Synergy of Empowering Women in Surveying in Puerto Rico: A Pathway to Equitable Growth Beyond 2030

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Key words: SDG; diversity and inclusion; education; professional practice; young surveyor, empowerment

SUMMARY

This paper explores the transformative impact of empowering women in land surveying in Puerto Rico through the initiative *Women in Survey in Puerto Rico (WiSPR)*, and its alignment with the Sustainable Development Goals (SDGs) as a driver of equitable growth beyond 2030. As a female professional land surveyor and educator, I present WiSPR as a model of inclusive leadership, technical excellence, and emotional support that fosters a synergy of empowerment among women in STEM. The initiative responds to the global call to end discrimination against women and girls, and contributes directly to SDG targets related to gender equality, quality education, competitive work, and reduced inequalities.

Education is examined as a benchmark for success, not only in its formal academic dimensions but also in its emotional and interpersonal development. The paper highlights how professors in higher education have evolved into facilitators mentors who guide students through academic challenges and professional transitions. This dual role strengthens the synergy of empowerment by connecting technical instruction with personal growth, especially for young women entering the surveying profession.

The paper presents current statistics on women in education and the workforce in both the United States and Puerto Rico, underscoring the persistent gaps in representation within technical fields. It discusses the unique responsibilities of female educators and professionals to inspire, support, and engage leadership for others. Through structured mentoring and community building, WiSPR creates a ripple effect that amplifies visibility and confidence among emerging surveyors.

A detailed framework for empowerment is introduced, encompassing cognitive and emotional processes such as analysis, interpretation, synthesis, and creation. These processes are facilitated through safe, inclusive environments that encourage vulnerability, collaboration, and innovation. The paper also addresses the real-world challenges women face in surveying, from generational gaps and family responsibilities to fieldwork limitations and workforce dynamics and proposes disciplines of execution that foster resilience and community. Finally, the paper shares WiSPR's story of success, including its monthly virtual meetings, in-person

events, and participation in national summits. These activities exemplify the synergy of empowerment in action, blending technical training with self-care and peer support. The paper concludes by affirming that empowering women in surveying is not only a local priority but a global imperative for sustainable development and inclusive progress.

RESUMEN (ESPAÑOL)

Este trabajo explora el impacto transformador del empoderamiento de las mujeres en la agrimensura en Puerto Rico a través de la iniciativa *Women in Survey in Puerto Rico (WiSPR)*, y su alineación con los Objetivos de Desarrollo Sostenible (ODS) como motor de crecimiento equitativo más allá del 2030. Como agrimensora profesional y educadora, presento a WiSPR como un modelo de liderazgo inclusivo, excelencia técnica y apoyo emocional que fomenta una sinergia del empoderamiento entre mujeres en disciplinas STEM. La iniciativa responde al llamado global para eliminar la discriminación contra mujeres y niñas, y contribuye directamente a los objetivos relacionados con la igualdad de género, educación de calidad, trabajo decente y reducción de desigualdades.

La educación se analiza como un referente de éxito, no solo en sus dimensiones académicas formales, sino también en el desarrollo emocional e interpersonal. El trabajo destaca cómo los profesores en la educación superior han evolucionado hacia el rol de facilitadores: mentores que guían a los estudiantes en sus desafíos académicos y transiciones profesionales. Este doble rol fortalece la sinergía del empoderamiento al conectar la instrucción técnica con el crecimiento personal, especialmente para las jóvenes que ingresan a la profesión de agrimensura.

Se presentan estadísticas actuales sobre la participación de mujeres en la educación y en la fuerza laboral tanto en Estados Unidos como en Puerto Rico, subrayando las brechas persistentes en campos técnicos. Se discuten las responsabilidades únicas de las educadoras y profesionales para inspirar, apoyar y proyectar liderazgo hacia otras mujeres. A través de mentoría estructurada y construcción de comunidad, WiSPR genera un efecto multiplicador que amplifica la visibilidad y la confianza entre las agrimensoras emergentes.

