, *Environmental History of Water - Global view on community water supply and sanitation*. Juuti, P., Katko, T. & Vuorinen, H. (eds.). 1 ed. London: IWA Publishing, p. 381-400

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Ympäristön tila ja terveysvaikutukset

Juuti, P., 2007, *Terveys suomalaisessa yhteiskunnassa ennen, nyt ja tulevaisuudessa*. Tampere: University of Tampere, p. 25-50

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Governance in Environmental Services

Juuti, P. S., Katko, T. S. & Mäki, H., 2007, *Governance in Water Sector : Comparing development in Kenya, Nepal, South Africa and Finland*. Tampere: Tampere University Press, p. 6-17

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Governance of Water and Environmental Services in Long-term Perspectives

Juuti, P., Katko, T. S., Mäki, H., Nyanchaga, E. N., Sanna-Leena, R. & Vuorinen, H. S., 2007, *Governance in Water Sector : Comparing development in Kenya, Nepal, South Africa and Finland*. Tampere: Tampere University Press, p. 187-191

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Development of the Governance

Juuti, P. & Mäki, H., 2007, *Governance in Water Sector : Comparing development in Kenya, Nepal, South Africa and Finland*. Tampere: Tampere University Press, p. 82-110

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Governance in Water Supply and Sanitation in Finland and South Africa

Juuti, P. & Mäki, H., 2007, *Governance in Water Sector : Comparing development in Kenya, Nepal, South Africa and Finland*. Tampere: Tampere University Press, p. 148-176

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Expanding rural water supplies in historical perspective: six cases from Finland and South Africa

Juuti, P., Katko, T., Mäki, H. & Toivio, H., 2007, *Environmental History of Water -Global views on community water supply and sanitation*. Juuti, P., Katko, T. & Vuorinen, H. (eds.). London: IWA Publishing, p. 355-380

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Geologian ja sijainnin ehdoilla På lägets och geologins villkor

Juuti, P. & Katko, T. S., 2006, *Vaasan Vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljös och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 9 26 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vaasan vesihuollon kehityskaari Utvecklingskeden i vattenförsörjningens historia i Vasa

Juuti, P., 2006, *Vaasan Vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljös och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 501 512 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kansainvälisyttä alusta asti Internationella kontakter ända från starten

Juuti, P. & Katko, T. S., 2006, *Vaasan Vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 53 97 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Varoja ja tietoa kerätään Finansiering och sakkunskap sökes

Juuti, P., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 97 124 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitos perustetaan, jätevedet mereen Vattenverket grundas, avloppsvattnet i havet

Juuti, P., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 125 196 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vedenhankinnan ja käsittelyn historia Vattenanskaffningens och vattenrensningens historia

Juuti, P. & Katko, T. S., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 197 288 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Uusi aika, vanhat ongelmat Nya tider, gamla problem

Juuti, P. & Katko, T. S., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 289 302 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Henkilöstön verkostot ja näkemykset vesihuollon menestystekijöistä Personalens nätverk samt uppfattningar om vattenförsörjningens framgångsfaktorer

Juuti, P. & Katko, T. S., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 303-378

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Hietalahden haisevista tabernaakkeleista Påttille: jätevedenpuhdistuksen ratkaisut Från det stinkande tabernaklet vid Sandviken till Pått: reningen av avloppsvatten

Juuti, P. & Katko, T. S., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 379-436

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Aina ajan hermoilla Att alltid följa med sin tid

Juuti, P. & Katko, T. S., 2006, *Vaasan Vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljöns och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 513-518

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Executive summary – Vaasa Water 1913–2006

Juuti, P. & Katko, T. S., 2006, *Vaasan vedet - Vasa och dess Vatten : Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen Vattenförsörjning på miljös och samhällets*. Juuti, P. & Katko, T. (eds.). TAMPUB & VAASAN VESI, p. 519-524 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Historical development of water and sanitation services

Juuti, P. S. & Katko, T. S., 2005, *Water, Time and European Cities. History matters for the Futures*. Juuti, P. S. & Katko, T. S. (eds.). Tampere: Tampere University Press, p. 25-38

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Comparative analysis and discussion

Juuti, P. S. & Katko, T. S., 2005, *Water, Time and European Cities. History matters for the Futures*. Juuti, P. S. & Katko, T. S. (eds.). Tampere: Tampere University Press, p. 219-240

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Long-term strategic decisions in 13 countries and 29 cities

Juuti, P. S. & Katko, T. S., 2005, *Water, Time and European Cities. History matters for the Futures*. Juuti, P. S. & Katko, T. S. (eds.). Tampere: Tampere University Press, p. 50-72

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Politiikan draamaa

Juuti, P., 2005, *SINISTÄ PUNAISTA MUSTAA - Näkökulmia Suomen 1930-40-lukujen poliittiseen historiaan*. Juuti, P. (ed.). 1 ed. Tampere, p. 137-175

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

For the Environment and Health. History of Water and Sanitation Services in Porvoo, Finland

Juuti, P. S., Katko, T. & Rajala, R. P., 2004, *From a Few to All*. Juuti, K. (ed.). p. 93-114

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kangasalan vesihuollon varhaiset vaiheet

Juuti, P., 2003, *Luonnollisesti vettä.: Kangasalan vesilaitos 1952-2002*. Juuti, P., Katko, T. & Äikäs, K. (eds.). Tampere University Press, p. 22-43

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuollon varhaisia vaiheita meillä ja muualla

Juuti, P. & Katko, T. S., 2003, *Luonnollisesti vettä.: Kangasalan vesilaitos 1952-2002*. Juuti, P., Katko, T. & Äikäs, K. (eds.). Tampere University Press, p. 44-65

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kunnallisen vesihuollon alku

Juuti, P., 2003, *Luonnollisesti vettä.: Kangasalan vesilaitos 1952-2002*. Juuti, P., Katko, T. & Äikäs, K. (eds.). Tampere University Press, p. 66-77

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kunnan vesilaitos vesihuollon vetäjäksi

Juuti, P., 2003, *Luonnollisesti vettä.: Kangasalan vesilaitos 1952-2002*. Juuti, P., Katko, T. & Äikäs, K. (eds.). Tampere University Press, p. 78-89

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kohti yhteistoimintaa

Juuti, P., 2003, *Luonnollisesti vettä: Kangasalan vesilaitos 1952-2002*. Juuti, P., Katko, T. & Äikäs, K. (eds.). Tampere University Press, p. 121-135

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

From wells and shoulder yokes to intermunicipal water supply and sanitation for a ribbon development

Juuti, P. & Katko, T. S., 2003, *Luonnollisesti vettä.: Kangasalan vesilaitos 1952-2002*. Juuti, P., Katko, T. & Äikäs, K. (eds.). Tampere University Press, p. 190-195

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Ahveniston pohjavettä 90 vuotta

Juuti, P., Rajala, R. & Katko, T. S., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 8-9

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Varhaiset hankkeet vesihuollon järjestämiseksi

Juuti, P. & Katko, T. S., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 10-33

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitoshanke vastatulessa

Juuti, P., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 34-41

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitos ja viemärlaitos syntyvät

Juuti, P., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 42-59

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitoksen alkutaival

Juuti, P., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 60-71

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Henkilökunta

Juuti, P., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 182-193

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesihuoltopalveluja vuodesta 1910

Juuti, P., Rajala, R. & Katko, T. S., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 194-197

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Virstanpylväät

Juuti, P., Rajala, R. & Katko, T. S., 2000, *Terveyden ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 198-199

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

För hälsans och miljös skull - Tavastehus vattenverk 1910-2000

Juuti, P., Rajala, R. & Katko, T. S., 2000, *Terveysten ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 200-203
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

For health and the environment - Hämeenlinna water works 1910-2000

Juuti, P., Rajala, R. & Katko, T. S., 2000, *Terveysten ja ympäristön tähden: Hämeenlinnan kaupungin vesilaitos 1910-2000*. Juuti, P., Rajala, R. & Katko, T. (eds.). Tampere University Press, p. 204-207
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Johdanto / Ennomane vesitehras

Juuti, P. & Katko, T. S., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 6-7
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Varhaiset yritykset vesihuollon järjestämiseksi

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 8-27
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Ensimmäinen vesilaitos ja viemärlaitos

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 28-47
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Korkeapaineisen vesilaitoksen alkutaival

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 48-73
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Pispalaan Suomen ensimmäinen vesiosuuskunta

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 74-87
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitoksen verstaas

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 166-173
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Sosiaali- ja virkistystoiminta

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 228-237
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhteistyöhön teollisuuden kanssa

Juuti, P., 1998, *Ennomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 238-251
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Yhteistyötä yli kuntarajojen

Juuti, P., 1998, *Ernomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 252-257

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitos kansainvälistyy

Juuti, P., 1998, *Ernomane vesitehras : Tapereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 266-275

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Kunnallista vesihuoltopalvelua toista vuosisataa

Juuti, P. & Katko, T. S., 1998, *Ernomane vesitehras : Tapereen kaupungin vesilaitos 1835 — 1998*. Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 276-281

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Vesilaitoksen virstanpylväät

Juuti, P. & Katko, T. S., 1998, *Ernomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*.

Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 282-287

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Municipal water supply and sewerage for nearly two centuries

Juuti, P. & Katko, T. S., 1998, *Ernomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*.

Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 288-293

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Mer än ett århundrade kommunal vattenförsörjning

Juuti, P. & Katko, T. S., 1998, *Ernomane vesitehras : Tampereen kaupungin vesilaitos 1835 — 1998*.

Juuti, P. & Katko, T. (eds.). Tampere University Press, p. 294-299

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

A4 Article in conference proceedings

Environmental history of water: Global view of community water supply and sanitation

Juuti, P. S., Katko, T. S. & Vuorinen, H. S., 2006, *Symposium Preprint Book: 1st IWA International Symposium on Water and Wastewater Technologies in Ancient Civilizations, Iraklio, Greece, 27.10.2006*. p. 631-636

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Historical Perspectives of public-private Cooperation in Water Services

Katko, T., Juuti, P. & Pietilä, P., 2003, *3rd International Conference Bibliotheca Alexandrina*. 1 ed. Bergen: International Water History Association, p. 50-51 (International Water History Association).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

B1 Journal article

Kuka päättää vesihuollon tulevaisuudesta? (Who decides on the future of the water supply?)

Rajala, R., Juuti, P. & Katko, T., 2014, In: *Vesitalous*. 51, 1, p. 33-34 2 p.

Research output: Contribution to journal › Article › Scientific

Yksi askel kerrallaan

Juuti, P. S. & Rajala, R. P., 2014, In: *Ympäristöhistoria: finnish journal of environmental history*. 2014, 1, p. 4-5

Research output: Contribution to journal › Article › Scientific

One step at a time

Juuti, P. S. & Rajala, R. P., 2014, In: *Ympäristöhistoria: finnish journal of environmental history*. 2014, 1, p. 5-6

Research output: Contribution to journal › Article › Scientific

After 150 years Pretoria's Fountains still a source of life

Haarhoff, J., Juuti, P. & Mäki, H., 2011, In: *Water Wheel*. 11, 4, p. 18-23 5 p.

Research output: Contribution to journal › Article › Scientific

Experiences and observations of the environmental history in 2000's

Juuti, P., 2011, In: *Ympäristöhistoria: finnish journal of environmental history*. 2011, 1, p. 6-8

Research output: Contribution to journal › Editorial › Scientific

Special Section: 'Pasts and Futures of Water'. Editorial Note.

Juuti, P. S., Katko, T. S. & Vinnari, E. M., 1 May 2010, In: *Environment and History*. 16, 2, p. 167-171

Research output: Contribution to journal › Article › Scientific

Editorial Note: "Pasts and Futures of Water"

Juuti, P. S., Katko, T. S. & Vinnari, E. M., 2010, In: *Environment and History*. 16, a, p. 167-171

Research output: Contribution to journal › Article › Scientific

Euro on huono konsultti vesihuollon ratkaisuisissa

Rajala, R. & Juuti, P., 2009, In: *Kuntatekniikka*. 2009, 8, p. 14-15

Research output: Contribution to journal › Review Article

Ympäristöpalvelujen synty Tampereella

Juuti, P., 2005, In: *Historiallinen Aikakauskirja*. 2005, 4, p. 397-410

Research output: Contribution to journal › Article › Scientific

B2 Book chapter

The Mermaid of Helsinki, Finland

Hynynen, A. J., Juuti, P. S. & Katko, T. S., 2012, *Water Fountains in the Worldscope*. Ari, J. H., Petri, S. J. & Tapio, S. K. (eds.). Kangasala: International Water History Association and Kehrämedia Inc., p. 107-111 5 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

Part V: Comparative Analysis of the Omnipresent Water Fountains

Hynynen, A. J., Juuti, P. S. & Katko, T. S., 2012, *Water Fountains in the Worldscope*. Ari, J. H., Petri, S. J. & Tapio, S. K. (eds.). Kangasala: International Water History Association and Kehrämedia Inc., p. 137-212

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

The Mermaid of Helsinki

Hynynen, A., Juuti, P. & Katko, T., 2012, *Water Fountains in the Worldscape*. Hynynen, A., Juuti, P. & Katko, T. (eds.). IWHA: IWHA, p. 107-111

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

The Fountain A Harbinger of a New Era in Case Tampere

Hynynen, A., Juuti, P. & Katko, T., 2011, *Water Fountains in the Cityscape. Essays in Public Works History*. Hynynen, A. J., Juuti, P. S. & Katko, T. S. (eds.). Kansas City,MO: Public Works Historical Society, p. 63-70 (Essays in Public Works History; vol. 30).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

Local Conditions Need Local Solutions

Juuti, P., Katko, T. & Nygård, H., 2007, *Governance in Water Sector*. Mäki, H. (ed.). Tampere: Tampere University Press, p. 111-127

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

Water Matters

Juuti, P., Katko, T. & Mäki, H., 2007, *Governance in Water Sector*. Mäki, H. (ed.). Tampere: Tampere University Press, p. 4-5 (Tampere University Press, ePublications).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

Water and Health

Vuorinen, H., Juuti, P. & Katko, T., 2007, *Governance in Water Sector*. Mäki, H. (ed.). Tampere: Tampere University Press, p. 177-186 (Tampere University Press, ePublications).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

“Man växer i skitlukten...”

Juuti, P., 2004, *Perspektiv på det industriella i Finland till 1950*. Redaktion:, N. E., Kylander, J., Marjanen, J., Mattsson, L. & Antti, P. (eds.). 1 ed. Helsinki: Historicus r.f., p. 76-101 (Historicus r.f:s skriftserie; no. vol.16.).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

B3 Article in conference proceedings

Early experiences of toilets and sanitation in South African and Finnish cities -a short comparative story

Juuti, P. & Mäki, H., 2006, *CD Proceedings, Dry Toilet 2006, 2nd International Dry Toilet Conference, 16-19 August Tampere, Finland*. Korkeakoski, M., Piisilä, S., Teittinen, S., Rautanen, S.-L. & Viskari, E.-L. (eds.).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Evolution of water and sanitation services and some environmental history...,

Juuti, P., 2001, *MANAGEMENT OF WATER, WASTEWATER AND SOLID WASTE SERVICES IN COMPARATIVE HISTORICAL AND FUTURES PERSPECTIVE, A Nordic Research Workshop supported by NorFa At Tampere University of Technology, Tampere, Finland*. Katko, T., Seppälä, O. & Kaivo-oja, J. (eds.). Tampere: TUT/BYT, p. 98-103 (Environmental Engineering and Biotechnology; no. Report 13).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

C1 Scientific book

Dispelling Myths about Water Services

Katko, T. S., Hukka, J., Juuti, P., Juuti, R. & Nealer, E., Sept 2025, IWA Publishing.

Research output: Book/Report › Book › Scientific › peer-review

Vesihuollon regulointi ja sen tarve Suomessa

Juuti, P. & Juuti, R., 2025, Tampereen yliopisto.

Research output: Book/Report › Book › Scientific › peer-review

Vesihuollon johtaminen ja kehittäminen: tietokirja

Juuti, P., 2024, Vesihuoltopalveluiden tutkimusklusteri (VEPATUKI). 80 p.

Research output: Book/Report › Book › Scientific › peer-review

Vesihuollon myytit

Katko, T. S., Juuti, P. & Juuti, R., 2022, Vastapaino.

Research output: Book/Report › Book › Scientific › peer-review

Seinäjoen Vesi 100 vuotta: Parhaaseen pohjaveteen ja tehokkaaseen jätevesihuoltoon

Juuti, P., Juuti, R. & Katko, T. S., 2022, Seinäjoen Vesi. 125 p.

Research output: Book/Report › Book › Scientific › peer-review

Tampere ja vesi

Juuti, P., 2021, Vesihuoltopalveluiden tutkimusklusteri (VEPATUKI). 552 p.

Research output: Book/Report › Book › Scientific › peer-review

Monimuotoinen vesihuolto

Juuti, P., 2021, Vesihuoltopalveluiden tutkimusklusteri (VEPATUKI). 200 p.

Research output: Book/Report › Book › Scientific › peer-review

Historian hajuista tuoksujen tulevaisuuteen: pääkaupunkiseudun jätevedenpuhdistuksen keskeiset päätökset Espoon näkökulmasta

Juuti, P., 2017, Tampere University Press. 280 p.

Research output: Book/Report › Book › Scientific › peer-review

Sata vuotta vesihuoltoa Suomessa 1917-2017

Juuti, P. S., Katko, T. S. & Rajala, R. P., 2017, Tampere: Tampere University Press. 288 p.

Research output: Book/Report › Book › Scientific › peer-review

Valkea kaupunki, mustat vedet: Helsingin vedet 1800-luvun lopusta 2000-luvulle

Juuti, P., 2015, Tampere University Press. 301 p.

Research output: Book/Report › Book › Scientific › peer-review

Langinkoskelta Kuivalaan: Eteläisen Kymenlaakson vesihuollon historia

Juuti, P. & Rajala, R., 2014, Kymen Vesi Oy. 555 p.

Research output: Book/Report › Book › Scientific › peer-review

Vesi ei jouda seisomaan : Kurikan vesihuollon historia

Juuti, P. & Rajala, R., 2013, Kurikka: Kurikan Vesihuolto Oy. 272 p.

Research output: Book/Report › Book › Scientific › peer-review

Yhteistyöllä voimaa: EPV 1952-2012: EPV Energia Oy

Juuti, P. & Rajala, R., 2012, Vaasa: EPV ENERGIA OY. 219 p.

Research output: Book/Report › Book › Scientific › peer-review

Yhteistyöllä voimaa. EPV 1952-2012

Juuti, P. & Rajala, R., 2012, EPV ENERGIA OY.

Research output: Book/Report › Book › Scientific › peer-review

Veden vai metropolipolitiikan ehdoilla? HSY Veden syntyprosessi ja sen taustat.

