

## Impact case study (REF3)

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| <b>Institution:</b> University of Westminster   |   |   |
| <b>Unit of Assessment:</b> 17 Business and Management Studies   |   |   |
| <b>Title of case study:</b> Facilitating the Participation of Women in Construction   |   |   |
| <b>Period when the underpinning research was undertaken:</b> 2000 – 2018  |   |   |
| <b>Details of staff conducting the underpinning research from the submitting unit:</b>  |   |   |
| <b>Name(s):</b><br>Linda Clarke<br>Elisabeth Michielsens<br>Sylvia Snijders<br>Christine Wall   | <b>Role(s) (e.g. job title):</b><br>Professor<br>Principal Lecturer<br>Senior Lecturer<br>Professor | <b>Period(s) employed by submitting HEI:</b> 06/1992+<br>03/1997+<br>09/2005+<br>09/1993-10/1999 & 02/2010+ |
| <b>Period when the claimed impact occurred:</b> Aug 2013 – Dec 2020   |   |   |
| <b>Is this case study continued from a case study submitted in 2014?</b> Y/N  |   |   |
| <p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Research conducted by the Centre for the Study of the Production of the Built Environment (ProBE) over more than two decades on the important role that women have played and can play in the construction industry has resulted in the following impacts:</p> <ul style="list-style-type: none"> <li>• <i>Changing the image of women in construction:</i> Wall's unique findings on the Waterloo Bridge have stimulated several initiatives aimed at inspiring women to join construction.</li> <li>• <i>Changing Practice at Thames Tideway Tunnel:</i> ProBE's commissioned review into TTT's gender equality and diversity initiatives has resulted in several new, or adapted, processes being put into place to aid the recruitment and retention of women in construction.</li> <li>• <i>Shaping policy and practice to increase gender diversity in construction:</i> through their work with key stakeholders – such as Unite the Union, EDF, the EFWB, and Community Plan for Holloway – ProBE has directly shaped initiatives for achieving this aim.</li> </ul>   |   |   |
| <p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p><b>Challenging the institutional inertia of the construction industry regarding inclusion:</b> From 2001-5, Clarke and Michielsens coordinated a €500,000 European Commission project, <i>Overcoming Marginalisation: structural obstacles and openings to integration in strongly segregated sectors</i>, including construction, which examined gender and ethnic minority participation and focused on education and training, wage setting, recruitment, and equal opportunities. The project outputs, such as [1], succeeded in situating gender segregation in construction within a wider European social and industrial context. Building on this and earlier research, ProBE published the first ever book on women in construction, drawing on a range of evidence to highlight the historical and institutional conditions and barriers to gender diversity within construction globally [2]. Emphasising the authors' proactive recommendations and recognition of the important role that women themselves play in countering, rather than corroborating, the inertia and conservatism of the construction industry in regard to inclusion, the book was launched at a well-attended international symposium held in 2004.</p> <p><b>Identifying best practice for inclusion in construction:</b> Output [3] explores why diversity management in construction has made so little difference to women's participation at professional – and, in particular, at operative – levels by examining the policies and practices put forward to combat low gender participation, their focus, the case they are built on, and the degree to which the structure of the industry in Britain is conducive to their implementation. Drawing on existing literature, previous ProBE research, and analyses of census, industry and Work and Employment Relations Survey statistics, the relative irrelevance of a 'business case' for greater gender participation in construction is shown. Such a case is primarily top-down, focussed on employers taking responsibility for changing the situation. Clarke, Michielsens, and Snijders argue that diversity measures have to be integral, specific, contextual, mandatory, and developed in participation with employees, in parallel with appropriate recruitment, training, employment and working conditions, and support mechanisms driving the inclusion of women in the sector, particularly at an operative level. Lack of progress in gender participation is because such a co-production approach has not yet been realised.</p> <p>Drawing on the VET4LEC research project – an investigation into vocational educational training (VET) for low energy construction (LEC) in Europe – in output [4] the ProBE researchers find that the social obstacles to fulfilling EU 20/20/20 emission targets for the construction industry</p> |   |   |

are much the same as those confronting the greater participation and integration of women. Given the changes required in the labour process and VET systems, and given EU policy to comply with an inclusive employment strategy to meet energy targets and overcome the performance gap between those set and those achieved, the researchers argue that the construction industry must become less exclusive and proactively create conditions favourable to greater female participation.