Se introduce un marco detallado de empoderamiento que abarca procesos cognitivos y emocionales como el análisis, la interpretación, la síntesis y la creación. Estos procesos se facilitan en entornos seguros e inclusivos que fomentan la vulnerabilidad, la colaboración y la innovación. El trabajo también aborda los desafíos reales que enfrentan las mujeres en la agrimensura desde brechas generacionales y responsabilidades familiares hasta limitaciones en el trabajo de campo y dinámicas laborales y propone disciplinas de ejecución que promueven la resiliencia y el sentido de comunidad.

Finalmente, se comparte la historia de éxito de WiSPR, incluyendo las reuniones virtuales mensuales, eventos presenciales por el Día de la Mujer y participación en cumbres nacionales. Estas actividades ejemplifican la sinergía del empoderamiento en acción, combinando formación técnica con autocuidado y apoyo entre pares. El trabajo concluye afirmando que

empoderar a las mujeres en la agrimensura no es solo una prioridad local, sino una necesidad global para el desarrollo sostenible y el progreso inclusivo.

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1. INTRODUCTION

The future we want with the Sustainable Development Goals (SDGs), and beyond is one where equity, sustainability, and opportunity are not distant ideals but tangible realities. As a female land surveyor and educator in Puerto Rico, I have witnessed the transformative power of representation, mentorship, and community. The initiative *Women in Survey in Puerto Rico (WiSPR)* is a living testament to this vision. It uplifts women in technical fields, fosters leadership, and promotes inclusive development through a synergy of empowerment.

WiSPR reprsents a pathway to a contribution to equitable growth by creating a space where women can thrive professionally and personally. Through regular engagement, technical training, and emotional support, we are building a resilient network of surveyors who are prepared to lead. This synergy of empowerment between education, mentorship, and representation is essential for shaping a future that transcends barriers. It also aligns with global efforts to dismantle systemic inequalities and foster opportunity for all.

This vision is deeply connected to the Sustainable Development Goals, adopted by the United Nations in 2015. These 17 goals (United Nations, 2026) serve as a universal call to action to end poverty, protect the planet, and ensure peace and prosperity by 2030. The SDGs emphasize interconnectedness progress in one area and influences outcomes in others. Central to their mission is the elimination of discrimination against women and girls, making initiatives like WiSPR vital to global progress.

2. SGS AND THE FUTURE

The Sustainable Development Goals provide a comprehensive framework for addressing global challenges through integrated action. Surveying and geomatics are central to many SDGs because they inform land administration, environmental monitoring, infrastructure planning, and disaster resilience. Women's empowerment within these fields enhances the profession's ability to meet these global objectives by bringing diverse perspectives and community-centered approaches to technical challenges. When women are included, the solutions become more equitable, sustainable, and socially responsive.

The SDGs emphasize that no one should be left behind, and this principle resonates strongly in the context of gender equity in surveying. Historically, surveying has been a male dominated profession, shaped by field intensive work and limited visibility of women role models. By

empowering women in surveying, Puerto Rico is actively dismantling these barriers and contributing to SDG 5, which calls for gender equality and the elimination of discrimination. This empowerment also strengthens SDG 4 by promoting inclusive and equitable quality education, ensuring that women have access to the same opportunities for academic and professional growth. Also empowers society to reduce inequalities by SDG 10.

Finally, empowerment is about legacy. Women who are empowered become mentors, role models, and changemakers who influence the next generation of surveyors. Facilitators help them recognize their influence and embrace their responsibility to uplift others, creating a cycle of empowerment that strengthens entire communities. Through this cycle, a synergy of empowerment emerges one that ensures continuity of impact and aligns with the longterm vision of the SDGs. This legacy driven approach reinforces the idea that sustainable development requires not only technical expertise but also human-centered leadership

3. EDUCATION AS A BENCHMARK FOR SUCCESS

Education has long been recognized as one of the most powerful benchmarks for individual and societal success. It provides the structural foundation through which people acquire knowledge, develop skills, and gain access to opportunities that shape their futures. In both the United States and Puerto Rico, educational attainment is strongly correlated with higher income, increased employment stability, and greater civic engagement (U.S. Census Bureau, 2023). As economies evolve and technological demands increase, education becomes even more essential for preparing individuals to participate meaningfully in the workforce. For women in particular, education is a transformative force that expands access to professional fields, including those historically dominated by men, such as engineering, geomatics, and land surveying.