Juuti, P. & Rajala, R., 2011, Tampere: Tampereen yliopisto. 191 p.

Research output: Book/Report › Book › Scientific › peer-review

Vinttikaivosta vesiyhtiöön

Juuti, P. & Rajala, R., 2011

Research output: Book/Report › Book › Scientific › peer-review

Hyvän veden ja hyvien yhteyksien kaupunki : Riihimäen Veden historia

Juuti, P., Rajala, R. P., Pietilä, P. E. & Katko, T. S., 2010

Research output: Book/Report › Book › Scientific › peer-review

Näkymätönt Porrii. Porin veden historia

Juuti, P. S., Katko, T. S., Louekari, S. M. & Rajala, R. P., 2010

Research output: Book/Report › Book › Scientific › peer-review

Hyvän veden ja yhteyksien kaupunki

Juuti, P., Rajala, R., Pietilä, P. & Katko, T. S., 2010, TamPub & Riihimäen Vesi.

Research output: Book/Report › Book › Scientific › peer-review

Ei jätevedenpuhdistamoa minun takapihalleni: Jätevedenpuhdistuksen päätöksenteko, päätäntä-prosessit ja julkinen keskustelu Espoossa historiassa, nyt ja tulevaisuudessa

Juuti, P. & Rajala, R., 2009, Tampere: Tampere University Press. 112 p.

Research output: Book/Report › Book › Scientific › peer-review

Vesihuoltoyhteistyötä yli rajojen : PK-seudun yhteistyöhankkeet ja yhdistymissuunnitelmat ennen ja nyt Espoon näkökulmasta: PK-seudun yhteistyöhankkeet ja yhdistymissuunnitelmat ennen ja nyt Espoon näkökulmasta. Espoo: Espoon Vesi.

Juuti, P. & Rajala, R., 2009, Espoo: Espoon Vesi. 159 p.

Research output: Book/Report › Book › Scientific › peer-review

Elämän Virta - Kajaanin Veden historia

Juuti, P., Rajala, R. & Katko, T., 2009, Tampere: Tampere University Press. (ePublications)

Research output: Book/Report › Book › Scientific › peer-review

Water: a matter of life - long-term strategic thinking in water services

Juuti, P., Katko, T. S. & Rajala, R., 2008

Research output: Book/Report › Book › Scientific › peer-review

Watering the city of Tampere from the mid-1800s to the 21st century

Katko, T. S. & Juuti, P. S., 2007, Tampere: Tampere Water and International Water History Association. 77 p.

Research output: Book/Report › Book › Scientific › peer-review

Veden vuosisata, Espoon vesihuolto 1930-luvulta 2000-luvulle

Juuti, P. & Rajala, R., 2007, Vantaa: Espoon Vesi.

Research output: Book/Report › Book › Scientific › peer-review

Virtojen Vantaa - Vantaan Veden historia

Juuti, P. & Rajala, R., 2007, Vantaan Vesi: Vantaan Vesi. 448 p.

Research output: Book/Report › Book › Scientific › peer-review

Kaivot ja Käymälät - Brief History of Wells and Toilets

Juuti, P. & Wallenius, K., 2005, 1 ed. Pieksämäki: KehräMedia Oy.

Research output: Book/Report › Book › Scientific › peer-review

Sinistä punaista mustaa

Juuti, P., 2005, 1 ed. Tampere.

Research output: Book/Report › Book › Scientific › peer-review

Water, Time and European Cities

Juuti, P. & Katko, T., 2005, 1 ed. EU: EU.

Research output: Book/Report › Book › Scientific › peer-review

Environmental History Of Water And Sanitation Services In Tampere

Juuti, P., 2004, 1 ed. www.waterhistory.org: www.waterhistory.org.

Research output: Book/Report › Book › Scientific › peer-review

Terveyden ja ympäristön tähden. Hämeenlinnan kaupungin vesilaitos 1910-2000

Juuti, P., Rajala, R. & Katko, T., 2000, Hämeenlinna: Hämeenlinnan kaupungin vesilaitos. 216 p.

Research output: Book/Report › Book › Scientific › peer-review

Terveyden ja ympäristön tähden

Juuti, P., Rajala, R. & Katko, T. S., 2000, TamPub & Hämeenlinnan kaupunki.

Research output: Book/Report › Book › Scientific › peer-review

Ernomane vesitehras. Tampereen kaupungin vesilaitos 1835-1998

Juuti, P. & Katko, T., 1998, Tampere: Unknown Publisher. 307 p.

Research output: Book/Report › Book › Scientific › peer-review

Ernomane vesitehdas: Tampereen vesilaitos 1835-1998

Juuti, P. S. & Katko, T. S., 1998, 952-91-0065-5: Tampereen kaupungin vesilaitos. 307 p.

Research output: Book/Report › Book › Scientific › peer-review

C2 Edited book

Resilient Water Services and Systems: The Foundation of Well-Being

Juuti, P. (Editor), Mattila, H. (Editor), Rajala, R. (Editor), Schwartz, K. (Editor) & Staddon, C. (Editor), 2019, IWA Publishing.

Research output: Book/Report › Anthology › Scientific › peer-review

Prologue

Juuti, P. S. (Editor), Katko, T. S. (Editor) & Schwartz, K. (Editor), 2013, IWA Publishing. 3 p.

Research output: Book/Report › Anthology › Scientific › peer-review

Epilogue

Juuti, P. S. (Editor), Katko, T. S. (Editor) & Schwartz, K. (Editor), 2013, IWA Publishing. 5 p.

Research output: Book/Report › Anthology › Scientific › peer-review

Water Services Management and Governance : Lessons for a Sustainable Future

Katko, T., Juuti, P., Schwartz, K. & Rajala, R., 2013, London: IWA Publishing. 196 p. (Governance and management for sustainable water systems series)

Research output: Book/Report › Anthology › Scientific › peer-review

Water Fountains in the Worldscape

Hynynen, A. J., Juuti, P. S. & Katko, T. S., 2012

Research output: Book/Report › Anthology › Scientific › peer-review

Water Fountains in the Cityscape

Hynynen, A. J., Juuti, P. S. & Katko, T. S., 2011, Public Works Historical Society. (Essays in Public Works History; vol. 30)

Research output: Book/Report › Anthology › Scientific › peer-review

Ympäristöhistoria Finnish Journal of Environmental History (YFJEH)

Juuti, P. (Editor), Katko, T. (Editor) & Rajala, R. (Editor), 2011, In: Ympäristöhistoria: finnish journal of environmental history. 1, 1

Research output: Contribution to journal › Special issue › Scientific › peer-review

Water: a matter of life : long-term strategic thinking in water services

Juuti, P. S. (Editor), Katko, T. S. (Editor) & Rajala, R. P. (Editor), 2008, Tampere: Tampere University Press.

Research output: Book/Report › Anthology › Scientific › peer-review

Governance in water sector - comparing development in Kenya, Nepal, South Africa and Finland

Juuti, P. S. (Editor), Katko, T. S. (Editor), Mäki, H. R. (Editor), Nyanchaga, E. N. (Editor), Rautanen, S.-L. (Editor) & Vuorinen, H. S. (Editor), 2007, Unknown Publisher.

Research output: Book/Report › Anthology › Scientific › peer-review

Environmental history of water : global views on community water supply and sanitation

Juuti, P. S. (Editor), Katko, T. S. (Editor) & Vuorinen, H. S. (Editor), 2007, 1 ed. London: IWA Publishing.

Research output: Book/Report › Anthology › Scientific › peer-review

5th IWHA Conference. Tampere Finland 2007. Pasts and Futures of Water. University of Tampere 13-17 June 2007

Hautamäki, I. (Editor), Juuti, P. (Editor), Katko, T. (Editor), Rajala, R. (Editor) & Vinnari, E. (Editor), 2007, Unknown Publisher.

Research output: Book/Report › Anthology › Scientific › peer-review

Governance in Water Sector

Juuti, P., Katko, T., Mäki, H., Nyanhaga, E. N., Rautanen, S.-L. & Vuorinen, H., 2007, 1 ed. Tampere: Tampere University Press. (Tampere University Press, ePublications)

Research output: Book/Report › Anthology › Scientific › peer-review

IWHA2007 Tampere - Pasts and Futures of Water

Hautamäki, I., Juuti, P., Katko, T., Rajala, R. & Vinnari, E., 2007, International Centre for Research on Environmental Services and Governance (ICES): International Centre for Research on Environmental Services and Governance (ICES).

Research output: Book/Report › Anthology › Scientific › peer-review

Viable water governance, a Nordic-Baltic research training course supported by Nordforsk: TUT, IEEB: 6-11 June, 2005

Hukka, J. (Editor), Juuti, P. (Editor), Katko, T. (Editor), Pietilä, P. (Editor), Rautanen, S.-L. (Editor) & Vinnari, E. (Editor), 2005, Tampere: Unknown Publisher. (Tampereen teknillinen yliopisto, Bio- ja ympäristötekniikka, Raportti; vol. 20)

Research output: Book/Report › Anthology › Scientific › peer-review

Water, Time and European Cities : History matters for the Futures

Juuti, P. S. (Editor) & Katko, T. S. (Editor), 2005, Tampere: Tampere University Press.

Research output: Book/Report › Anthology › Scientific › peer-review

City in Time

Juuti, P. S. & Katko, T. S., 2005, 1 ed. EU.

Research output: Book/Report › Anthology › Scientific › peer-review

From a Few to All: Long-term Development of Water and Environmental Services in Finland

Juuti, P. S. & Katko, T. S., 2004, KehräMedia Oy. 175 p.

Research output: Book/Report › Anthology › Scientific › peer-review

Liettua 2000

Kallio, A., Juuti, P. & Dzvonkaite-Koivula, V., 1999, 1 ed. Tampere: KehräMedia Oy.

Research output: Book/Report › Anthology › Scientific › peer-review

Sukunimiopas - Suojatut sukunimet

Hanhivaara, T., Havia, J., Juuti, P. & Riilas, P., 1994, 1 ed. Helsinki: Suomalaisuuden liitto.

Research output: Book/Report › Anthology › Scientific › peer-review

Pirkanmaan Viro-käsikirja

Juuti, P., Keinonen, V. & Päiväsaari, H., 1993, 1 ed. Tampere: Tampere-Tartto-seura ry.

Research output: Book/Report › Anthology › Scientific › peer-review

D1 Article in a trade journal

Jätevesimaksulaki maamme vesiensuojelun uranuurtajana: Wastewater Fee Act as a pioneer in Finland's water protection

Katko, T. S., Juuti, P. & Juuti, R., 10 Oct 2024, In: Vesitalous. 65, 5, p. 20-26

Research output: Contribution to journal › Article › Professional

Regulaation haasteet

Juuti, R. & Juuti, P., 2024, In: Vesitalous. LXV, 3, p. 56-57 2 p.

Research output: Contribution to journal › Article › Professional

Vesilaitosten suurimmat pulmat eivät liity niiden kokoon. Säästöjä suuruudesta? Major constraints of water utilities are not due to their size. Savings from bigger scale?

Katko, T. S., Juuti, P. & Juuti, R., May 2023, In: Kuntatekniikka. 3, p. 14-15 1 p.

Research output: Contribution to journal › Article › Professional

Kunnallistekniikka Suomessa 1945–2000. Esimerkinä vesihuolto

Juuti, P. & Juuti, R., 2023, In: Rakennettu hyvinvointi.

Research output: Contribution to journal › Other online publication › Professional

Vesihuoltoko näkymätöntä kaupunkia?

Juuti, P., Juuti, R. & Katko, T. S., 5 Nov 2022, In: Talotekniikka. 2022, 8

Research output: Contribution to journal › Article › Professional

Maaseudun vesihuoltoa kehitetty 150 vuotta: Kantovettä ja puuputkia

Arvonen, V., Juuti, P., Juuti, R., Katko, T. S., Laukka, V., Mattila, H. & Pietilä, P., 22 Feb 2022, In: Kuntatekniikka. 76, 1, p. 6-10 5 p.

Research output: Contribution to journal › Article › Professional

Vesihuollon myyteistä kohti todellisuuksia

Juuti, P., Juuti, R. & Katko, T. S., 2022, In: Ympäristökasvatus.

Research output: Contribution to journal › Article › Professional

Vesihuollon myyteistä kestävämpään ympäristöön

Juuti, P., Juuti, R. & Katko, T. S., 2022, In: RY Rakennettu ympäristö.

Research output: Contribution to journal › Article › Professional

Yhdyskuntien vesihuolto 2050 Pirkanmaalla ja Kokemäenjoen vesistön alueella

Juuti, P., Katko, T. S. & Rajala, R., Apr 2020, In: Vesivisio 2050.

Research output: Contribution to journal › Article › Professional

Vetoa vesihuoltopalveluihin täydennyskoulutuksen kautta

Inha, L., Juuti, P., Katko, T. S., Rajala, R. & Pietilä, P., 25 Oct 2019, In: Kuntatekniikka. 73, 5, p. 6-7 2 p.

Research output: Contribution to journal › Article › Professional

Vesihuollon haasteet Suomessa – saneerausvelka ja tutkimusresurssien puute ongelmina

Juuti, P., Katko, T. S. & Rajala, R., Feb 2019, In: Vesitalous. 60, 1, p. 58-61 4 p.

Research output: Contribution to journal › Article › Professional

Ansiokas historiateos kertoo perusinfran historian. Vesilaitosten ja viemäröinnin synty Suomessa

Juuti, P., Katko, T. S. & Rajala, R., Mar 2018, In: Kuntatekniikka. 73, 2, p. 11-13 3 p.

Research output: Contribution to journal › Article › Professional

Vesihuoltopalvelujen tutkimus-, kehittämis- ja innovaatioklusterin (VEPATUKI) ensimmäinen vuosi keskittyy saneeraustarpeeseen

Juuti, P. & Rajala, R., 2018, In: Vesitalous. 5, p. 21-23 3 p.

Research output: Contribution to journal › Article › Professional

Kapkaupungin pysyvä vesikriisi – ratkeako vesipula, jos lisää vettä pumpataan vuotavaan verkostoon

Juuti, P. & Rajala, R., 2018, In: Vesitalous. 5, p. 39-42 4 p.

Research output: Contribution to journal › Article › Professional

Helsinki sai ensimmäisen puhdistamonsa 1910; Helsinki gained its first wastewater treatment plant 1910

Juuti, P., Katko, T. & Rajala, R., 2011, In: Kuntatekniikka. 66, 1, p. 49-50

Research output: Contribution to journal › Article › Professional

Jätevedenpuhdistuksen historiaa pääkaupunkiseudulla: Helsinki sai ensimmäisen puhdistamonsa 1910

Juuti, P., Katko, T. & Rajala, R., 2011, In: Kuntatekniikka. 66, 1, p. 49-50 2 p.

Research output: Contribution to journal › Article › Professional

Hyvän veden ja hyvien yhteyksien kaupunki. Riihimäen Veden historia

Juuti, P., Rajala, R., Pietilä, P. & Katko, T., 2011, In: Vesitalous. LII, 5, p. 36-40

Research output: Contribution to journal › Article › Professional

Kuka päättää vesihuollon tulevaisuudesta

Rajala, R., Juuti, P. & Katko, T., 2010, In: Vesitalous. 51, 1, p. 33-34

Research output: Contribution to journal › Article › Professional

Mistä vettä tulevaisuudessa, hanasta vai pullosta? Sinä päätät!

Rajala, R. & Juuti, P., 2009, In: Ympäristö ja terveys. 40, 10, p. 58-61

Research output: Contribution to journal › Article › Professional

Veden vuosisata Espoossa - haasteena nopea väestönkasvu.

Juuti, P. & Rajala, R., 2007, In: Kuntatekniikka. 1, 4, p. 16-19.

Research output: Contribution to journal › Article › Professional

Hätä ei häviä käymälöitä poistamalla

Juuti, P. S. & Katko, T. S., 2005, In: www.huussi.net. p. 7 s

Research output: Contribution to journal › Article › Professional

“Suuren suomalaisen” presidentti Risto Rytin erosta 60 vuotta:

Juuti, P., 2005, In: Sukuset. 2005, 1/2005, p. 6-9

Research output: Contribution to journal › Article › Professional

Kaupunki ja vesi

Juuti, P., 2001, In: Suomen omakotilehti. 2001, 4, p. 16

Research output: Contribution to journal › Article › Professional

Hämeenlinnan kaupungin vesilaitos täytti 90 vuotta: "Puulausta ja rassausta"

Katko, T., Rajala, R. & Juuti, P., 2000, In: Tekniikka ja kunta. 8, p. 28-29

Research output: Contribution to journal › Article › Professional

Kunnallinen vesilaitos Tampereelle yli sata vuotta sitten

Juuti, P. & Katko, T., 1999, In: Tammerkoski-lehti. 1999, 2/1999, p. 16-20

Research output: Contribution to journal › Article › Professional

Enomane vesitehras - Tampereen kaupungin vesilaitos 1835-1998

Juuti, P. & Katko, T., 1998, In: Kunnalliselämä. 6, p. 39-41

Research output: Contribution to journal › Article › Professional

Satavuotias Vesilaitos tiiviisti mukana ihmisen arjessa

Juuti, P. & Katko, T., 1998, In: NA. 1998, 3.8.1998, p. sivu 2

Research output: Contribution to journal › Article › Professional

Teollisuuden vesihuolto Tampereella

Juuti, P., 1998, In: Tekniikan Waiheet -lehti. 2/98, 2/98, p. 12-21

Research output: Contribution to journal › Article › Professional

D2 Article in a professional research book

Ympäristö- ja vesihistorian tutkimuksesta 2000-luvulla Suomessa

Juuti, P., 2017, *Koulutuksen ja tutkimuksen murros yliopistoissa uuden vuosikymmenen kynnyksellä.*

Juuti, P. & Uusi-Rasi, K. (eds.). Tampereen dosenttiyhdistys, Vol. 3. p. 44-48 4 p.

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

Elämää ja hieman historiaakin opiskelemassa

Juuti, P., 2003, *Patinan neljä vuosikymmentä 1963 - 2003.* Heikkinen, S. & Karhula, M. (eds.). 1 ed.

Tampere: Patina r.y., p. 44-50

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

Tampere-Tartto-Seura syntyi opiskelijavoimin

Juuti, P., 1999, *Tampere-Tartto-Seura ry 10 vuotta.* Keinonen, V. (ed.). Tampere-Tartto-seura ry, p. htt

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

D4 Published development or research report or study

Epilogue: Water: a matter of life

Juuti, P. S., Katko, T. S. & Rajala, R. P., 2008, Unknown Publisher.

Research output: Book/Report › Commissioned report

Key long-term strategic decisions and principles in water services management in Finland, 1860-2003

Katko, T. S., Juuti, P. S. & Pietilä, P. E., 2008, Unknown Publisher. 16 p.