**Unearthing the hidden contributions of women to construction:** Little was known about the role women have played in the construction industry until the work of Clarke and Wall revealed the continuous presence of women in the construction industry over a 500-year period and the historical forces shaping the gendered development of the British construction labour force, particularly during and after the two World Wars. Output [5] highlights the extremely segregated nature of the construction sector, with scholarship on the history of the building trades, guilds, and unions often making no reference either to this male exclusivity or to those women who have succeeded in participating. Clarke and Wall's book chapter redresses this omission by disclosing the periods in history – from the sixteenth century to the present – when women have had a significant presence in the building trades and exploring why and how women have been included or excluded.

One of the most significant findings of this research into the hidden history of women in construction is Wall's uncovering of evidence confirming that women were involved in the building of the Waterloo Bridge, colloquially known as 'the Ladies' Bridge', through the discovery of photographic evidence of women acetylene welders, dated 7 April 1944 and taken by a *Daily Herald* photographer, and the undertaking of semi-structured oral history interviews with key persons with knowledge of the build [6]. Wall's research was further communicated through the documentary film *The Ladies' Bridge* (2005), directed by Karen Livesey and Jo Wisser, featured on its related website: <https://www.theladiesbridge.co.uk/>.

Documentary and statistical evidence on women in construction is often incomplete. To understand the experiences of women working and training in construction, face-to-face interviews, whether semi-structured or oral history based, have been the key method used throughout ProBE's research. This method has revealed the hidden histories of women's role in shaping the built environment, broadening investigation and interpretation in architectural and construction history by including perspectives on gender diversity [6] and enabling ProBE to write detailed policy recommendations to improve the training, working and employment conditions for women in construction.

### 3. References to the research (indicative maximum of six references)

- [1] Byrne J., Clarke L., and van der Meer, M. (2005) 'Gender and ethnic minority exclusion from skilled occupations in construction: a Western European comparison', *Construction Management and Economics*, 23(10): 1025-1034.
- [2] Clarke L., Pedersen E.F., Michielsens E., Susman B., and Wall C. (2004) *Women in Construction: CLR Studies*. CLR/Reed Business Information.
- [3] Clarke L., Michielsens E., and Snijders S. (2018) 'Misplaced Gender diversity policies and practices in the British construction industry: developing an inclusive and transforming strategy', in Emuze F and Smallwood J, eds. *Valuing People in Construction*. Routledge: 130-150.
- [4] Clarke L., Gleeson C., and Wall C. (2017) 'Women and Low Energy Construction in Europe: a new opportunity?' in Cohen M.G. ed. *Gender and Climate Change in Rich Countries: Work, Public Policy and Action*. Routledge: 55-69.
- [5] Clarke, L. and Wall, C. (2006) Omitted from history: women in the building trades. in: Dunkeld, M., Campbell, J., Louw, H., et al. eds. *Proceedings of the Second International Congress on Construction History Cambridge*, UK Construction History Society: 35-59
- [6] Wall, C. (2018). 'William Arrol and Peter Lind: Demolition, construction and workmanship on London's Waterloo Bridges (1934-46)', in Wouters I., Van de Voorde S., Bertels I. et al. eds. *Building Knowledge, Constructing Histories: Proceedings of the 6th International Congress on Construction History (6ICCH 2018)*, July 9-13. CRC Press: 1347-1354.

#### Funding

- Output 1: *Overcoming Marginalisation: structural obstacles and openings to integration in strongly segregated sectors*, Coordinator and British partner, European Commission (project under Framework 5 TESR), £500,000, SERD-2000-00165, 2001-2004.