Beyond its economic implications, education functions as a benchmark for success because it cultivates critical thinking, problem solving, and adaptability skills that are indispensable in a rapidly changing world. Higher education institutions play a central role in shaping these competencies by exposing students to diverse perspectives, rigorous academic challenges, and collaborative learning environments. These experiences help students develop intellectual resilience and the capacity to navigate complex professional landscapes. For women entering technical professions, such as surveying, education provides the confidence and credibility needed to challenge stereotypes and contribute meaningfully to their fields.

However, education as a benchmark for success must be understood not only in terms of formal academic achievement but also through the development of emotional and interpersonal competencies. As workplaces become more collaborative and interdisciplinary, the ability to communicate effectively, manage conflict, and demonstrate empathy has become just as important as technical expertise. Higher education institutions are increasingly recognizing the need to integrate emotional intelligence, leadership development, and interpersonal skills into their curricula (Goleman, 2020). This holistic approach ensures that students are not only

academically prepared but also emotionally equipped to thrive in professional environments that demand teamwork, adaptability, and ethical decision making.

3.1 Formal and Interpersonal Education

Formal education provides the structural foundation for professional competence, but emotional and interpersonal education is essential for long-term success and leadership. In higher education, students must learn not only the theories and technical skills of their disciplines but also how to collaborate, communicate, and navigate interpersonal dynamics. These competencies are especially important in fields like land surveying, where teamwork, client interaction, and ethical decision making are integral to professional practice. As the demands of the workforce evolve, higher education institutions must adapt by integrating emotional intelligence training, leadership development, and interpersonal skill building into their academic programs.

The necessity of emotional and interpersonal education becomes even more evident when considering the challenges faced by students transitioning into professional roles. Many students enter higher education with strong academic abilities but limited experience in managing stress, resolving conflicts, or advocating for themselves. Without intentional development of these skills, students may struggle to adapt to the complexities of professional life. Higher education institutions have a responsibility to prepare students holistically, ensuring that they possess not only the technical knowledge required for their fields but also the emotional resilience and interpersonal competence needed to succeed in diverse and demanding environments.

Looking toward the future, the integration of emotional and interpersonal education will become increasingly important as technology reshapes the workforce. Automation, artificial intelligence, and digital transformation are changing the nature of work, placing greater emphasis on human-centered skills that cannot be replicated by machines (World Economic Forum, 2023). Higher education must therefore evolve to prepare students for a future in which emotional intelligence, creativity, and collaboration are essential. By fostering both formal academic learning and interpersonal development, institutions can equip students especially women entering technical fields with the tools they need to lead, innovate, and thrive.

3.2 Changing Academic Landscape

Beginning in the 1970s, schools across the United States experienced a significant movement toward structured peer support and student led assistance programs. Students were systematically organized and trained to help others, creating a culture of collaboration and mutual aid within educational environments (Goodlad, 1979). These programs reflected a broader societal recognition of the importance of emotional support, mentorship, and interpersonal development in student success. They also demonstrated the potential of students to contribute meaningfully to the wellbeing of their peers, reinforcing the idea that education extends beyond academic instruction.

Over the decades, however, the demands placed on academia have grown substantially, leading to a reduction in the time available for personalized teaching and counseling. Increased administrative responsibilities, expanded extracurricular programming, and heightened performance expectations have squeezed the time educators can dedicate to individualized student support. Teacher student ratios have increased, making it more difficult for educators to provide the level of attention and guidance that students received in earlier decades (NCEES, 2022). This shift has had a profound impact on the quality of educational experiences, particularly for students who rely on mentorship and personalized instruction to navigate academic and personal challenges.