Research output: Book/Report › Commissioned report

Water services evolution in 29 European cities from 1800 to 2004

Katko, T. S. & Juuti, P. S., 2008, Unknown Publisher.

Research output: Book/Report › Commissioned report

Many Ps needed for sustainable water services - expansion of the scope of public-private partnerships

Hukka, J. J., Juuti, P. S., Katko, T. S. & Seppälä, O. T., 2008, Unknown Publisher.

Research output: Book/Report › Commissioned report

Water and health - from ancient civilizations to modern times

Vuorinen, H. S., Juuti, P. S. & Katko, T. S., 2008, Tampere University Press.

Research output: Book/Report › Commissioned report

Local conditions need local solutions: Water and sanitation services in Vaasa, Finland from the 1700s to 2005

Juuti, P. S., Katko, T. S. & Nygård, H. V., 2008, Tampere: Tampere University Press. 111 p.

Research output: Book/Report › Commissioned report

Evolution of water and sewerage services in Hämeenlinna, Finland, 1800-2000

Juuti, P. S., Katko, T. S., Rajala, R. P. & Seppälä, O. T., 2008, Unknown Publisher.

Research output: Book/Report › Commissioned report

Revisiting private water proposals and concessions of the 1870 and 1880s in Finland

Juuti, P. S., Katko, T. S. & Hukka, J. J., 2008, Unknown Publisher.

Research output: Book/Report › Commissioned report

Urban water conflicts in recent European history. Changing interactions between technology, environment and society

Barraqué, B., Juuti, P. S. & Katko, T. S., 2006, Unknown Publisher. (Urban Water Conflicts, an analysis on the origins and nature of water-related unrest and conflicts in the urban setting, UNESCO Working series SC-2006/WS/19)

Research output: Book/Report › Commissioned report

Science for water services and related institutions

Hukka, J. J., Juuti, P. S., Katko, T. S., Asheesh, M., Nyangeri Nyanchaga, E. & Seppälä, O. T., 2005, Turku: Finland Futures Research Centre.

Research output: Book/Report › Commissioned report

D5 Text book, professional manual or guide or a dictionary

Meidän vesi: Kurikan Vesihuolto Oy:n historia

Juuti, P. & Juuti, R., 2025, Kurikan Vesihuolto Oy.

Research output: Book/Report › Book › Scientific

Koulutuksen ja tutkimuksen murros yliopistoissa uuden vuosikymmenen kynnyksellä

Juuti, P. (Editor) & Uusi-Rasi, K. (Editor), 2017, Tampere: Tampereen dosenttiyhdistys. 90 p.

Research output: Book/Report › Book › Professional

Veden Vuosisata

Juuti, P. & Rajala, R., 2007, 1 ed. Espoo: Espoon Vesi.

Research output: Book/Report › Book › Professional

Virtojen Vantaa

Juuti, P. & Rajala, R., 2007, 1 ed. vantaa: Vantaan Vesi.

Research output: Book/Report › Book › Professional

Vaasan Vedet - Vasa och dess Vatten. Vesihuoltoa ympäristön ja yhteiskunnan ehdoilla 1800-luvulta tulevaisuuteen

Juuti, P. & Katko, T., 2006, 1 ed. Vaasa: Vaasan kaupunki.

Research output: Book/Report › Book › Professional

Viable Water Governance

Hukka, J., Juuti, P., Katko, T., Pietilä, P., Rautanen, S.-L. & E, V., 2005, 1 ed. Tampere: TUT. (IEEB)

Research output: Book/Report › Book › Professional

Luonnollisesti vettä - Kangasala, Vesilaitos 1952 - 2002

Äikäs, K., Juuti, P. & Katko, T., 2003, 1 ed. Saarijärvi: Kangasalan vesilaitos. 210 p.

Research output: Book/Report › Book › Professional

Aqua Borgoensis, Lähteet kertovat, källorna berättar, Vesilaitos, vattenverket 1913- 2003

Juuti, P., Rajala, R. & Katko, T., 2003, 1 ed. Porvoo: Porvoon vesi.

Research output: Book/Report › Book › Professional

Ympäristön ja terveyden tähden

Juuti, P., Rajala, R. & Katko, T., 2000, 1 ed. Hämeenlinna: HÄMEENLINNAN KAUPUNKI.

Research output: Book/Report › Book › Professional

Ernomane vesitehras

Juuti, P. & Katko, T., 1998, 1 ed. Tampere: Tampereen vesilaitos.

Research output: Book/Report › Book › Professional

Suomen palotoimen historia

Juuti, P., 1993, 1 ed. Helsinki: Yliopistopaino.

Research output: Book/Report › Book › Professional

Miksi Ryti erosi?

Juuti, P., 1990, 1 ed. Tampere: Historiatieteen laitos. (Historiatieteen laitoksen julkaisuja)

Research output: Book/Report › Book › Professional

E1 Popularised article, newspaper article

Puheenvuoro: Veden käsittelyn ja jäteveden puhdistuksen kalleus on myytti, vesihuollon isoimmat kulut tulevat täysin muualta

Juuti, P., Juuti, R. & Katko, T. S., 7 Dec 2022, In: Tekniikka & talous. 48/2022

Research output: Contribution to journal › Article › General public

Vesihuollon myytit kestävän vesihuollon haittana

Juuti, P., Juuti, R. & Katko, T. S., 5 Oct 2022, In: Alusta!. 05.10.2022
Research output: Contribution to journal › Article › General public

Early History and Water Sanitation Systems (WSS) in Finland

Juuti, P. & Rajala, R., 2021, In: China Water.
Research output: Contribution to journal › Article › General public

Vedellä ei pitäisi tehdä voittoa: Katsaus

Hukka, J., Juuti, P. & Katko, T. S., Apr 2020, In: Kanava. 48, 4, p. 39-41 3 p.
Research output: Contribution to journal › Comment/debate › General public

Vesihuolto yritettiin yksityistää: William von Nottbeck: ”Muuta vesihuoltoa ei saa rakentaa ilman lupaani Tampereelle”

Juuti, P. & Katko, T. S., 5 Mar 2020, In: Moro. p. 14-14 1 p.
Research output: Contribution to journal › Article › General public

Tampereen Vesi arjen turvaajana jo 120 vuotta

Juuti, P. & Katko, T. S., 23 Nov 2018, In: Aamulehti. 138, 23.11.2018, 1 p.
Research output: Contribution to journal › Article › General public

Nokian vesiepidemiasta on opittu

Juuti, P. & Rajala, R., 2008, In: Aamulehti. p. 2
Research output: Contribution to journal › Article › General public

Ilmasto muuttuu, riittääkö vesi?

Juuti, P. & Katko, T., 2007, In: Aamulehti.
Research output: Contribution to journal › Article › General public

Käymälät katoavat, tarpeet eivät

Juuti, P. S. & Katko, T. S., 2005, In: Aamulehti. p. s. 2
Research output: Contribution to journal › Article › General public

Viinikanlahden siirto vielä harkintaan

Juuti, P. & Katko, T., 2005, In: Aamulehti.
Research output: Contribution to journal › Article › General public

Vesihuolto alkoi linnasta

Juuti, P. S. & Katko, T. S., 2005, In: Vesimittari, HS-Veden asiakaslehti. p. 2-3 2 p.
Research output: Contribution to journal › Article › General public

Yksityisestä vedestä varoittavia malleja

Juuti, P. & Katko, T., 2004, In: Aamulehti. p. s. 2
Research output: Contribution to journal › Article › General public

Puulausta ja rassausta

Juuti, P., Rajala, R. & Katko, T., 2000, In: Tekniikka ja kunta. 2000, 8/2000
Research output: Contribution to journal › Article › General public

Kunnallinen vesilaitos Tampereelle yli 100 vuotta sitten

Juuti, P. & Katko, T., 1999, In: Tammerkoski. 2, p. 16-20

Research output: Contribution to journal › Article › General public

Satavuotias vesilaitos tiiviisti mukana ihmisten arjessa

Juuti, P. & Katko, T., 1998, In: Aamulehti.

Research output: Contribution to journal › Article › General public

Kolumni joka viikko

Juuti, P., 1995, In: Eesti Elu.

Research output: Contribution to journal › Article › General public

E2 Popularised monograph

Metropoli ja meri. 100 vuotta jätevedenpuhdistusta Helsingissä

Juuti, P., Rajala, R. & Katko, T., 2010, Helsinki: HSY Helsingin seudun ympäristöpalvelut. 158 p. (HSY:n julkaisuja; no. 6/2010)

Research output: Book/Report › Book › General public

Elämän virta: Kajaanin Veden historia

Juuti, P., Rajala, R. & Katko, T., 2009, Kajaani: Kajaanin Vesi.

Research output: Book/Report › Book › General public

E3 Edited popular book

Dosentit - yliopiston merkittävä voimavara

Juuti, R. (Editor), Aspatwar, A. (Editor), Björkman, J. (Editor), Bärlund, M. (Editor), Juuti, P. (Editor), Nikunen, M. (Editor), Parviainen, J. (Editor) & Pessi, T. (Editor), 2023, Tampereen dosenttiyhdistys ry. 94 p. (Tampereen dosenttiyhdistyksen julkaisuja; no. 4)

Research output: Book/Report › Anthology › General public

G4 Doctoral dissertation (monograph)

Kaupunki ja vesi -väitöskirja

Juuti, P., 2001, 1 ed. Pieksämäki: KehräMedia Oy.

Research output: Book/Report › Doctoral thesis › Monograph

Other

Addressing Citizen-Participation for Sustainable Water & Sanitation Services in Kenya's Low-Income Areas

Koros, J., Juuti, P., Juuti, R. & Theuri, S., Mar 2022.

Research output: Working paper › Preprint › Scientific

History Helps in Understanding How the Present Crisis Arose: Development Paths and Means for Winning the Challenge of Aging Water Services Infrastructure

Rajala, R., Juuti, P., Hukka, J. & Katko, T. S., 2019, p. 668-682.

Research output: Other conference contribution › Professional

History of water and health from ancient civilizations to modern times

Vuorinen, H., Juuti, P., Katko, T., Angelakis, A. (Editor) & Koutsoyiannis, D. (Editor), 2019, In: Water Supply. 7, 1, p. 49-57 9 p.

Research output: Contribution to journal › Meeting Abstract › Scientific › peer-review

Customer- and citizen-oriented water services as part of utility core activities

Katko, T. S. & Juuti, P., 9 Oct 2016.

Research output: Other conference contribution › Abstract › Scientific

Vinttikaivosta vesiyhtiöön kutsuttu juhlaesitelmä yhdessä Riikka Rajalan kanssa: kutsuttu juhlaesitelmä yhdessä Riikka Rajalan kanssa

Juuti, P. & Rajala, R., 18 Mar 2011, 243 p. Saarijärvi : HS-Vesi.

Research output: Other contribution

Perspectives of Southern Africa and Northern Europe

Juuti, P. & Rajala, R., 2011. 1 p.

Research output: Other conference contribution › Abstract › Scientific

Water and Society

Juuti, P. & Rajala, R., 2011. 1 p.

Research output: Other conference contribution › Abstract › Scientific

Internet Learning Water and Society

Juuti, P. & Rajala, R., 2011. 1 p.

Research output: Other conference contribution › Abstract › Scientific

Diffusion of urban wastewater treatment in Finland, 1910-2010

Juuti, P. S., Katko, T. S., Rajala, R., Kurki, V. & Pietilä, P., 2010.

Research output: Other conference contribution › Abstract › Scientific

Long-term thinking in water services in Finland

Rajala, R. & Juuti, P., 30 Jul 2009.

Research output: Other conference contribution › Abstract › Scientific

The most common technical systems in the service of the mankind - History of Toilets

Juuti, P. & Rajala, R., 29 Jul 2009.

Research output: Other conference contribution › Abstract › Scientific

Environmental history in Johannesburg and Tampere,1800-1920

Juuti, P. & Mäki, H., 2009.

Research output: Other conference contribution › Abstract › Scientific

Further and further away from Mother Nature. Industry, water pollution, and the Hungarian people in state-socialism

Juuti, P. & Pál, V., 2009.

Research output: Other conference contribution › Abstract › Scientific

Water Use Strategies in Long Term Perspectives in Finland

Rajala, R. & Juuti, P., 8 Aug 2008.

Research output: Other conference contribution › Abstract › Scientific

Path Dependence in History of Water Supply Technology

Juuti, P. S., Rajala, R. & Katko, T. S., 7 Aug 2008.

Research output: [Other conference contribution](#) › [Abstract](#) › [Scientific](#)

Case study method in water history: cases Hämeenlinna, Porvoo, Espoo and Vantaa, Finland

Rajala, R. & Juuti, P., 2007.

Research output: [Other conference contribution](#) › [Abstract](#) › [Scientific](#)

History of water and health from ancient civilizations to modern times

Vuorinen, H. S., Juuti, P. & Katko, T., 28 Oct 2006.

Research output: [Other conference contribution](#) › [Abstract](#) › [Scientific](#)

Water and Sanitation Research in Tampere, Finland

Juuti, P. & Katko, T. S., 2005, In: *Public Works History*. 88, Fall 2005

Research output: [Contribution to journal](#) › [Short survey](#) › [peer-review](#)

The above report is produced using the following setup

Ordered by: MINEDU Type

Activities

PUHDISTETUN JÄTEVEDEN JUOMINEN OLI teekkarien miehuuskoe

Juuti, P. (Interviewee), Katko, T. S. (Other) & Juuti, R. P. (Interviewee)

Nov 2025

Activity: Other › Media appearance

Lausunto Kanta-Hämeen maakunnan vesihuoltosuunnitelmaluonnoksesta

Suominen, A. (Consultant), Juuti, R. P. (Consultant) & Juuti, P. (Consultant)

29 Sept 2015

Activity: Consultancy

North-West University, Vanderbijlpark, South Africa

Juuti, R. P. (Visitor) & Juuti, P. (Visitor)

9 Apr 2025 → 15 May 2025

Activity: Visiting an external institution › Visit abroad

Engaging with stakeholders proved vital for uptake of Managed Aquifer Recharge in Community Water Supplies

Juuti, P. (Speaker), Juuti, R. P. (Speaker), Katko, T. S. (Speaker), Hukka, J. J. (Speaker) & Dillon, P. (Speaker)

1 May 2025

Activity: Talk or presentation › Conference presentation

Institutional Diversity and Cooperatives in Water Services Production

Katko, T. S. (Speaker), Hukka, J. J. (Member), Juuti, P. (Contributor) & Juuti, R. P. (Member)

13 Jun 2025

Activity: Talk or presentation › Conference presentation

History of waters of Vantaa - Environmental History of Vantaa City and Vantaa River

Juuti, P. (Keynote speaker) & Juuti, R. P. (Invited speaker)

5 Jun 2025

Activity: Talk or presentation › Conference presentation

Engaging with stakeholders proved vital for uptake of Managed Aquifer Recharge in Community Water Supplies.

Juuti, P. (Speaker), Juuti, R. P. (Producer), Katko, T. S. (Producer), Hukka, J. J. (Contributor) & Dillon, P. (Contributor)

1 May 2025

Activity: Talk or presentation › Conference presentation

Lausuntomme HE 40/2025 vp Hallituksen esitys eduskunnalle laiksi vesihuoltolain muuttamisesta

Juuti, P. (Consultant) & Juuti, R. P. (Consultant)

27 May 2025

Activity: Consultancy

Vesihuolto, elämän ehto

Juuti, P. (Speaker) & Juuti, R. P. (Speaker)

14 Feb 2025

Activity: Talk or presentation › Invited lecture

University of Cape Town, University of KwaZulu-Natal, North-West University

Juuti, R. P. (Visitor) & Juuti, P. (Visitor)

16 Sept 2024 → 15 Oct 2024

Activity: Visiting an external institution › Visit abroad

Guangxi Normal University

Juuti, R. P. (Visiting lecturer) & Juuti, P. (Visiting lecturer)

11 Nov 2024 → 25 Nov 2024

Activity: Visiting an external institution › Visit abroad

Rapids as lifeline of the City of Tampere from the mid 1800s to the 21st Century

Juuti, P. (Invited speaker), Juuti, R. P. (Invited speaker) & Katko, T. S. (Invited speaker)
2024

Activity: Talk or presentation › Conference presentation

Myytti "taikavarvusta" elää yhä – onko maan alla oikeasti vesisuonia?

Juuti, P. (Other), Juuti, R. P. (Other) & Katko, T. S. (Other)

11 Nov 2024

Activity: Other › Media appearance

Ovatko vesitornit mennyttä maailmaa? Eivät, ja siihen on tärkeä syy.

Juuti, P. (Other), Juuti, R. P. (Other) & Katko, T. S. (Other)

6 Nov 2024

Activity: Other › Media appearance

From a sewer to the water source

Juuti, P. (Keynote speaker) & Juuti, R. P. (Invited speaker)

13 May 2024

Activity: Talk or presentation › Invited lecture

Vesihuollon tutkitut totuudet. Kirja-arvio

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

Jun 2023

Activity: Other › Media appearance

Tampere University, CADWES

Katko, T. S. (Speaker), Juuti, P. (Contributor) & Juuti, R. P. (Contributor)

20 Jun 2023

Activity: Talk or presentation › Invited lecture

Vesilaitosyhdistys - Sitkeät myytit vesihuollon kehittämisen tiellä

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

18 May 2022

Activity: Other › Media appearance

Sitkeät myytit vesihuollon kehittämisen tiellä

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

18 May 2022

Activity: Other › Media appearance

Kirjat, jotka tekivät vaikutuksen. (Vesihuollon myytit)

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
22 Nov 2022

Activity: Other › Media appearance

Vesihuollon myytit Vastapaino. Tietokirjoja kouluun!

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
Oct 2022

Activity: Other › Media appearance

Vesilaitoksiin pitää investoida.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
10 Oct 2020

Activity: Other › Media appearance

Tales From The Brazier's Grotto. Vesihuollon myytit.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
22 Jul 2022

Activity: Other › Media appearance

Vesihuollon myytit - esittely

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
Jun 2022

Activity: Other › Media appearance

Kirjavinkit: Vesihuollon myytit

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
27 Sept 2022

Activity: Other › Media appearance

Kirjaesittely: Vesihuollon myytit.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
17 Oct 2022

Activity: Other › Media appearance

Bokrecension. Vesihuollon myytit.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
Jan 2023

Activity: Other › Media appearance

Puolitotuuksia vastaan.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
Aug 2022

Activity: Other › Media appearance

Vesihuollon myytit–helppotajuinen oppikirja

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)
Aug 2022

Activity: Other › Media appearance

Vesihuollon myytit. Kirja-arvio.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

22 Sept 2022

Activity: Other › Media appearance

Vesihuolto: hyvää ja halpaa

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

May 2023

Activity: Other › Media appearance

Vesihuollon myytit–vihdoinkin niihin on vastauksia

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

29 Aug 2022

Activity: Other › Media appearance

Vesihuollon myytit. Kolumni.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

12 Oct 2022

Activity: Other › Media appearance

Kuntatekniikka 5/22, 31. Vesihuollon myytit.