- Output 3: *'Raising the bar' for the representation of women in the construction workforce*, Thames Tideway Tunnel (TTT) project, £26,200, 2014-2015.
- Output 4: *VET4LEC* (Vocational Education and Training for Low Energy Construction), Linda Clarke (P-I), European Commission (DG EMPL, Social Dialogue budget line), €358,680.85, VP/2016/001/012, Dec 2016-Feb 2019

#### 4. Details of the impact (indicative maximum 750 words)

##### 4.1. Changing the image of women in construction

As Unite the Union states: 'The exclusion of women's history in construction may well have contributed to the shortage of women in manual trades today [...] But it also may continue to shape the way women are treated in their jobs – something Unite is working hard to tackle' [a-i]. The impact of ProBE's work on uncovering the history of women in construction lies in repositioning their image in a way that is useful for such stakeholders seeking to encourage more females to join the industry.

This is exemplified by Prof Wall's findings on the building of Waterloo Bridge (output [6]). Wall's uncovering of photographic evidence of women working on the Waterloo Bridge during the Second World War confirmed what had, until then, only been considered a rumour [a-ii]. As substantiated by the Head of Listing at Historic England, these three photos, along with Wall's collection of oral testimony (particularly an interview with the contractor's daughter) and records of compensation claims from contractors, 'led to a revision of the List Entry for this bridge in 2015 to flag the contribution of female labour in the work to erect the new bridge (this including work to dismantle the old)' [a-iii]. This Grade II re-listing received media coverage in national news sites [a-iv], and the impact of this relisting is that it has **stimulated several initiatives aimed at inspiring women to join the construction industry**.

For instance, in 2015 the listing, announced on National Women in Engineering Day - 23rd June, marked the 'beginning [of] the #BuiltByWomen campaign to properly recognise the women who built England' [a-v]. The campaign, calling for individuals and groups across England to send in evidence about the role women played in listed buildings, was launched by Heritage Minister Tracey Crouch and backed by the CITB (Construction Industry Training Board), whose Head of Policy highlights the importance of this relisting to the aim of encouraging female participation in construction: '**We want to see more women in the construction industry, which is why it is so important to highlight the role of women on iconic projects such as Waterloo Bridge**' [a-vi]. The Women in Construction Summit 2019 similarly features the Waterloo Bridge builders as one of the 'success stories of women thriving in the construction industry' [a-vii], and the Women in Engineering Society included them in their list of the 'Top 100 Historical Women in Engineering', produced to mark the Society's centenary 'in an attempt to reclaim our engineering heritage, and use these inspiring stories to encourage future generations, where the percentage of women in engineering is still only 12%' [a-viii]. These findings also feature on websites for initiatives dedicated to providing women with the means to enter the construction industry, such as Go Construct [a-ix].

In addition, Wall's research has had a **direct impact on changing the image of women in construction through the documentary film and related educational resources**, both entirely underpinned by her research. The film has been viewed over 4000 [times online](#), and at various public screenings, some specifically targeting female audiences, e.g. the Visionary Women event at Fabrica, Brighton, and a London event marking 100 years of women's right to vote. Testimony on the *Ladies Bridge* website attests to the impact of this dissemination. For instance, a primary school teacher states: 'My class were absolutely intrigued by the Ladies Bridge film. It sparked off a fantastic discussion about equality and recognition of the work women undertook in World War II. We have asked that the documentary be included as part of the topic next year for a more comprehensive picture of the Home Front' [a-x].

##### 4.2. Changing practice at Thames Tideway Tunnel (TTT)

ProBE's established expertise and knowledge on inclusion within construction led to it being commissioned to 'help Tideway to move forward gender equality and diversity initiatives informed by empirical data' (output [3]) [b-i]. ProBE's project, *Raising the bar for the representation of women in the construction workforce*, involved a literature review on women in construction and equality initiatives on large projects and the undertaking of a survey of employees of the 25km

long tunnel project, which is due for completion in 2025 at a cost of £4.2bn. This resulted in a [report](#) [b-ii] launched at a June 2015 ProBE symposium on Women in Construction, whose concluding panel discussion included Andy Mitchell (TTT CEO and co-Chair of the Construction Leadership Council) and Siobhan Edean (Unite National Equalities Officer). As Mitchell confirms: 'ProBE made a number of recommendations that we have adopted over the last five years' [b-i].