The pressures faced by professors in higher education mirror those experienced in K to 12 settings. Faculty members are increasingly burdened with research obligations, grant writing, committee work, and institutional collaborations, leaving less time for direct student engagement. As a result, the professor student relationship has evolved, with many professors taking on roles that extend beyond traditional teaching. Despite these challenges, many faculty members continue to serve as mentors, advisors, and advocates for their students, recognizing the importance of holistic support in fostering academic and professional success. Their commitment underscores the enduring value of interpersonal connection within higher education.

3.3 Education Facilitators

In contemporary higher education, professors often serve as facilitators who guide students through both academic learning and personal development. Because they interact with students over extended periods, professors gain insight into their strengths, challenges, and aspirations. This familiarity allows them to provide tailored guidance that supports students' academic progress and professional growth. For students entering specialized fields such as land surveying, these relationships are particularly valuable, as professors can offer mentorship that bridges the gap between classroom learning and real-world practices.

Importantly, the influence of professors does not conclude at the moment of graduation. In many cases, the mentoring relationship evolves into a long-term professional association that continues to shape the graduate's career trajectory. As emerging surveyors confront new responsibilities, ethical considerations, and leadership challenges, they frequently seek counsel from former professors who have become trusted advisors. These ongoing relationships often extend into personal decision making, reflecting the depth of trust and respect cultivated during the academic years. Such continuity of mentorship contributes to the stability, ethical grounding, and professional maturity of early career practitioners, reinforcing the broader mission of FIG to promote excellence and integrity within the surveying profession.

In their role as facilitators and counselors, professors support students in navigating academic pressures, career pathways, and the transition from student to practitioner. This guidance is particularly critical in technical fields where competence must be complemented by confidence, ethical judgment, and adaptability. Professors who embrace this expanded role

help students develop the resilience required to succeed in demanding professional environments. When this mentorship extends into the graduate's professional life, it strengthens the individual's capacity to respond to emerging challenges and contributes to the development of a more robust and reflective professional community.

A central dimension of this facilitative role is the motivation and empowerment of students to realize their full potential. Through constructive feedback, encouragement, and individualized mentorship, professors foster ambition and self-efficacy. This is especially significant for women entering traditionally male dominated sectors of the surveying profession, where supportive academic relationships can play a decisive role in overcoming structural barriers and cultivating leadership. By sustaining these relationships beyond the university setting, professors act as catalysts for long-term professional growth, contributing to a more inclusive, confident, and looking forward generation of surveyors.

4. COMPLEXITY OF WOMEN EDUCATION

As professors increasingly adopt the role of facilitators, their influence extends beyond academic instruction into the realm of personal and professional empowerment. This transition is especially meaningful for women entering fields where gender disparities remain deeply rooted. Female facilitators, in particular, bring a unique perspective shaped by their own experiences navigating male dominated environments. Their mentorship provides students with practical guidance on how to manage gender bias, advocate for themselves, and build confidence in spaces where their presence may still be questioned. Through intentional conversations and supportive relationships, these facilitators help women understand that their challenges are not personal shortcomings but reflections of broader structural inequities.

Female facilitators also play a critical role in addressing the realities of maternity, caregiving responsibilities, and work life balance topics that are often overlooked in technical disciplines. By openly discussing strategies through appropriate mentorship for managing family responsibilities alongside demanding academic or professional schedules, they help students envision sustainable career paths that do not require sacrificing personal aspirations. These discussions empower women to make informed decisions, set boundaries, and seek workplaces that respect their full identities. Such guidance is essential in fields like geomatics and land surveying, where fieldwork expectations and rigid schedules can create additional barriers for women.