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

Nov 2022

Activity: Other › Media appearance

Tärkeä linjaus päättäjien ratkaistavaksi: saako vesihuoltolaitos tuottaa voittoa?

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

27 May 2022

Activity: Other › Media appearance

Vesi on yhtä aikaa paikallinen ja globaali ihmisoikeus

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

Jun 2022

Activity: Other › Media appearance

Hanasta vettä–Mistä ja mihin vesi? Vesihuollon myyttejä purkamassa

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

13 Sept 2022

Activity: Other › Media appearance

Vesihuollon myyttejä purkamassa

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

Nov 2022

Activity: Other › Media appearance

Vesihuollon myyttejä murtamassa – vai myös vahvistamassa?

Katko, T. S. (Other), Juuti, P. (Other) & Juuti, R. P. (Other)

May 2023

Activity: Other › Media appearance

Vesihuolto, näkymätön mutta elintärkeä osa kaupunki-infraa

Juuti, R. P. (Speaker) & Juuti, P. (Speaker)

15 Feb 2023

Activity: Talk or presentation › Invited lecture

Vesihuoltopalvelujen tutkimus-, kehittämis- ja innovaatioklusteri VEPATUKI2

Juuti, P. (Leader) & Juuti, R. P. (Other)

2022 → 2028

Activity: Other › Leadership of a scientific program or project

North-West University & Stellenbosch University

Juuti, P. (Visitor)

Nov 2022 → Dec 2022

Activity: Visiting an external institution › Visit abroad

Tampereen kirjamessut _ Aamulehden kirjamessuliite

Mörttinen, M. (Other), Juuti, P. (Other), Juuti, R. P. (Other) & Katko, T. S. (Other)

22 Nov 2022

Activity: Other › Media appearance

Principles of sustainable water services systems and resilient organisations

Katko, T. S. (Speaker), Hukka, J. J. (Contributor), Juuti, P. (Contributor) & Juuti, R. P. (Contributor)

12 Sept 2022

Activity: Talk or presentation › Conference presentation

YMPÄRISTÖTERVEYDENHUOLLON VALTAKUNNALLISET OPINTO- JA NEUVOTTELUPÄIVÄT

Juuti, R. P. (Invited speaker) & Juuti, P. (Invited speaker)

28 Apr 2022

Activity: Talk or presentation › Invited lecture

Water History in Finland

Juuti, P. (Speaker) & Rajala, R. (Speaker)

18 Nov 2010

Activity: Talk or presentation › Conference presentation

Household water consumption in Finland

Rajala, R. (Speaker) & Juuti, P. (Speaker)

14 Aug 2010

Activity: Talk or presentation › Conference presentation

Household water consumption in 1900s -case Finland

Rajala, R. (Speaker) & Juuti, P. (Speaker)

18 Jun 2010

Activity: Talk or presentation › Conference presentation

UNISA University of South Africa

Juuti, P. (Visitor)

7 Nov 2021 → 1 Dec 2021

Activity: Visiting an external institution › Visit abroad

Tampere public water from early crises to COVID

Juuti, P. (Keynote speaker) & Rajala, R. P. (Keynote speaker)

15 Dec 2020 → 17 Dec 2020

Activity: Talk or presentation › Conference presentation

Frontiers and Methods of Water History Research: Long-term trends in European Water Sector

Juuti, P. (Keynote speaker)

27 Sept 2020

Activity: Talk or presentation › Conference presentation

thé Second Meeting of Water for Human Settlements related Chairs and Centers, on 17 and 18 December 2019, Paris

Rajala, R. P. (Chair) & Juuti, P. (Participant)

17 Dec 2019 → 18 Dec 2019

Activity: Participating in or organising an event › Participant of a conference, workshop, panel, session or tutorial

History of Water and Life Expectancy

Juuti, P. (Speaker), Rajala, R. P. (Contributor) & Katko, T. S. (Contributor)

11 Sept 2019

Activity: Talk or presentation › Conference presentation

UNISA University of South Africa

Juuti, P. (Visitor)

Oct 2019 → Nov 2019

Activity: Visiting an external institution › Visit abroad

Rehabilitation gap of water services - global threat for wellbeing, health and economy

Juuti, P. (Speaker) & Rajala, R. P. (Speaker)

2019

Activity: Talk or presentation › Conference presentation

History Helps in Understanding How the Present Crisis Arose: Development Paths and Means for Winning the Challenge of Aging Water Services Infrastructure.

Rajala, R. P. (Keynote speaker), Juuti, P. (Keynote speaker), Hukka, J. J. (Contributor) & Katko, T. S. (Contributor)

2019

Activity: Talk or presentation › Conference presentation

Tieteessä tapahtuu. 1/2018. s. 66-67. A. Sahari

Juuti, P. (Other), Katko, T. S. (Other) & Rajala, R. (Other)

Feb 2018

Activity: Other › Media appearance

Sata vuotta vesihuoltoa Suomessa. TamPub. 288 s.

Juuti, P. (Other), Katko, T. S. (Interviewee) & Rajala, R. (Other)

Mar 2018

Activity: Other › Media appearance

Sata vuotta vesihuoltoa Suomessa. TamPub. 288 s.

Juuti, P. (Other), Katko, T. S. (Interviewee) & Rajala, R. (Other)
Jan 2018

Activity: Other › Media appearance

Fusion of Universities in Tampere

Juuti, P. (Speaker) & Rajala, R. P. (Contributor)
16 Nov 2017 → 17 Nov 2017

Activity: Talk or presentation › Conference presentation

The Past of Water Supply and Sanitation and Its Possibilities - Perspectives of Southern Africa and Northern Europe

Juuti, P. (Speaker) & Rajala, R. P. (Contributor)
16 Nov 2017 → 17 Nov 2017

Activity: Talk or presentation › Conference presentation

Tampere University of Technology and CADWES research team

Rajala, R. P. (Speaker) & Juuti, P. (Contributor)
16 Nov 2017

Activity: Talk or presentation › Conference presentation

Water and Society- Internet based learning

Juuti, P. (Speaker)
13 Nov 2017

Activity: Talk or presentation › Invited lecture

Regional narratives in the long term water conflict in Finland

Rajala, R. P. (Speaker) & Juuti, P. (Contributor)
16 Nov 2017 → 17 Nov 2017

Activity: Talk or presentation › Conference presentation

New University of Tampere

Juuti, P. (Speaker) & Rajala, R. P. (Contributor)
13 Nov 2017

Activity: Talk or presentation › Invited lecture

Water and Environmental Research in TUT, Tampere, Finland

Rajala, R. P. (Speaker) & Juuti, P. (Invited lecturer)
13 Nov 2017

Activity: Talk or presentation › Invited lecture

UNISA University of South Africa

Juuti, P. (Invited lecturer)
Oct 2017 → Dec 2017

Activity: Visiting an external institution › Visit abroad

Solina 2017

Juuti, P. (Other) & Katko, T. S. (Interviewee)
Dec 2017 → ...

Activity: Other › Media appearance

Sata vuotta vesihuoltoa Suomessa

Juuti, P. (Other), Katko, T. S. (Interviewee) & Rajala, R. (Other)

24 Oct 2017

Activity: Other › Media appearance

Sata vuotta vesihuoltoa Suomessa

Juuti, P. (Other), Katko, T. S. (Interviewee) & Rajala, R. (Other)

24 Oct 2017

Activity: Other › Media appearance

Int. Conf. on Mobilizing UNESCO Chairs in Natural Sciences for policy action towards 2030 on the occasion of 25th Ann. of UNITWIN/UNESCO Chairs programme.

Katko, T. S. (Participant) & Juuti, P. (Participant)

13 Jun 2017 → 14 Jun 2017

Activity: Participating in or organising an event › Membership of a scientific or program committee of a conference or seminar

Osuuskuntien historiaa

Juuti, P. (Invited lecturer)

27 Jan 2017

Activity: Talk or presentation › Invited lecture

Understanding of the role of WSS in the development of societies

Juuti, P. (Invited lecturer)

10 Nov 2016

Activity: Talk or presentation › Invited lecture

Environmental history and Vantaa River

Juuti, P. (Invited lecturer)

10 Nov 2016

Activity: Talk or presentation › Invited lecture

Water and Society - Internet based learning

Juuti, P. (Invited lecturer)

2 Nov 2016

Activity: Talk or presentation › Invited lecture

FROM A SEWER TO THE WATER SOURCE –ENVIRONMENTAL HISTORY OF THE WATERS OF VANTAA RIVER AND VANTAA CITY FROM EARLY 1900S TO PRESENT

Juuti, P. (Invited lecturer)

2 Nov 2016

Activity: Talk or presentation › Invited lecture

Development of environmental services in capital city area in Finland

Juuti, P. (Invited lecturer)

6 Oct 2009

Activity: Talk or presentation › Invited lecture

Historical experiences and water crisis (presentation by Juuti Petri & Rajala Riikka). International conference on Water research and Heritage 03.12.2013. Mapungubwe, Etelä-Afrikka.

Juuti, P. (Invited lecturer)

3 Dec 2013

Activity: Talk or presentation › Invited lecture

Water consumption in the region of Kotka (presentation by Rajala Riikka & Juuti Petri). International conference on Water research and Heritage 03.12.2013. Mapungubwe, Etelä-Afrikka.

Juuti, P. (Invited lecturer)

3 Dec 2013

Activity: Talk or presentation › Invited lecture

Water and Society (presentation by Rajala Riikka & Juuti Petri). International conference on Water research and Heritage 03.12.2013. Mapungubwe, Etelä-Afrikka.

Juuti, P. (Invited lecturer)

3 Dec 2013

Activity: Talk or presentation › Invited lecture

Environmental History of Inhabitants and the River Vantaa (presentation by Juuti Petri & Rajala Riikka). International conference on Water research and Heritage 03.12.2013. Mapungubwe, Etelä-Afrikka.

Juuti, P. (Invited lecturer)

3 Dec 2013

Activity: Talk or presentation › Invited lecture

North-South South Partnership

Juuti, P. (Invited lecturer)

19 Nov 2010

Activity: Talk or presentation › Conference presentation

“Water Consumption in Finland and Europe” by Riikka Rajala & Petri Juuti

Juuti, P. (Invited lecturer)

18 Nov 2010

Activity: Talk or presentation › Conference presentation

“Case studies: the example of Hämeenlinna” by Riikka Rajala & Petri Juuti

Juuti, P. (Invited lecturer)

19 Nov 2010

Activity: Talk or presentation › Conference presentation

“Water History in Finland” by Petri Juuti & Riikka Rajala

Juuti, P. (Invited lecturer)

18 Nov 2010

Activity: Talk or presentation › Conference presentation

“Municipal Governance and Water Supply: Pretoria 1855-1935” by Harri Maki, Johannes Haarhoff, Petri Juuti

Juuti, P. (Invited lecturer)

18 Nov 2010

Activity: Talk or presentation › Conference presentation

Water and the City - Lessons from Finnish History – implications for a future water crisis?

Juuti, P. (Invited lecturer)

30 Jun 2011

Activity: Talk or presentation › Conference presentation

Environmental History in Tampere, 1779-1920 Case study: Water related problems, WC vs. dry toilet

Juuti, P. (Speaker)

20 Aug 2003

Activity: Talk or presentation › Conference presentation

From a Sewer to the Water Source (by Rajala Riikka & Juuti Petri)

Juuti, P. (Speaker)

28 Jan 2013

Activity: Talk or presentation › Conference presentation

Environmental History of the Waters of Vantaa River and Vantaa City from Early 1900s to Present.

(by Juuti Petri, Rajala Riikka.)

Juuti, P. (Speaker)

28 Jan 2013

Activity: Talk or presentation › Conference presentation

Experiences of Toilets and Sanitation in South African and Finnish Cities - A Short Comparative Story

Juuti, P. (Invited lecturer)

16 Aug 2006

Activity: Talk or presentation › Conference presentation

Household water consumption in Finland.

Juuti, P. (Contributor)

18 Jun 2010

Activity: Talk or presentation › Conference presentation

Strategic management of water services in Tampere city and industrial water services 1835-2010.

Juuti, P. (Contributor)

11 Aug 2010

Activity: Talk or presentation › Conference presentation

Standard Equipment in Finnish Households in the Early 1900s – WC, Water Pipe, Sewer & Hot Water.

Juuti, P. (Speaker)

14 Aug 2010

Activity: Talk or presentation › Conference presentation

Yhteistyöllä voimaa. EPV Energia, lehdistötilaisuus 16.10.2012. Vaasa, Suomi.

Juuti, P. (Speaker)

16 Oct 2012

Activity: Talk or presentation › Public talk

100 vuotta Kotkan vesihuollon historiaa.

Juuti, P. (Speaker)

21 Mar 2014

Activity: Talk or presentation › Public talk

University of Stellenbosch

Juuti, P. (Invited lecturer)

16 Nov 2012

Activity: Visiting an external institution › Visit abroad

University of Johannesburg

Juuti, P. (Invited lecturer)

Sept 2009 → Oct 2009

Activity: Visiting an external institution › Visit abroad

University of Johannesburg

Juuti, P. (Invited lecturer)

May 2011 → Jul 2011

Activity: Visiting an external institution › Visit abroad

University of Stellenbosch

Juuti, P. (Invited lecturer)

Oct 2012 → Dec 2012

Activity: Visiting an external institution › Visit abroad

University of Stellenbosch

Juuti, P. (Invited lecturer)

16 Nov 2012

Activity: Visiting an external institution › Visit abroad

University of Stellenbosch

Juuti, P. (Invited lecturer)

16 Nov 2012

Activity: Visiting an external institution › Visit abroad

North-West Univesrity, Vanderbijlpark, South Africa

Juuti, P. (Invited lecturer)

25 Oct 2012

Activity: Visiting an external institution › Visit abroad

North-West Univesrity, Vanderbijlpark, South Africa

Juuti, P. (Invited lecturer)

25 Oct 2012

Activity: Visiting an external institution › Visit abroad

North-West Univesrity, Vanderbijlpark, South Africa

Juuti, P. (Invited lecturer)

25 Oct 2012

Activity: Visiting an external institution › Visit abroad

University of Johannesburg

Juuti, P. (Invited lecturer)

Jul 2007 → Aug 2010

Activity: Visiting an external institution › Visit abroad

North-West Univesrity, Vanderbijlpark, South Africa

Juuti, P. (Invited lecturer)

Oct 2016 → Dec 2016

Activity: Visiting an external institution › Visit abroad

Examiner for doctoral theses for the degree of DLitt et Phil in History

Juuti, P. (Position of trust)

18 Jan 2017

Activity: Evaluation, examination and supervision › Pre-examination of dissertation or acting as opponent to doctoral students

Pre-examination of doctoral theses

Juuti, P. (Examiner)

5 May 2008

Activity: Evaluation, examination and supervision › Pre-examination of dissertation or acting as opponent to doctoral students

Statement to Princeton University

Juuti, P. (Examiner)

13 Oct 2011

Activity: Evaluation, examination and supervision › Statement of assessment of professorship

Evaluator of scientific research proposals and academic positions

Juuti, P. (Examiner)

2011 → 2016

Activity: Evaluation, examination and supervision › Evaluation of activities

IWA Regional Symposium on water, wastewater and environment 22-24 March, 2017 in Çesme-Izmir, Turkey (Event)

Juuti, P. (Position of trust)

22 Mar 2017

Activity: Membership › Position of trust in an academic community

IWA Regional Symposium on water, wastewater and environment 22-24 March, 2017 in Çesme-Izmir, Turkey (Event)

Juuti, P. (Position of trust)

22 Mar 2017

Activity: Membership › Position of trust in an academic community

IWA Regional Symposium on water, wastewater and environment 22-24 March, 2017 in Çesme-Izmir, Turkey (Event)

Juuti, P. (Position of trust)

22 Mar 2017

Activity: Membership › Position of trust in an academic community

IWHA (International Water History Association) (External organisation)

Juuti, P. (Position of trust)

2010 → 2013

Activity: Membership › Position of trust in an academic community

The National Research Foundation (NRF) (External organisation)

Juuti, P. (Position of trust)

28 Aug 2011

Activity: Membership › Position of trust in an academic community

Princeton University (External organisation)

Juuti, P. (Position of trust)

13 Oct 2011

Activity: Membership › Position of trust in an academic community

North-West Univesrity, Vanderbijlpark, South Africa (External organisation)

Juuti, P. (Position of trust)

28 Dec 2011

Activity: Membership › Position of trust in an academic community

IWHA (International Water History Association) (External organisation)

Juuti, P. (Position of trust)

2009 → 2017

Activity: Membership › Position of trust in an academic community

Dry Toilet 2006, 2nd International Dry Toilet Conference, 16-19 August 2006, Tampere, Finland. (Event)

Juuti, P. (Reviewer)

2006

Activity: Membership › Position of trust in an academic community

The 3rd International Dry Toilet Conference DT2009, Session 7, August 12-15, 2006, Tampere, Finland (Event)

Juuti, P. (Reviewer)

2006

Activity: Membership › Position of trust in an academic community

DRY TOILET 2003 the 1st International Dry Toilet Conference, 20-23 August 2003, the University of Tampere (Event)

Juuti, P. (Position of trust)

20 Aug 2003

Activity: Membership › Position of trust in an academic community

5th International Dry Toilet Conference (Event)

Juuti, P. (Reviewer)

2015

Activity: Membership › Position of trust in an academic community

Tampere university library (External organisation)

Juuti, P. (Position of trust)

2012 → 2013

Activity: Membership › Position of trust in an academic community

International Centre for Research on Environmental Services and Governance (ICES) (External organisation)

Juuti, P. (Position of trust)

2006 → 2016

Activity: Membership › Position of trust in an academic community

Water Policy (Journal)

Juuti, P. (Reviewer)

4 Apr 2017

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Water History (Journal)

Juuti, P. (Reviewer)

2017

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Water History Conference 2017 GRAND RAPIDS, USA - JUNE 15-17, 2017 The Water History conference of the International Water History Association (IWHA) in Grand Rapids, Michigan, USA

Juuti, P. (Member)

15 Jun 2017 → 17 Jun 2017

Activity: Participating in or organising an event › Membership of a scientific or program committee of a conference or seminar

Scandinavian Economic History Review (Journal)

Juuti, P. (Reviewer)

2010 → 2011

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Progress in Industrial Ecology, An International Journal (PIE) (Journal)

Juuti, P. (Reviewer)

2011 → 2013

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

AFRICAN JOURNAL OF AGRICULTURAL RESEARCH (Journal)

Juuti, P. (Reviewer)

2010 → 2011

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

African Historical Review (Journal)

Juuti, P. (Reviewer)

2012 → 2013

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Historia Journal of the Historical Association of South Africa (Journal)

Juuti, P. (Reviewer)

2007 → 2008

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Adjunct Professor/Docent in history of Technology

Juuti, P. (Docentship)

2006 → 2030

Activity: Other › Academic qualification (e.g. title of docent)

Adjunct Professor/Docent in Finnish history

Juuti, P. (Docentship)

2007 → 2030

Activity: Other › Academic qualification (e.g. title of docent)

Extraordinary professorial research associate

Juuti, P. (Docentship)

2013 → 2016

Activity: Other › Academic qualification (e.g. title of docent)

Adjunct Professor/Docent in Environmental history

Juuti, P. (Docentship)

2004 → 2030

Activity: Other › Academic qualification (e.g. title of docent)

IWA regional Symposium on Water, Wastewater & Environment: Tradions and Culture, 22-24 March Patras

Juuti, P. (Member)

22 Mar 2015

Activity: Participating in or organising an event › Membership of a scientific or program committee of a conference or seminar

2nd IWA Regional Symposium on water, wastewater and environment

Juuti, P. (Member)

22 Mar 2016

Activity: Participating in or organising an event › Membership of a scientific or program committee of a conference or seminar

4th IWA International Symposium on Water and Wastewater Technologies in Ancient Civilizations

Juuti, P. (Member)

17 Sept 2016

Activity: Participating in or organising an event › Membership of a scientific or program committee of a conference or seminar

Scandinavian Journal of History (Journal)

Juuti, P. (Reviewer)

2006 → 2007

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Suomalaisen Kirjallisuuden Seura (Publisher)

Juuti, P. (Reviewer)

2009 → ...