As affirmed by Mitchell, 'ProBE's recommendation on work-life flexibility and mentoring as ways of ensuring equity is promoted in hiring practices' through 'the **introduction of compressed working hours and the use of Mentorloop** to match mentors and mentees' [b-i]. Both interventions enable women to manage their workload around personal factors such as childcare and education [b-iii], and thus ensure recruitment panels do not consider these factors to be concerns when making employment choices.

In response to 'their [ProBE's] research clearly highlighting that more was needed to improve the gender balance, Tideway established **the first Returner Programme outside of banking**' [b-ii]. Launched in April 2015, the programme enables female professionals to return to work after a long career break, an issue particularly affecting women due to carer responsibilities. To ensure the quality of this programme, TTT has invested in coaching provision via external return-to-work specialists Women Returners [b-iv]. All 7 'returners' of the first cohort were offered positions in a variety of areas, from legal to finance to communications to engineering project management [b-v].

In response to ProBE's 'recommendation regarding direct recruitment practice', Mitchell states 'TTT has collaborated with not-for-profit organisation Women into Construction' [b-i] which provides advice and guidance, training, work placements and jobs, to women interested in entering the construction industry [b-vi]. In 2019 this partnership '**facilitated 41 work placements for women and 30 direct jobs on the project**'. This year 11 women were offered a work placement and nine were directly employed' [b-vii, p.48].

Further, Mitchell confirms that 'ProBE's recommendation of the value [of] employee networks led to Tideway **relaunching and broadening its diversity working group** in 2018' [b-i]. In their annual report, TTT describe this as one of the 'practical steps to achieve our broader diversity and employment goals'; Encompass was launched with 'a number of working groups which focus on gender, disability, LGBT+ and BAME employees [...] to support diversity and inclusion activities and programmes across the Project' [b-viii, p.117].

Writing in 2020, Mitchell highlights that, as a result of the 'ProBe [...] recommendations that we have adopted', TTT was named 'one of The Times Top 50 Employers for Women in 2018' and has since 'maintain[ed] our exceptionally strong Engagement survey scores across all aspects of diversity, inclusivity and work life balance. 90% of staff agreed "Tideway shows care and concern for its employees"' [b-i]. Through this engagement with TTT, ProBE has **directly supported greater participation of women in construction**.

#### **4.3. Shaping policy and practice to increase gender diversity in construction**

The Assistant General Secretary (AGS) of Unite the Union (now also President of the Trade Union Congress) describes how 'Professor Clarke's work provides insight, academic robustness and perspective which both informs and influences our strategic policy decisions and approach in connection with key issues affecting our members and the construction sector' [c-i]. The AGS specifies how 'the practical impact and outcomes of our engagement with Professor Clarke' in the area of women in construction is demonstrated by Clarke's work in '**helping [to] shape EDF's equality and diversity policies and approach**' via the 'Unite-EDF "Women Building Britain" initiative in the nuclear construction sector [which] has benefitted from her research, attendance at meetings and input' [c-i]. The Head of Construction Workforce Capability at EDF Hinkley Point C and Sizewell C (nuclear new build projects) states that: 'Linda's input **provides the evidence base for discussion on future direction through research and best practice reports** and this, in turn, has aided the development of our equality and diversity strategic and tactical approaches, policies and processes including commercial approaches' [c-ii]. The Head provides the 'notable example' of Clarke providing research on a lack of PPE (Personal Protective Equipment) for women during the COVID pandemic, which 'is helping the case for embedding our strategy into procurement' [c-ii]. Clarke's intervention thus 'helped [Unite-EDF] address the challenges/barriers encountered by female apprentices and women already working in the construction sector' [c-i].