Activity: Publication peer-review and editorial work › Reviewer of Other Manuscript

IWHA Water History Conference, June 16-19, 2010, Delft, The Netherlands

Juuti, P. (Member)

19 Jun 2010

Activity: Participating in or organising an event › Chair of workshop, panel, session or tutorial

IWHA Water History Conference, June 16-19, 2010, Delft, The Netherlands

Juuti, P. (Member)

18 Jun 2010

Activity: Participating in or organising an event › Chair of workshop, panel, session or tutorial

IWHA Water History Conference, June 16-19, 2010, Delft, The Netherlands

Juuti, P. (Member)

17 Jun 2010

Activity: Participating in or organising an event › Chair of workshop, panel, session or tutorial

IWHA Water History Conference, June 16-19, 2010, Delft, The Netherlands

Juuti, P. (Member)

16 Jun 2010

Activity: Participating in or organising an event › Chair of workshop, panel, session or tutorial

IWHA (Publisher)

Juuti, P. (Reviewer)

4 Jul 2011

Activity: Publication peer-review and editorial work › Reviewer of Conference Article

IWHA 7th conference

Juuti, P. (Member)

6 Jul 2011

Activity: Participating in or organising an event › Chair of workshop, panel, session or tutorial

INTERNATIONAL DRY TOILET CONFERENCE

Juuti, P. (Member)

2003 → 2015

Activity: Participating in or organising an event › Membership of a scientific or program committee of a conference or seminar

Extraordinary Professor. North-West University

Juuti, P. (Position of trust)

2013 → 2016

Activity: Other › Academic qualification (e.g. title of docent)

The Journal for Transdisciplinary Research in Southern Africa (Journal)

Juuti, P. (Reviewer)

2006 → 2016

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Water History (Journal)

Juuti, P. (Reviewer)

2011 → 2016

Activity: Publication peer-review and editorial work › Reviewer of Scientific Journal

Ympäristöhistoria: finnish journal of environmental history (Journal)

Juuti, P. (Editor)

2011 → 2020

Activity: Publication peer-review and editorial work › Editorship of a book or a special issue of a journal

TAMPEREEN YLIOPISTO
Kansleri

NIMITTÄMISKIRJA
Nimittäminen virkamieheksi
virkasuhteeseen

D35/103.02/2004

3.11.2004

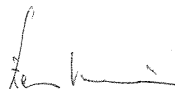
Nimi	Petri Sakari Juuti
Arvo tai ammatti	filosofian tohtori
Virasto	Tampereen yliopisto
Tiedekunta/laitos	humanistinen tiedekunta/ historiatieteen laitos
Nimike	ympäristöhistorian dosentti
Aika	1.12.2004 lukien toistaiseksi

Dnro 532/141/2007

NIMITTÄMISKIRJA
filosofian tohtori
Petri Sakari Juutille
15. päivänä kesäkuuta 2007

Tänä päivänä tekemälläni päätöksellä on filosofian tohtori Petri Sakari Juuti otettu Suomen historian dosentiksi Turun yliopistoon toistaiseksi jatkuvaan virkasuhteeseen.


Kansleri


Eero Vuorio

13.06.2006

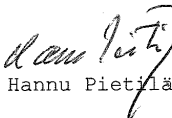
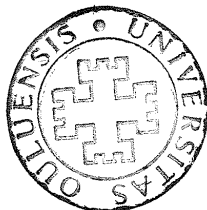
Nimi	Juuti, Petri Sakari 12.06.1966
Arvo tai ammatti	filosofian tohtori
Virasto	Oulun yliopisto Humanistinen tiedekunta
Nimike	tekniikan historian dosentti
Aika	01.07.2006 lukien

Rehtori



Lauri H. J. Lajunen

Hallintojohtaja



Hannu Pietilä

Dosentin arvon myöntäminen

Dosentin arvosta säädetään yliopistolain (558/2009) 89 §:ssä. Rehtori voi myöntää hakemuksesta dosentin arvon henkilölle, joka on suorittanut tohtorin tutkinnon tai tohtorin arvoon kuuluvat opinnäytteet ja jolla on perusteelliset tiedot omalta alaltaan, julkaisuilla tai muilla tavoin osoitettu kyky itsenäiseen tieteelliseen työhön tai taiteelliseen työhön sekä hyvä opetustaito.

Filosofian tohtori **Petri Juutille** myönnetään **dosentin arvo** ajalle 1.5.2017–30.4.2022. Dosentuurin alana on Vesihuollon ja yhdyskuntien infrastruktuurin kehitys/ Development of Water Services and Municipal Infrastructure ja se Talouden ja rakentamisen tiedekuntaan.



Mika Hannula
rehtori



Jyrki Laitinen väitteli tekniikan tohtoriksi 2020. "Quest for sustainable urban water services – Management and practices in Finland." Kuvassa toinen vasta-väittelijä TkT Miimu Airaksinen, Jyrki Laitinen ja kustos Petri Juuti.



Vesihuollon tutkijalle Etelä-Afrikka on monella tapaa ihanteellinen maa. Tutkimusaihetta ja sitä koskevaa tutkimusta arvostetaan todella korkealle. (2018)



Dosentit Björkman, Parviainen, Juuti & Juuti. Kuva otettu 13.3.2025 Tampereen Dosenttiyhdistyksen vuosikokouksen jälkeen.



Kunniakirja

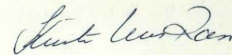
Tampereen dosenttiyhdistyksen
hallitus on päättänyt myöntää

vuoden 2011 dosentin arvon
Tampereen yliopiston
dosentti Petri Juutille.

Tampereella 11. päivänä huhtikuuta 2011

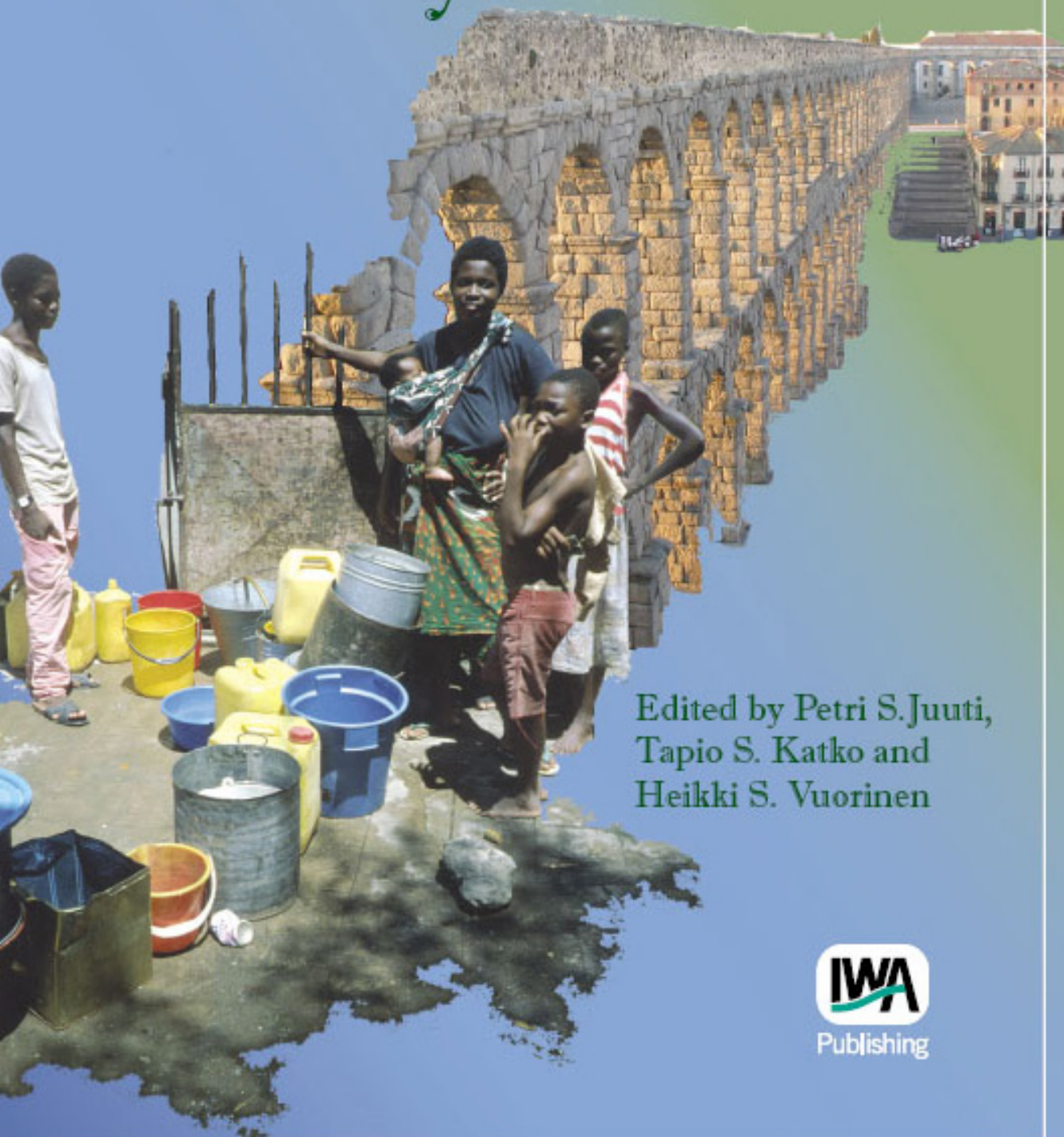


Tom Frisk
puheenjohtaja



Kirsti Uusi-Rasi
sihteeri

Environmental History of Water



Edited by Petri S. Juuti,
Tapio S. Katko and
Heikki S. Vuorinen

IWA
Publishing

First Innovations of Water Supply and Sanitation

Petri S. Juuti

Alkuperäinen julkaisu:

First innovations of water supply and sanitation

Juuti, P., 2007, *Environmental History of Water - Global views on community water supply and sanitation*. Juuti, P., Katko, T. & Vuorinen, H. (eds.). IWA Publishing, p. 17-44

4

FIRST INNOVATIONS OF WATER SUPPLY AND SANITATION

Petri S. Juuti



Figure 4.1 Key places mentioned in the chapter.

4.1. GENERAL BACKGROUND

The first major innovations of water supply and sanitation were probably the well and the toilet. Without these two simple but necessary innovations, human life and wellbeing face constant risk and nature is under serious stress. If these simple basic facilities are in good order, health problems and environmental risks can be avoided. Of course one should keep in mind that different kinds of water-lifting devices in the use of irrigation are also thousands of years old. The history of wells and toilets is as long as the history of permanent human settlements. What makes these innovations so important is the fact that wells and latrines are still in use and will certainly remain so also in the future. The well and the toilet are still the most common technical systems in the service of mankind.

Water is a necessity for human life and thus it also plays a vital role in many religions; springs and wells are frequently mentioned in their scriptures. For example, the first few books of the Old Testament have several descriptions of building, using, owning and securing wells. (Spier 1989, 34)

19. Isaac's servants dug in the valley and discovered a well of fresh water there.

20. But the herdsmen of Gerar quarreled with Isaac's herdsmen and said, "The water is ours!" So he named the well Esek, [dispute] because they disputed with him.

21. Then they dug another well, but they quarreled over that one also; so he named it Sitnah. [opposition]

22. He moved on from there and dug another well, and no one quarreled over it. He named it Rehoboth, [room] saying, "Now the Lord has given us room and we will flourish in the land." (Genesis 26:19–22)

There were disputes over wells and the right to use them, especially in the dry areas, where the well has been of vital importance. Toilets haven't aroused the interest of artists, philosophers or folklorists as much as wells. But it is not surprising that there were disputes over toilets, especially if they were too near a neighbor's border or house. Toilets have been found repugnant and in many countries and cultures talking about bodily functions is still a taboo. The caretakers of latrines are often seen as the lowest of all people. In poor living conditions the social status of tenants was visible in their location – the further one lived from the toilets the better status. Toilets have never been as appreciated a meeting place as wells, however, public toilets were a place for meeting people in ancient times. And although the well-tended outhouse with several adjacent seats in many bigger houses or factories offered a moment of rest in between heavy work. (Juuti 2003, 47–48; Juuti & Wallenius 2005, 25, 87.)

One of the oldest remaining references to the disposal of human waste is found in the Old Testament:

12. Designate a place outside the camp where you can go to relieve yourself.

13. As part of your equipment have something to dig with, and when you relieve yourself, dig a hole and cover up your excrement. (Deuteronomy 23:12-13)



Figure 4.2 Water carriers in Cape Town, South Africa in early 1800's. Detail from the drawing by Anne Barnard. (Source: NAR/AG 15691)

Emptying toilets and carrying water (Figure 4.2) were—and still are—considered to be unpleasant tasks. These tasks were usually assigned to the lowest social group available—women, children and slaves. The task of water carrier was also used as a punishment, for example: *“They continued, “Let them live, but let them be woodcutters and water carriers for the entire community.” So the leaders’ promise to them was kept.”* (Joshua 9:21)

Until the birth of water and sewage works, toilets and wells were the main technological innovations in the service of the humankind. These simple solutions have been in general use for thousands of years and are today not radically different from those used in the past. For example, most people in Europe and the USA took their drinking water from private wells until the last quarter of the 19th century. It must be noted that also public fountains were used in many countries till the mid 1800s and even later in some cases. (Figure 4.3) The needs of fire fighting, businesses and industries, real estate owners, and health authorities hastened the birth of water works. (Keating 1989; Juuti 2001; Juuti & Katko 2005)

This chapter describes the general development of wells and toilets up to the early 20th century.

4.2. WATER HOLES AND FIRST WELLS

It is impossible to say for sure where the first human-made well was. It is easier to search for wells that still exist. There are several remains of wells from the Neolithic era. For example, two very old wells have been found in Israel and Cyprus. In northern Israel, a well that is roughly 10,000 years old was found in the Pre-Pottery Neolithic B settlement of Atlit Yam. The well was constructed by dry-stone walling, and its diameter is 1.5 meters with a depth of 5.5 meters. In western Cyprus, an old well has been found at Kissonerga-Mylouthkia. It is about 7-8 meters deep and from the same era as the Atlit Yams well. (arcl.ed.ac.uk/arch/annrept/report99/; witwib.com/Atlit_Yam, accessed Aug 24, 2005)



Figure 4.3 Old public well from Vaasa, Finland and author. Well was built in late 1800s. (Photo: Tapio Katko)

While wells were built already 10 000 years ago, permanent places for drawing water are even older than that. The oldest constructions relating to the use of water were used for irrigation. Springs and wells have not just been places to get water but also important meeting points for thousands of years. They have also served as boundary markers, places of worship and many other purposes.

The earliest sites where safe supplies of water were found were springs and freshwater streams such as small creeks. Not just humans but also other mammals prefer flowing water and some mammals even dig water holes themselves. For example, elephants dig quite deep well-like holes in dry areas. An average elephant needs approximately 160 liters per day; therefore the need for an adequate water source is obvious. If there is no water available, for example, in the river, they dig wells in the dried riverbeds with their trunks and bring the water up. In the dry seasons also other mammals use elephant wells. So the pit well, a deep water hole without any fortified walls, is the forerunner of the dug well. Water has been taken from this sort of well by whatever means were accessible, usually just using simple vessels. One possibility was to form a chain of water carriers—this enabled the drawing of



Figure 4.4 A draw well with counterpoise lift from Juupajoki, Finland. (Photo: Petri Juuti)

water from deep in the ground without advanced technology. In this way it was possible to reach water lying tens of meters deep. Water has been lifted from the dug well using the means available at that time, first with a bucket or a similar vessel, or possibly with the help of a rope or other tools.

Approximately 3000 BC the draw well with counterpoise lift (Figure 4.4) was invented in Babylonia and it was for over 2000 years almost the only effective means of drawing water. The counterpoise lift was spread by the Greeks and Romans from the Near East to Central and Western Europe and eventually also to Scandinavia. (Toivonen et al. 1981, 42; Katko 1996, 26.) In Egypt it was called a *shaduf* and was used to lift water from Nile. Traditionally a draw well was built from wood, but some iron fortification might also have been used. However, the column, the counterpoise lift, the bucket pole and the bucket were wooden. If there was a need for extra weight to counterweight the bucket, it was usually made of a heavier material.

4.3. MONEY DOESN'T STINK – EARLY TOILETS AND WELLS

The earliest known permanent city-like settlement was Jericho, dating from 8000–7000 BC, which was near springs and other bodies of water. In Egypt there are traces of wells from 3000 BC and in Mesopotamia there are traces of stone rainwater channels from same era. It is estimated that one of the first and best known cities of Mesopotamia, Ur, had already in 2000 BC rainwater drainage systems and the water closet was quite common in private houses.

The Indus civilization, from its emergence in the early third millennium BC to its collapse in the early second, is best known from the excavations of Mohenjo-Daro and Harappa, located in modern Pakistan. Between these two cities lie several hills where the remnants of other cities of the same culture can be found. In the Bronze Age city of Mohenjo-Daro, there are still to be seen ancient wells and water pipes. The Indus culture was highly developed and similar to Mesopotamia and Egypt. Houses were well built and spacious, as were baths, which had brick sewers. (Gray 1940, 939–946)

Many houses in Mohenjo-Daro had a well inside the building. Wells were usually round, sometimes oval shaped, the floor level was stone or brick and the brick lining went deep down. There were altogether some 700 wells and the average distance to the nearest well was only 17 meters. This is an absolutely unique example in the history of water supply. The main innovation was nevertheless storing the water in advance where it was needed in the city for easy access and use.

Almost every house in Mohenjo-Daro had a toilet, placed on the street side of the house, so that wastewater was easy to dispose of into street gutters. Washing places were right next to the toilets. Bath and household water, wastewater from toilets and rainwater were usually led through brick-lined pits and then through the outlet to the street gutters instead of leading them there directly. In some cases the gutters were situated too close to the wells and it is possible that wastewater contaminated the drinking water. The ruins of Mohenjo-Daro depict a community in which private and public hygiene were maintained effectively and the water supply of which was adequately protected from contamination. (Foil et al. 1993, 1-7; Gray 1940, 939-946; Wijmer 1992, 12; Jansen 1993, 17) The Indus culture is a prime example of a functional solution to sanitation problems in early times.



Figure 4.5 Minoans had separate sewer systems in Knossos. Rainwater was collected with this kind of “stone drains”. (Photo: Elsi Maijala-Juuti)

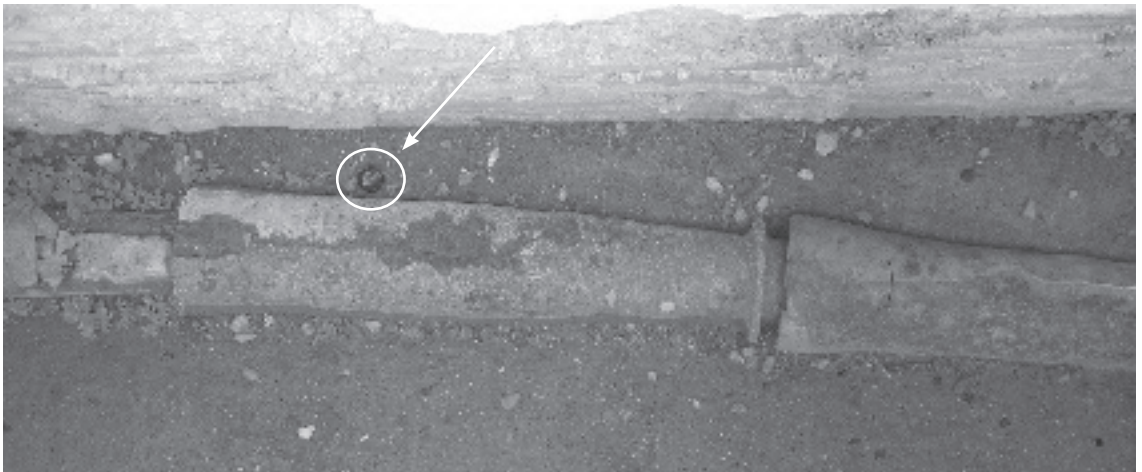


Figure 4.6 Old and new technology side by side in Knossos. Clay water pipes from Minoan time some 4000 years ago and bottle top of water bottle on the left upper side of pipe. This is part of water system that channelled drinking water from a source in the vicinity of the palace (nearby mountain). This took form of a series of clay pipes with one end narrower than the other so that they could fit together, thereby increasing the water pressure and allowing it to flow more easily. (Photo: Petri Juuti)



Figure 4.7 Minoan toilet (left) from Knossos and drain (right). (Photo: Petri Juuti)

In Crete, the Bronze Age Minoan culture (circa 2600-1100 BC) was highly advanced. In the capital city Knossos there were three different water systems; one for drainage, one for rain water and one for drinking water. (Figure 4.5) Drinking water to palace was taken from nearby mountain via 1,6 kilometers long clay pipes. These water pipes are probably the oldest still remaining ones and approximately 4000 years old. (Figure 4.6) There were also several toilets (Figure 4.7, 4.9) using water to flush wastes to the river. In Crete other city Phaistos relied on rain water because there was no natural springs. Rain water was collected to several cisterns. Water was also in central role in Minoan mythology. (Kakudakis 17.10.2005; Juuti, P. October 2005; Vasilakis, 69-70) Read more about this systems from next chapter by Vuorinen.

Good insight into ancient wells is offered by the over 90 meter-deep Bir Yusuf, also known as (aka) the Spiral Well (aka Joseph's Well, aka Well of Saladin) well, in Cairo, where the water was lifted and hauled up with a long line of carriers and later with a wooden water wheel. The well was dug in the limestone rock during the Graeco-Roman era, but when Sultan Salah el Din (Saladin, aka Jusuf, aka Joseph 1171-1193 AD), ordered his engineer Bahaaeddin Ibn Qaraqosh to construct the Citadel of Cairo, the place where the well was situated was within its walls. The well was also enlarged and it consisted of two levels

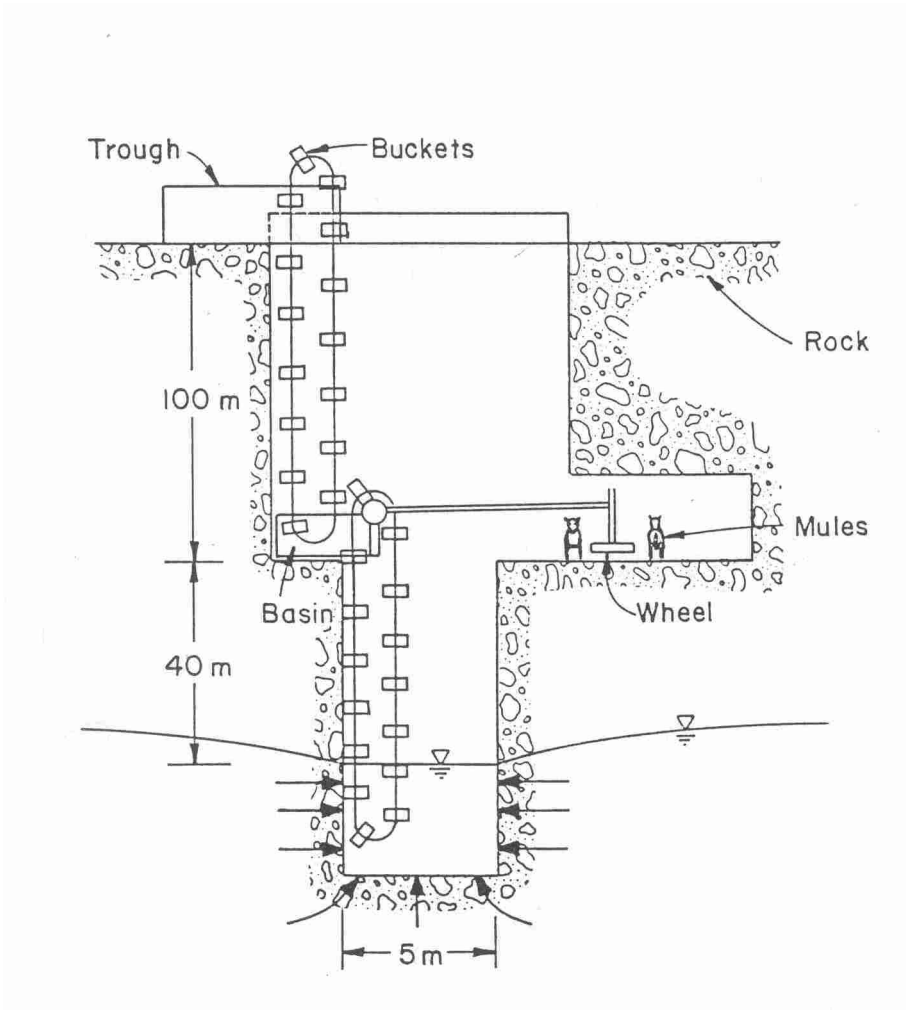


Figure 4.8 Sketch of the Joseph's well. (Source: Hendricks 1991. Unpublished manuscript.)

connected via a spiral staircase. A narrow path begins in the upper part and continues down to 50 meters deep, intended for mules to be able to go all the way up and down the ramp to the cistern. Within the shaft is a platform on which a water wheel, *saqiya*, stood. The water wheel was powered by animals, mainly by oxen, and brought the water to the surface. In figure 4.8 is a rough sketch of the well. (<http://www.warlinks.com/cairo/cairo.shtml>; <http://weekly.ahram.org.eg/2003/640/heritage.htm>)

There are several descriptions of the well in the memoirs of travelers and also in novels. An American, J. L. Stephens, described the well early in the 19th century as follows:

From hence, passing around outside the walls, I entered by the Gate of the Citadel, where I saw what goes by the name of Joseph's Well, perhaps better known as the Well of Saladin. It is

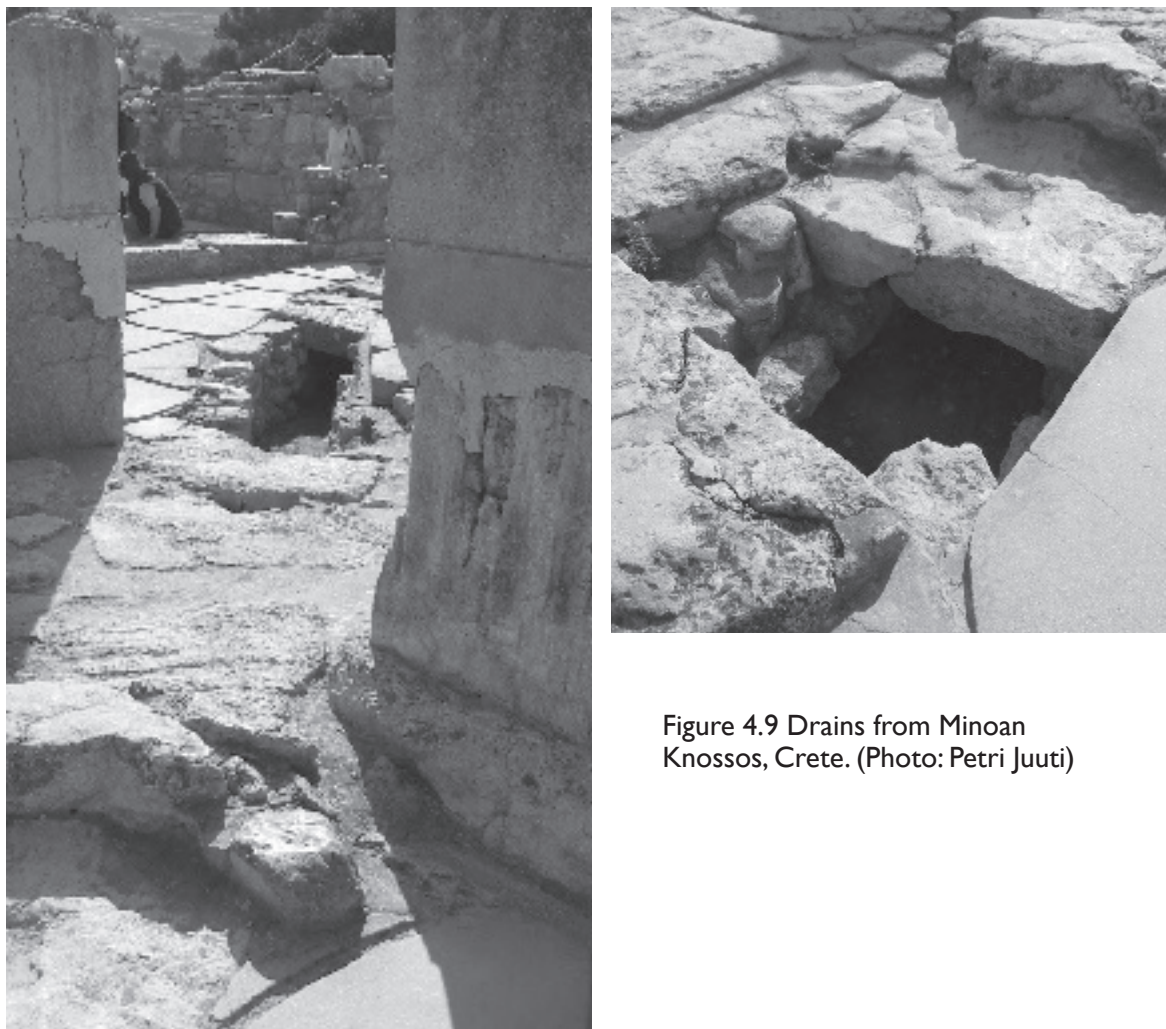


Figure 4.9 Drains from Minoan Knossos, Crete. (Photo: Petri Juuti)

forty-five feet wide at the mouth, and cut two hundred and seventy feet deep through the solid rock to a spring of saltish water, on a level with the Nile, whence the water is raised in buckets on a wheel, turned by a buffalo. (Stephens 1837)

Also Mark Twain wrote in 1869:

[...] I shall not tell of Joseph's well which he dug in the solid rock of the citadel hill and which is still as good as new, nor how the same mules he bought to draw up the water (with an endless chain) are still at it yet and are getting tired of it, too [...] (Twain 1869)

The best known infrastructure constructions from antiquity are the gravitation water pipes or aqueducts constructed by the Romans. In the sixth century A.D. in the system of the city of Rome there were altogether 19 aqueducts and their total length was 600 kilometers. Water was led through aqueducts to cities, where it was distributed into a network of lead pipes. Private consumers were charged by the diameter of their pipes. It is estimated that around

100 AD the citizens of Rome got approximately 67 liters of water per day. (Bruun 1991) These systems are described later in this book. (See, for example, chapter 5 by Vuorinen and chapter 6 by Syväne.)

The first toilets did not require technical construction; they were just holes in the ground. There were private and public toilets already in ancient towns. Some of the public toilets were free of charge, some not. A story about Roman Emperor Vespasian (ruled 69–79 AD) tells how he ordered that there be a charge for using public toilets. When he was criticized, he answered:

“Pecunia non olet” – “money doesn’t stink”. Another version of the story tells how Vespasian’s son Titus (Emperor in 79–81 AD) criticized his father for issuing a urine tax. Vespasian waved money from the first payment under his nose, asking him whether he found the smell offensive. When he said he didn’t, Vespasian replied, “And yet it comes from urine.” Hence the saying, “The smell of profit is good no matter what the source”.

There were numerous public toilets in Rome. Under the seats was running water and it took the excrement through the sewer network into the Tiber. For wiping, people most likely used a sponge on a stick. At home most people probably used chamber pots or commodes and emptied them down the drain or onto night soil wagons. Night soil wagons went to surrounding agricultural areas to dump the excrement on the fields.

After the Roman Empire, all of society in Western Europe changed, including systems of water supply and sanitation. In medieval cities the water supply was based on wells, some of which were located outside the cities. In Tallinn, Estonia, the services of water carriers were paid by the town council in the 1330s. Tallinn had adopted the so-called Lübeck Act in 1257. It stated how toilets and pigsties were to be located in relation to streets and neighboring bounds (Kaljundi 1997). Castles and fortresses usually had their own wells. There were some occasional water pipe projects even in this era. It was also a period in which private water enterprise developed, when the vendor took water to his customers with a donkey cart. In the 18th century the water supply of Paris was taken care of by thousands of water vendors using buckets. In Cairo there might have been even more water vendors in medieval times. (Ponting 1991, 349; Coffey & Reid 1976, 133) They are still seen on the streets of Cairo, mainly to attract tourists. However, for the slums of the developing countries, it’s still a reality even in the new millennium.

Although neglected in Europe, toilets were not forgotten: the basic need remained. Outside Europe they still developed further. For example, in Japan the earliest known toilets were in use in the 700s A.D. They were pits, as well as more advanced toilets consisting of a ditch carrying water through part of the house to convey the waste outdoors. Toilets were also built over running streams. Pit toilets came into widespread use over the following centuries. In the thirteenth century the Japanese began to use night soil from the toilets as fertilizer. Traditional Japanese toilets consist of a hole or basin in the floor and are not made to sit on but to squat over. Sewerages and seated toilets were introduced in Japan around the beginning of the twentieth century, but it was only after World War II that Western-style

toilets began to spread on a major scale. Using human night soil as fertilizer was banned for sanitary reasons, and flush toilets became common. Still, Western-style toilets did not fully replace Japanese-style ones, and even now the majority of toilets at train stations and other public facilities are the squatting type. This is probably largely because many Japanese prefer outside of the home not to sit directly on toilets, which they suspect may not be hygienic. (<http://web-japan.org/kidsweb/techno/toilet/history.html>) See more about this matter from chapter by Otaki later in this book.

4.4. TYPES OF WELLS AND TOILETS

Well water is groundwater, developed by the absorption of rain and melt waters into the ground, where it sinks through different porous layers of soil and the cracks of the rocky foundation under the influence of gravity. This percolation purifies the water and minerals dissolve into it. Groundwater is usually best in the core of the ridges, while in the rim areas high levels of iron and manganese may occur. Thus it is important that the filtering layers are clean. The level of groundwater varies by season depending on the amount of rainwater and the melting of the snow and soil frost. The best groundwater resources exist in sand and gravel deposits. Virgin groundwater is pure, for it is naturally quite well protected from any pollution. However, it is a slowly renewing natural resource, so it should be protected carefully.

There are several ways to categorize wells; one way is to sort them in types in chronological order, taking into account the method of lifting water (Table 4.1).

The simplest well is the bottomless barrel or a vessel that is sunk into a natural spring. These so-called spring wells (Table 4.1, type A I) use the natural overflow of groundwater. There are, of course, also different kinds of springs. However, they are not within people's reach everywhere and compared to the dug well, the spring well is much less widely used. Building a well like this doesn't require much work, but the construction is very vulnerable and if it is the only source of water, much harm can result if it gets ruined.

A pit well (type A II) is an evolved version of a watering hole, which can even be dug and used by some animals. Sometimes a drinking hole is enlarged over decades or even centuries when its users dig it deeper because the groundwater level gets lower, thus turning it into a pit well. This type isn't really planned or built.

Table 4.1 Types of wells in chronological order.

TYPE OF WELL	METHOD OF LIFTING	TECHNICAL REALIZATION
A I Natural Spring & bottomless barrel in spring	Hands, scoop, bucket	No construction or very simple construction
A II Pit well	Hands, scoop, bucket	Pit in the ground, no construction or very simple construction
A III Dug well	Well & rope, bucket pole, hand pump	Place and construction planned, built shaft, place carefully chosen by observing the terrain
A IV Draw well, counterpoise lift	Counterweigh	As above, extra planning to lifting
A V Windlass well	Winch or reel	As above, extra planning to lifting
A VI Tube (a) & drill well (b)	Pressure of the groundwater formation or pump	Pipe is pushed into the ground (tube well) or pipe is drilled on rock foundation (drill well), place and construction planned, requires precise knowledge of groundwater location
A VII Wells with wind engine	Wind power, rotor	Lifting power directly from the site of well
A VIII Wells operated with engine	Combustion engine, electricity	Power from outside source

Table 4.2 Types of toilets in chronological order.