The AGS has also ‘worked with Professor Clarke to raise issues pertinent to women working in construction’ at the European Federation of Building and Woodworkers (EFBWW), which has 76 affiliated unions in 34 countries and represents a total of 2 million members [c-i]. Collaborative work between EFBWW and ProBE on women in construction has been propagated through the European Institute of Construction Labour Research ([www.clr-news.org](http://www.clr-news.org)), of which Clarke is a board member, and which has a 500+ strong network of construction unions and researchers across Europe that subscribe to its regular *CLR News* [c-iii]. The Women’s Head of EFBWW confirms that ‘Clarke has been a key person in policy making for women workers in the building field’ and that the research activities of ProBE have ‘had a real and tangible impact on the world of work’, with her work having **‘been absorbed by the trade unions in many countries and they are still followed and implemented in the negotiations’** [c-iii]. In particular, she specifies how: ‘The conclusions of much research or European projects of ProBE, published and disseminated across many countries, have changed the agenda for gender diversity and equality and have become guidelines to be applied in the collective negotiation and in the social dialogue, at both European and national level’ [c-iii]. Both the Women’s Head of EFBWW and the AGS of Unite stress the importance of Clarke’s focus on ‘investigat[ing] the real consequences of the transformations in work for the real life of workers and especially women workers’ [c-iii], such that ‘[w]hat makes the impact of Professor Clarke’s work stand out, is her engagement (on a very human level) with individual construction workers, trade unionists and the people who form the basis of much of her research’ [c-i]. In this respect ProBE’s research is supporting the transformation of the sector by **providing a much needed social and equality dimension to what is too often simplistically conceived in terms of a technological ‘fix’.**

Clarke is also part of the Architecture and Planning Group of Community Plan for Holloway (CPFH), an independent community-led organisation funded by the National Lottery Trust for London and The Tudor Trust. CPFH is proposing that women play an important role in designing and building the social housing scheme and Women’s Building on the former women’s prison site and is coordinating the different interests involved [c-iv]. The CPFH Chair states that Clarke’s ‘development of a proposal to ensure that women are at the centre of the construction of the site has been **invaluable in the Community Plan being able to make the case for each phase of the redevelopment respecting the legacy of the site’** [c-v]. Further, Clarke authored a paper outlining how Islington Council’s Section 106 requirements and climate emergency targets can be fulfilled on the former Holloway Prison site so as to respond to the historical legacy of the site with respect to women [c-vi]. This briefing recommended the requirement for women to be 50% of trainees and 30% of those employed on this very large project. As the Chair of CPFH writes, through this work Clarke has ‘delivered expert analysis to **ensure that the proposals supported by the Community Plan are grounded in evidence-based research and intellectual rigour** and as a result the Community Plan proposal has been taken [up] by the developers and the Council who have a major stake in the site redevelopment’ [c-v].

##### 5. Sources to corroborate the impact (indicative maximum of 10 references)

- [a] (i) UniteLive, “Light up the Ladies’ Bridge”, 9/19/16 [\[link\]](#) (ii) Historic England, ‘Waterloo Bridge’ List entry [\[link\]](#) (iii) Testimony: Head of Listing, Historic England (iv) Portfolio of media coverage (v) Historic England, ‘Heritage Minister Recognises Women Who Built Waterloo Bridge...’, 23/5/15 [\[link\]](#) (vi) RCI, ‘New campaign recognises the role of women in construction’, 24/5/15 [\[link\]](#) (vii) WIC Summit, ‘Learning from the women behind the world’s most iconic buildings’, 14/8/19 [\[link\]](#) (viii) WIES, ‘100 Years – 100 Women Engineers’, 9/9/19 [\[link\]](#) (ix) Go Construct, ‘Female Firsts in Construction’, 12/3/19 [\[link\]](#) (x) *The Ladies Bridge* website [\[link\]](#) & data
- [b] (i) Testimony: Chief Executive of Thames Tideway Tunnel (TTT) (ii) Clarke L. Michielsens E., Snijders S., Wall, C. (2015) *No more softly, softly: review of women in the construction workforce* (iii) Mentee on TTT site [\[link\]](#) (iv) PDF Portfolio of TTT initiatives (v) Women Returners, ‘Thames Tideway Tunnel returnship success’ [\[link\]](#) (vi) Women into Construction website [\[link\]](#) (vii) TTT Annual Report 2019/20 [\[link\]](#) (viii) TTT Annual Report 2018/19 [\[link\]](#)
- [c] (i) Testimony: AGS of Unite the Union (ii) Testimony: Head of Construction Workforce Capability, EDF (iii) Testimony: Women’s Head of EFBWW (iv) <https://plan4holloway.org> (v) Testimony: Chair of CPFH (vi) Clarke, L. ‘Ensuring inclusive and quality low energy construction training and employment on the Holloway prison site’ for CPFH