TYPE OF TOILET	TIME PERIOD OF GENERAL USE (NOT FIRST TIME)	METHOD	CONSEQUENCES
B I Hole in the ground “pit toilet”	All periods of human existence	None or covered with soil	Waste won't compost
B II Water toilets, no flush	Ancient times and cultures	Running water	Wastes to bodies of water
B III “Privies”	Castles in the Middle Ages	No waste treatment	Leakage in ground or into body of water, environmental hazards, wells and watercourses endangered
B IV Outhouses	From 1800s to present	<p>a) no waste treatment</p> <p>b) centralized collection of waste</p>	<p>a) leakage in ground or into body of water, environmental hazards, wells and watercourses endangered</p> <p>b) depends on further treatment</p>
B V WC	From 1800s to present	<p>a) waste flushed and led into watercourse</p> <p>b) waste collected into precipitation tank (one- or multiple-piece), heavier matter sinks to the bottom</p> <p>c) waste flushed into closed tank, then collected and transported to the network of sewer works</p> <p>d) WC with filtering on the ground, often with precipitation tank</p> <p>e) WC with small, local treatment plant</p> <p>f) WC connected to the sewer network and a wastewater treatment plant</p>	<p>a) catastrophic; watercourse and in worst case drinking water contaminated and polluted</p> <p>b) refinement only partial</p> <p>c) good</p> <p>d) result varies</p> <p>e) result varies</p> <p>f) advantages of bigger units: better treatment result</p>
B VI Dry toilets & ECO-toilets	1800s and again from late 1900s to present	Composting	Controlled recycling of nutrients, separation of urine
B VII Other type of toilets	from late 1900s to present	Waste treated with chemicals, burned, frozen etc	Depends on further treatment, nutrients wasted

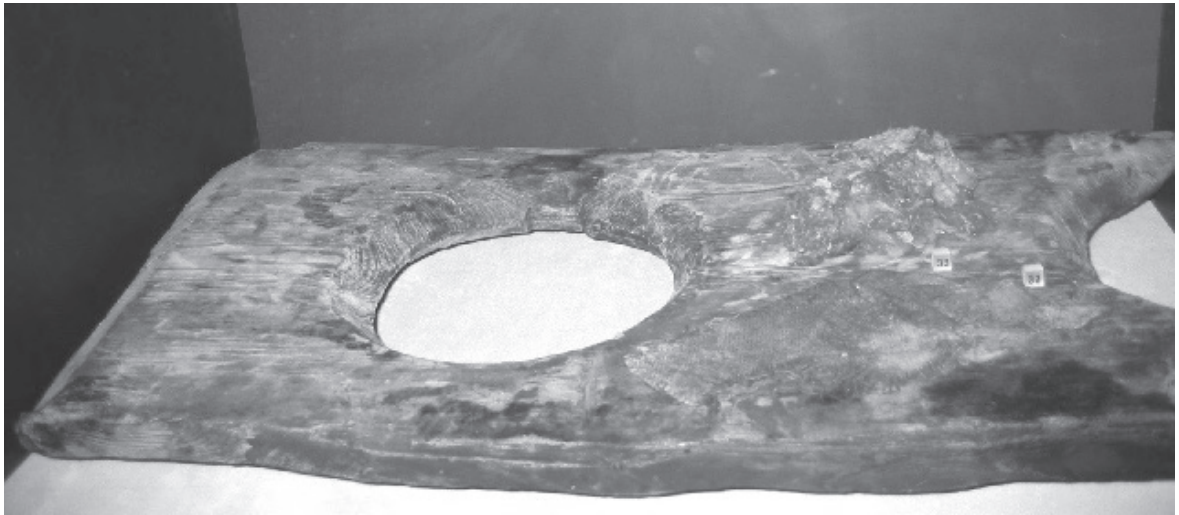


Figure 4.10 Medieval, wooden toilet seat from Turku, Finland. (Photo: Petri Juuti)

WELLS AND TOILETS IN THE CASTLES

Some of the oldest still remaining wells and toilets in the world were constructed in castles. In most cases superterranean parts of wells and toilets were destroyed in fires, but the remaining ones were mainly built from stone. They are usually quite similar around the world in terms of their location and construction. For instance, a well was placed usually in the main castle, either in the inner yard or in the basement, to protect it from the enemy. The elite used privies found in the castles. For example, in English castles in the 15th and 16th centuries, privies were placed over a vertical shaft leading to the moat. Common soldiers and servants used much more modest places for their daily needs. (<http://www.bottlebooks.com/privyto.htm>)

The old castle of Calmar (Sweden) has a well, with a depth of 15.5 metres and a diameter of 2.5 meters and a potential water mass of 60 cubic meters. (Sinirand 1992, 7-25; Hörberg 1997, 17) Public wells (aka joint wells) are mentioned in Stockholm and Calmar in the 15th century, but they may have existed even earlier. In Stockholm there were at least three joint wells in the 15th century. (Bjur 1988, 15-16)

In Finland, which was part of the kingdom of Sweden until the year 1809, Häme castle was founded at the end of the 13th century and it is one of Finland's medieval royal castles. Its first well was built at the same time as the castle and it was 12 metres deep and lined with stones. (Kilkki 1973) The impressive old well can still be seen near the east corner of the fortress and it serves as a "wishing well" for visitors. However, already soon after its construction waste and rainwater leaked into the well, polluting the water and it could be used only for firefighting purposes. A new well was built but its location is unknown.



Figure 4.11 King's privy from Turku Castle, Finland. (Photo: Petri Juuti)

Naturally a toilet was needed too in Häme castle and presumably it was attached to the encircling wall on the lake side. The so-called “himmelhuusi” (“sky privy”), built outside the walls was mentioned in the inventory from 1687, but hasn't survived to our day. (Ailio 1917, 182–183; Kilkki 1973, 14; Katko 1996, 27) The only indoor toilet of the main castle, which still exists, is located near the clerk's office on the middle floor. (Vilkuna 2001, 52) Only a few privileged people had access to this indoor toilet with a wooden seat—such as the clerk, who was among the highest ranks in the castle.

In the Turku castle, founded at the mouth of the Aurajoki River in southwestern Finland in the 1280s, were several toilets. From the 15th century onwards there was a privy in the gatekeeper's chamber located in the corner of the gate tower. One was also needed in the prison and yet another was located in the north wing. These toilets were connected to the same toilet drainage system and formed an independent system. The king, other noble residents and high officials had their own privies. One is still left in the medieval great hall. (Puhakka & Grönros 1995, 40, 48, 57) These privies were usually constructed on top of the corbels or supportive beams, as sort of a bay toilet, being located partially outside the wall. In the Turku castle, most of these privies in the quarters of the aristocracy were built completely inside the walls (Figure 4.10, 4.11). In the 1540s near the king's hall the chambers of the young noblemen were built with access to the bay toilet built on beams. Similar privies were attached to the castellan's chamber and the queen's hall. (Puhakka & Grönros 1995, 59, 63, 75) None of this type of wooden privies has survived to the present day; fires and time have taken their toll, but they can be seen in the scale model of the castle. However, other types of privies have been preserved quite well in this castle.



Figure 4.12 Bay privies attached to towers (Olavinlinna castle, Finland), entrance, the scenery downwards and the seat (constructed later). (Photo: Petri Juuti)

The massive Olavinlinna castle (Figure 4.12), nowadays located in the city of Savonlinna, southeastern Finland, was founded on a steep, rocky islet in the Kyrönsalmi strait. Work on the building site was started in 1475 and by 1483 the main castle reached its form, although the construction work still continued for a long time thereafter. (Sinisalo 1986, 7–8; Laamanen & Prusi 2004, 5–10) Olavinlinna castle is unique for not having a single well in it – it was impossible to build one in the location. Instead the surrounding waters of the strait were used.

Olavinlinna castle with its five towers was built from the point of view of defence. The towers of the main castle were extended upward during the second main building era in the mid-16th century. These round artillery towers, or rondels, were originally used as living quarters for the aristocracy. (Sinisalo 1986, 8–9; Laamanen & Prusi 2004, 5–10.) The “bay privies” (Figure 4.13) made of stone are attached to the walls of rondels. Originally there was only a horizontal log for seating, but later on proper wooden seats were built. At times, ventilation might have worked even too effectively. An old anecdote describes these privies as the first water toilets in Finland—bay privies were above the water and the height of the drop was great: the towers of the main castle were over 20 metres high.

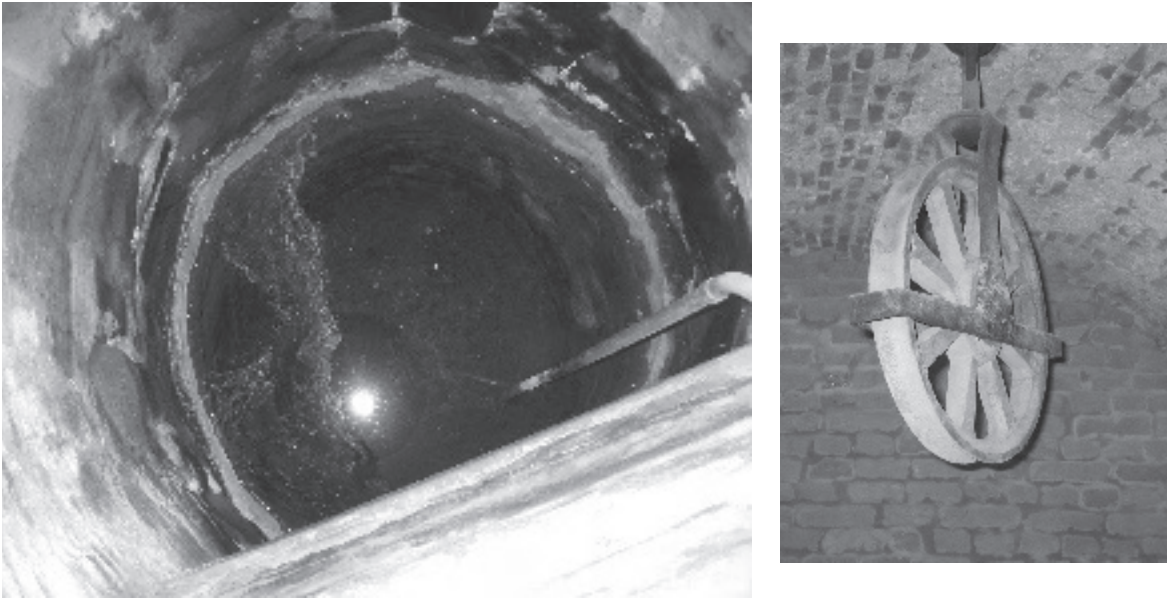


Figure 4.13 Dug well and reel, oldest still existing in Cape Town, South Africa. (Photo: Petri Juuti)

Three of these privies still remain. Walls and slope roofs were built of grey granite on supporting console beams. (Laamanen & Prusi 2004, 58) The choice of building materials has preserved these examples to our day, although usually they have been destroyed in fires—the frequent threat of castles.

At the opposite side of the globe, in South Africa, the castle of Good Hope in Cape Town provided water from its wells. Basically this castle has one big dug well from the 1600s and a couple of smaller ones, the biggest one with a reel (Figure 4.13). The walls of the big well were made from stone, which was quite typical also elsewhere around the world. (Juuti & Wallenius 2005, 12-15)

This well is the oldest well in existence in South Africa, dating back to the year 1682. The well was situated in the centre of the castle and it is still accessible to the interested. In 1691, a wall was constructed across the castle courtyard and the well was left inside it. The well is about ten metres deep and two metres across. (Werz 2002, 95-97) Later, around the beginning of the 1700s, it was operated by hand pumps. Water was lifted by these hand pumps to an iron water tank with a capacity of about three cubic metres and from there via pipes to several places where water was needed most. The smaller wells were in the kitchen and in the yard. (Juuti 2004)

4.5 TOILETS AFTER ROMAN ERA

The lack of proper sanitation increased the effects of epidemics in medieval towns. Sewers deteriorated and it wasn't until the mid-19th century when scientific knowledge and civil engineering coincided with the needs of public health care and modern wastewater treatment and management were born. The population of the megapolis Rome collapsed in the 500s to 30,000. The situation was just as bad elsewhere too. In a gathering called together by the Emperor of the Holy Roman Empire in 1183, the floor of the (main) great hall collapsed and the noblemen and knights dropped into the cesspit, where many even died. Emperor Frederick I (Barbarossa) himself was barely saved. (Foil et al. 1993, 1-7; Gray 1940, 939-946)

Usually towns built few modest public latrines for the inhabitants, but these were mostly inadequate for the size of the population. For example, London had only sixteen public latrines in a population of 25-30,000. Quite often towns built these latrines near bodies of water, for example projecting out over a river. In Helsingör, Denmark, the emptying of the cesspits belonged to executioners. The executioner apparently didn't do his job well, for a Dutchman living there annoyed the locals by emptying his own toilet, when the city officials were unable to do it after many efforts. In any case private toilets were needed, and they were dug in the backyards and even under the apartments. The contents were dumped in a local lake or river or used as manure in the farming areas. (Foil et al. 1993, 1-7; Gray 1940, 939-946; http://the-orb.net/medieval_terms.html)

The streets of medieval London and Paris were almost full of waste. Residents emptied their potties out of the windows and only the lucky and fast could avoid the spillage. Common and upper-class people had equally as bad manners. For example, on the 6th of August 1606 all the residents of St. Germain Palace were forbidden from urinating inside and the very next day the king's son urinated on the wall of his room. A regulation from the year 1531 in Paris required landlords to build a toilet in every house, but it wasn't really enforced. In the era of the great French Revolution, the number of public toilets was great, but they were so disgusting that people avoided using them. Instead, the terrace of Tuileries was favoured and eventually it became so filthy too that a public toilet was built in the area charging a fee of two *sou*. People were enraged at the high price and started to use the grounds of the royal palace and thus forced the Duke of Orleans to build a dozen new lavatories, which were kept in better condition.

In Berlin refuse was piling up in front of St. Peter's church, until the law from the year 1617 required that each peasant visiting the city had to take a load of refuse when leaving. The little existing information on using clay pipes reveals that they were mainly used in the sewage systems of castles and the manors of local noblemen and gentry. (Foil et al. 1993, 1-7; Gray 1940, 939-946; http://the-orb.net/medieval_terms.html) Emptying one's bowels on the street is not just a problem nowadays – and not done only by dogs, but also by people.

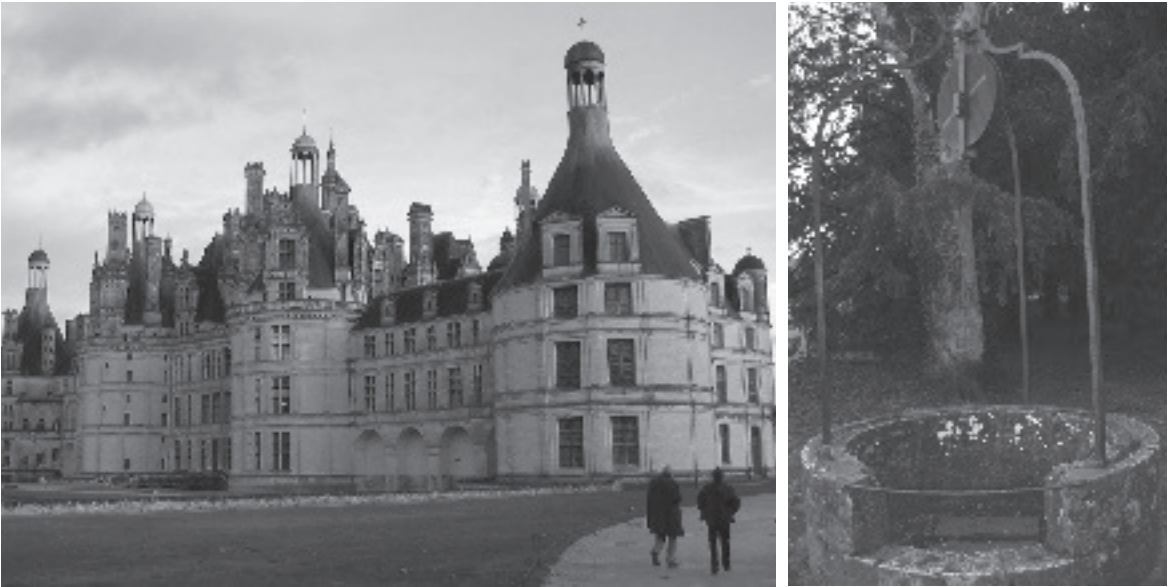


Figure 4.14 Chamborg Castle and well from Loire Valley, France. Attached to walls cherubs and gargoyles spilled out rain water. (Photo: Petri Juuti)

Development was not straightforward in this matter, and some innovations were made even earlier. Already Leonardo da Vinci (1452–1519) made a sketch for a flushing water closet for the castle of Francis I at Ambrose. His drafts include flushing channels inside the walls, and also a ventilating system. These plans were never realized. Leonardo worked at the time also with staircase plans, which were finally built in Chamborg Castle (Figure 4.14, 4.15) and the spiral staircase is considered as one of Leonardo’s masterpieces. Castle itself was completed around 1547 when Francis I died. A few decades later an Englishman, Sir John Harrington, wrote in 1596 an article titled “Plan Plots of a Privy of Perfection” in which he described a flushing water closet and shortly after that erected one in Kelston, England. The system was working technically well and thus Queen Elizabeth I allowed Harrington to install a water closet in the Royal Palace. Elizabeth was very happy with her new accessory. (http://www.masterplumbers.com/plumbviews/1999/toilet_tribute2.asp)

An Englishman, Joseph Bramah, is often named as the developer of the first actual water closet. He got a patent in 1778 but also several other names are mentioned as a developer of the first toilet, e.g. Thomas Crapper, Alexander Cummings and Henry Moule. All these and several others developed similar systems in parallel.

It took several centuries before the toilet became a common component in ordinary houses. From England this innovation gradually spread to the continent of Europe and elsewhere. For example, in the mid-1800s the water closet came to Hungary. (Péter 2005)

In Sweden a debate about installing and connecting water closets to water and sewerage systems began in the year 1880 and permission was granted to install WCs in 1883. Finally, in 1904, general permission for flush toilets using piped water was given, and in 1909 it was allowed to connect water closets to the municipal sewerage system. (Katko & Stenroos 2005) In Finland WCs were allowed around the year 1900. Some unofficial installations already existed in both countries before these dates.

The water closet was seen as a victory for public health care, because excrement was moved away immediately from houses and yards. (Harjula 2003, 41) But not everybody rushed to exploit this new invention. For example, some wealthy burghers could hire people cheaply from the countryside and when there was a servant to empty the pots in the morning; there was no hurry to get a water closet. In these circles the WC and other facilities that eased everyday life weren't acquired until the lady of the house was alone or there was only one servant taking care of the household. (Brunow-Ruola 2001, 234) But as the WC was starting to spread, in workers' quarters it was still considered progress just to get an outhouse. (Jutikkala 1979, 147)

The WC gained popularity in the United States after World War I, when American troops came home from England. They were talking about a "mighty slick invention called the crapper." However, one of the first flushing water closets had been installed at Harvard University already in 1735. (http://www.masterplumbers.com/plumbviews/1999/toilet_tribute2.asp)

It is surprising from environmental point of view to see that some authors still see the WC as the great improvement that even prevented diseases:

The flush toilet is an invention of which humanity can be very proud. Without this marvelous contraption, disease would still be rampant and water supplies throughout the world would be undrinkable. (http://www.masterplumbers.com/plumbviews/1999/toilet_tribute2.asp)

In fact, this so-called English toilet is the most dangerous type of the toilet for the environment and health. This water closet, WC, is connected to a sewer without wastewater treatment facilities. This kind of system has caused several fatal epidemics and the pollution of lakes and rivers. (See, for example, Koskinen 1999; Juuti 2001; Juuti et al. 2003a; Juuti et al. 2003b)

The most environmentally friendly type of toilet is the compost toilet (Table 4.2, B VI), especially the dry compost model in which urine is collected separately. Urine diluted with



Figure 4.15 Medieval well with reel (type AV) and tower, Castle Chenonceau, Loire Valley, France. (Photo: Petri Juuti)

water can be used as fertilizer and composted solid waste can be used for soil improvement. The annual amount of urine of one individual could be used to produce 200 kilograms of grain. This method not only recycles the nutrients in the urine but it also prevents them from getting into the groundwater and watercourses. The whole process is manageable by people themselves. The separating model also has a less distinctive smell. It is notable that in the 19th century there was already dry compost and compost toilets in cities combined with different transport systems. Choosing the water closet as the primary system in the late 19th and early 20th centuries ended the product development of dry compost and compost toilets for over a hundred years. (Juuti & Wallenius 2005; Mattila 2005)

Throughout history in the rural areas a separate toilet lacked or it was a modest structure, which is still true to many people in many areas of the world. For instance, in coastal areas and northern parts of Finland, a compost heap was used for relieving oneself, whereas in inland areas it was the field and in Ostrobothnia the manure shed. (Katko 1996, 34) It was quite common to do one's business just behind the back door. (Kangasalan historia 1, 495.) In general it was considered proper to go further from the house, well and away from other people's sight.

Later on the toilets were often placed near the cowshed. They were also built above the dung pit of the cowshed. Sometimes a similar method was used in a town, for example in Hamina

in Finland. (Juuti, P. July 2004; Jokinen 1994, 121) This kind of location was natural since the amount of manure was much greater than human excrement. According to calculations from the 1920s by engineer Ben Mitro, the annual accumulation of solid excrement in Tampere, Finland was 44 kilograms per person. (Juuti 2001, 200-201) Depending on the way of making calculations and the conditions, several other estimations have been made both earlier and later. A good rule of thumb to estimate the annual amount of waste per person is approximately 50 litres of excrement and 500 litres of urine.

In the 18th century manors and parsonages in Finland and Sweden started to have toilets in separate structures (type B IV). In some parsonages toilets were also built in the entrance hall. (Katko 1996, 34) It was exceptional in that era and must have bewildered the locals, for in the countryside still in the mid-19th century it astonished people to “do their business” indoors. The Farmer’s Handbook from the year 1863 recommended to build a separate toilet, but this custom spread slowly. (Katko 1996, 35)

Manure as well as human excrement were the most important fertilizer substances before artificial fertilizers were introduced. For that reason it was necessary to deposit excrement on the field for further use as a fertilizer. (Maamiehen käsikirja 1945; Juuti & Wallenius 2005, 50; Majjala 25.8.2004) It was important to make sure the fertilizing substances went to the right place.

Cattle needed a lot of water, therefore the consumption of water was high in farms. At the end of the 19th century there was still some livestock in city houses in the least industrialized countries (excluding the biggest cities) and even as late as the early 20th century in small towns. In some parts of the world it is still common to have domestic animals in townships. As the old phrase goes: “*A cow is the best insurance*”. (Maamiehen käsikirja 1945, 339, 348, 353-355, 361)*

It’s hard to estimate the precise figures on how much water the cattle needed, for the amount is dependent on several factors such as nutrition, the size of the animal, how hard the animal worked, etc. The Farmer’s Handbook from the 1940s says: “There are different opinions on watering the cattle. Some say that for a bull, 30–40 litres a day is enough, for excessive drinking makes a bull pot-bellied and listless. Others let the bull drink as much as it wants and don’t see any harm coming.” The handbook defined exactly what kind of water was best for cows. “Cows must have plenty of good drinking water. It should be clear, good-tasting, odour-free and at a temperature of 8–10°C.” (Maamiehen käsikirja 1945, 353-355)

A common estimation of the water that was needed daily for cows is 50 litres. Water was needed also to clean the cowsheds and wash the cows. “Every now and then cows have to be washed all over with a brush, soap and warm water, which should be used as little as possible.” (Maamiehen käsikirja 1945, 355-360)

When living with the cattle in the towns and countryside, watering the livestock formed the major part of the water consumption. Thus a well was placed closer to the cowshed than the house itself. (Katko 1988, 8–11; Paulaharju 1958, 32–33; Paulaharju 1906, 7)

In today's world the pit toilet is still the most popular model of toilet. And it should be noted that in many areas toilets are not used at all. In some rural areas it is still common that people go to the bushes or directly in the field. For example, in some areas in the Nepal countryside, the so-called "pig-toilet" is in use. A pig toilet is not really a toilet at all; it just means that pigs eat human excreta and later pigs are used for human victuals. (Rautanen 2005) It sounds like the perfect nutrient cycle; but, unfortunately, it is very risky to the health of humans.

4.6. CONCLUSIONS

In 2006 hundreds of millions of people have their own wells and on-site sewage system. For hundreds of millions of people, a properly constructed well and toilet would even nowadays mean a remarkable improvement in their living conditions. Wells and toilets don't represent "yesterday's world" but rather are functional solutions for sparsely populated areas. Especially wells are continuously built in such areas but toilets are also needed simultaneously—one does not work properly without the other. Ancient inventions aren't necessarily outdated, but are in all their simplicity well functioning.

Even in a highly developed country such as Finland the sparsely populated areas are still mainly without a municipal sewer network. Although there is no municipal sewerage, there is no risk to human lives with on-site system. The majority of the households are connected to a water system and get their water from waterworks, in cooperation with each other or directly from their own wells. This system is prone to risks, for the consumption of the water and amount of waste water may increase by even ten times—there's not the trouble of lifting and carrying the water inside and spontaneous use is easier. It is harder to follow the amount of consumption compared to checking the level inside the bucket.

Outhouses and wells remained in use in cities for some time after the establishment of central water supply systems in many countries –if not even in all countries. Water and sanitation services reached the suburban areas slowly and in some areas of scattered settlements they still are not available. At the end of the 1800s the WC was considered an improvement that saved people from unpleasant tasks—such as emptying a chamber pot in the morning.

The water closet was seen as a victory for public health care, because excrement was moved away immediately from houses and yards. But where was the human excreta going through the sewer pipes? That is yet another question. It went to bodies of water. When it comes to the health of humans and the state of the environment, the WC was not an improvement, it was major step backwards. Nutrients were getting out of the use of agriculture and nature's metabolism into the bodies of water. This unfortunate development is described in many later chapters in this book.

Improved techniques in these basic innovations can help also to promote not only sustainability, but also equality. Still, wells and toilets play a key role as sound solutions for the future.

4.7. REFERENCES

- Ailio J. (1917) Hämeen linnan esi- ja rakennushistoria. Hämeenlinnan kaupungin historia osa 1. Hämeenlinna
- Bible, the New International version.
- Bjur H. (1988) Vattenbyggnadskonst i Göteborg under 200 år.
- Brunow-Ruola M., Helene & Augusta. (2001) Porvariston elämää Turussa 1870-1920. Keuruu.
- Bruun C. (1991) The water supply of ancient Rome. A study of Roman imperial administration. Societas Scientiarum Fennica. Commentationes Humanarum Litterarum 93/1991.
- Coffey K. & Reid G. (1976) Historical implications for developing countries of the developed countries water and wastewater technology. The University of Oklahoma.
- Ellis B. (2002) 'White Settler Impact on the Environment of Durban, 1845-1870'; in *South Africa's Environmental History: Cases & Comparisons*, ed. by Stephen Dovers et al. Cape Town.
- Fehr, W. (1955) The Town House, Its Place in the History of Cape Town. Cape Town.
- Foil J.L., Cerwick J.A. and White J.E. (1993) Collection Systems Past and Present. Operations Forum, 10(12).
- Gardberg C.J. (1959) Åbo slott under den äldre Vasatiden. Helsinki.
- Gardberg C.J. (1961) Turun linna ja sen restaurointi. Turku.
- Gray H.F. (1940) Sewerage in Ancient and Mediaeval Times. Sewage Works Journal.
- Harjula M. (2003) *Tehdaskaupungin takapihat*. Tampere.
- Hattersley A.F. (1956) More Annals of Natal. London.
- Hattersley A.F. (1973) An Illustrated Social History of South Africa. Cape Town.
- Hendricks D. W. 1991. Water and Wastewater Practices And Institutions. Ancient To Modern. Notes As Developed Through. Colorado State University. Unpublished manuscript.
- Hörberg I. (1997) Vårt välsignade vatten. Kalmars vattenförsörjning 1897-1997. Kalmar Vatten och Renhållning Ab.
- Jansen M. (1993) Mohenjo-Daro – Stadt der Brunnen und Kanäle – Wasserluxus vor 4500 Jahren. Mohenjo-Daro – City of Wells and Drains – Water splendour 4500 years ago. Frontius-Gesellschaft e.V. Supplementary Volume II. Bonn.
- Jokinen P. (1994) *Kangasalalaista huumoria*. Kangasala.
- Jutikkala E. (1979) *Tampereen historia III. Vuodesta 1905 vuoteen 1945*.
- Juuti P. (2001) Kaupunki ja vesi. Doctoral dissertation. Acta Electronica Universitatis Tamperensis 141. Tampere .
- Juuti P. (2003) "Elämää ja hieman historiaakin opiskelemassa 1985-1991", Heikkinen et al., eds: Patinan neljä vuosikymmentä. Tampere, 45-50.
- Juuti P., Rajala R. & Katko T. (2003a) *Aqua Borgo ensis*. Porvoo.
- Juuti P., Äikäs K. & Katko T. (2003b) *Luonnollisesti vettä. Kangasala, Vesilaitos 1952–2002*. Saarijärvi.
- Juuti P.S. and Wallenius K.J. (2005) Brief History of Wells and Toilets. Pieksämäki .
- Kaljundi J. (1997) 660 years of water business in Tallinn, 1337-1997. Tallinna Vesi.
- Kangasalan historia 1*. (1949) Virkkala K., Luho V. & Suvanto S. *Längelmäveden seudun historia I. Kangasalan historia I*. Forssa.

- Katko T. (1988) Maaseudun vesihuollon kehittyminen Suomessa: suuntaviivoja kehitysmaille? Taustaselvitys. TTKK, VYT B 35.
- Katko T. (1996) Vettä! – Suomen vesihuollon kehitys kaupungeissa ja maaseudulla. Tampere.
- Keating A.D. (1989) Public-private partnerships in public works: A bibliographic essay. pp. 78-108. In: APWA. 1989. Public-private partnerships: privatization in historical perspective. Essays in Public Works History. No. 16. 108 p.
- Kilkki P. (ed.) (1973) Hämeen linna. Mikkeli.
- Koskinen M. (1995) *Saastunut Näsijärvi terveydellisenä riskinä – Kulkutaudit, kuolema ja puhdasvesikysymys Tampereella 1908–1921*. Master thesis, University of Tampere.
- Laakkonen S. (2001) Vesiensuojelun synty. Helsingin ja sen merialueen ympäristöhistoriaa 1878–1928. Tampere.
- Laamanen M. & Prusi H-L (2004) *Olavinlinnan opaskirja*. Museovirasto.
- Leyds G.A. (1964) A History of Johannesburg. Johannesburg.
- Maamiehen käsikirja (1945)* Otava.
- Mattila H. (2005) Appropriate Management of On-Site Sanitation. Tampere University of Technology, Publication 537. Tampere.
- Paulaharju S. (1906) *Asuinrakennuksista Uudella kirkolla Viipurin läänissä*. SKS, Helsinki.
- Paulaharju S. (1958) *Kainuun mailta. Kansantietoutta Kajaanin kulmilla*. Porvoo.
- Péter J. (2005) Hungary. In Juuti, P.S. and Katko, T.S. Water, Time and European Cities – History Matters for the Futures, WaterTime/EU.
- Ponting C. (1991) A Green History of the World. Penguin Books.
- Puhakka M. & Grönros J. (1995) Turun linna. Jyväskylä.
- Sinirand I. (1992) Tallinna veevarustuse ja kanalisatsioon minevik ja tänapäev. Tallinn Valgus.
- Sinisalo A. (1986) Olavinlinnan rakentamisen vaiheet suuresta pohjan sodasta nykypäiviin. Savonlinna.
- Spier P. (1989) *Joonaan kirja*. Karas-Sana.
- Stephens J.L. (1837) Incidents of travel in Egypt, Arabia Petraea, And The Holy Land By An American (J. L. Stephens). Based on the 2nd edition New York: Harper & Brothers. <http://chass.colostate-pueblo.edu/history/seminar/stephens/stephens1-3.htm>.
- Toivonen R., Mäki-Kuutti T. & Bønsdorff M. (ed.) (1981) TEK keksintöjen kirja. WSOY.
- Twain, M. (1869) Innocents Abroad. http://www.mtwain.com/Innocents_Abroad/59.html.
- Vasilakis A (sa.) Phaistos. V.Kouvdīs - V.Manouras Editions. Iraklion.
- Vilkuna A.-M. (2001) Hämeen linnan opaskirja. Museovirasto.
- Werz, Bruno E.J.S. (2002) Survey and excavation of the main well in Cape Town Castle, South Africa: fieldwork and structural aspects, *The International Journal of National Archaeology*, 31, 1.
- Wijmer S. (1992) Water om te drinken. VEWIN, the Netherlands.

INTERNET:

<http://www.arcl.ed.ac.uk/arch/annrept/report99/>

<http://www.bottlebooks.com/privyto.htm>

<http://bridge.ecn.purdue.edu/~alleman/w3-articles/swallow-sanit-1911/swallow-1911.html>

http://www.masterplumbers.com/plumbviews/1999/toilet_tribute.asp

http://www.masterplumbers.com/plumbviews/1999/toilet_tribute2.asp

http://the-orb.net/medieval_terms.html

<http://nautarch.tamu.edu/portroyal/CHAMBER/Textfile.htm>

<http://www.warlinks.com/cairo/cairo.shtml>;

<http://web-japan.org/kidsweb/techno/toilet/history.html>

<http://weekly.ahram.org.eg/2003/640/heritage.htm>)

<http://www.whazo.com/seniorproject.html>

http://www.witwib.com/Atlit_Yam, read Aug 24,2005

INTERVIEWS & PERSONAL COMMUNICATION

Kostas K. 17.10.2005.

Maijala M. 25.8.2004.

Rautanen SL. 2.6.2005.

FIELD RESEARCH TRIPS

Juuti P. – July 2004 (Castles of Finland.)

Juuti P. –November 2004 (History of Water supply and sanitation in South Africa).

Juuti P. – October 2005 (Environmental history of Crete).



Tekniikan historian nuori "sisartiede" ympäristöhistoria oli Suomessa kovassa nousussa ja tarvitsi oman vertaisarvioidun nettilehden. Lehti "Ympäristöhistoria, Finnish journal of Environmental History" perustettiin vuonna 2011. Kuvassa päätoimittaja Petri S. Juuti, toimittaja Riikka Juuti ja toimittaja Tapio S. Katko.



*CADWES-tutkimusryhmän vetäjät, dosentit Riikka ja Petri Juuti.
(kuva Jonne Renvall / Tampereen yliopisto 2021)*

IWA Marketing and Communications

award

Awarded to

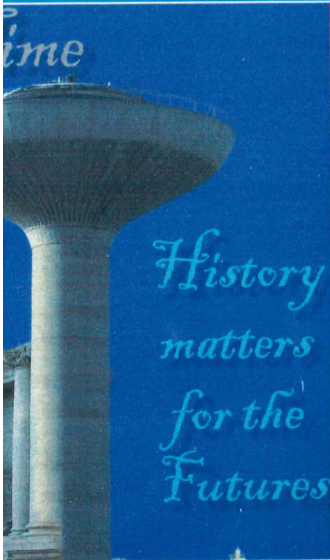
University of Tampere

Water, Time and European Cities:
History Matters for the Futures

Best popular presentation of
water science

Beijing, 2006

Highly Commended



Board of the IWA
The President

IWA
The Executive Director

IWA Marketing and
Communications Group
The Chairman

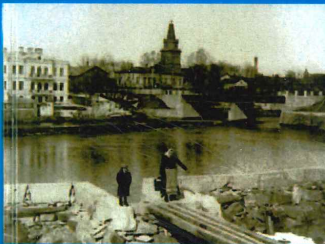


International
Water Association

IWA-Marketing and Communications

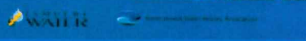
award

Awarded to



Watering the City of Tampere from the mid-1800s to the 21st Century

By Tapio S. Katko and Petri S. Juuti



Highly Commended

Tampere University of Technology/University of Tampere

Finland

Best popular presentation of water science

VIENNA, 2008

Board of the IWA
The President

IWA
The Executive Director

IWA Marketing and
Communications Group
The Chairman



International
Water Association

Vesi, yhteistyön voiteluaine

UNESCO-Chair, Dosentti, FT Petri S. Juuti syntyi Ruokolahdella 12.6.1966. Tämä kirja juhlistaa hänen 60-vuotissyntymäpäiväänsä ja pyrkii kokoamaan yksiin kansiin hänen monivaiheisen ja vaikuttavan uransa. Tehtävä on toki lähes mahdoton, sillä Petrin tutkijanura on ollut poikkeuksellisen laaja ja sisällöllisesti rikas.