Beyond structural challenges, female facilitators help students navigate interpersonal dynamics that may include machismo, ego driven behavior, or resistance from closed minded coworkers. These realities can create environments where women feel isolated, undervalued, or pressured to overperform. Facilitators provide students with tools to respond professionally and assertively, teaching them how to establish credibility, build alliances, and maintain composure in the face of dismissive or exclusionary behavior. By modeling resilience, emotional intelligence, and strategic communication, female facilitators demonstrate that leadership in

technical fields is not defined by conformity to masculine norms but by authenticity, competence, and confidence.

4.1 Participation of Women

Women's participation in education and the workforce demonstrates a complex landscape of progress alongside persistent inequities. In Puerto Rico, women constitute the majority of students enrolled in higher education, reflecting strong academic engagement and sustained achievement (Puerto Rico Community Survey, 2022). Despite this promising representation, women remain significantly underrepresented in STEM fields particularly engineering, geomatics, and land surveying. This pattern mirrors national trends in the United States, where women have reached parity or majority status in high school completion and college enrollment but continue to be underrepresented in STEM majors and technical careers (National Center for Education Statistics, 2023). The disconnect between educational attainment and STEM participation highlights structural and cultural barriers that continue to shape women's academic and professional trajectories.

The National Science Foundation (2023) reports that women comprise approximately thirty five percent of the STEM workforce, with even lower representation in engineering and computer science. Hispanic women, including Puerto Rican women, face additional challenges rooted in cultural expectations, limited early exposure to STEM pathways, and a scarcity of visible role models in technical professions. In Puerto Rico, research indicates that although female participation in STEM majors has gradually increased over recent decades, women remain disproportionately absent from engineering and other technical programs (PRCS, 2022). This persistent "leaky pipeline" underscores the need for targeted interventions that support women at every stage from early education and undergraduate study to professional entry and career advancement.

This evolution from facilitation to empowerment creates a foundation for understanding the broader landscape of women's participation in education, STEM, and the workforce. As women receive mentorship that acknowledges both their academic potential and the gender specific challenges they may encounter, they are better equipped to persist, excel, and lead. This transition sets the stage for examining the persistent disparities that shape women's experiences in Puerto Rico, the United States, and the global surveying profession, and highlights the importance of continued efforts to support their advancement.

4.2 Women in Land Surveying

Workforce participation data further illustrate these disparities. In Puerto Rico, women are well represented in fields such as education, health services, and public administration, but they remain underrepresented in engineering, construction, geomatics, and other technical occupations (Bureau of Labor Statistics–Puerto Rico, 2023). This imbalance highlights the importance of initiatives such as Women in Surveying Puerto Rico (WiSPR), which provide mentorship, visibility, and community support to women pursuing careers in surveying and

geospatial sciences. By addressing structural barriers and fostering empowerment, these initiatives contribute to a more equitable, diverse, and resilient workforce. The Professional College of Engineers and Land Surveyors of Puerto Rico reports 14 women land surveyors.

Women's participation in geomatics and land surveying remains significantly lower than in many other STEM fields, both in the United States and Puerto Rico. Historically, surveying has been perceived as a physically demanding, male dominated profession, shaped by extensive fieldwork, rugged terrain, and technical rigor. These perceptions, combined with limited visibility of women role models, have contributed to persistent gender disparities in the field. Yet the profession is undergoing rapid transformation. Modern surveying increasingly relies on GIS technologies, UAV mapping, digital cadastre systems, and geospatial analytics areas that emphasize analytical reasoning, technological proficiency, and data interpretation rather than physical strength. This shift opens new pathways for women to enter and excel in the profession.

In Puerto Rico, women surveyors are emerging as influential contributors to land governance, environmental management, and geospatial innovation. Their expertise is essential to addressing the island's pressing challenges, including coastal erosion, disaster recovery, climate adaptation, and infrastructure modernization. Despite these opportunities, women continue to encounter barriers related to cultural expectations, workplace dynamics, and limited access to mentorship or professional networks. Initiatives such as WiSPR play a vital role in addressing these challenges by creating supportive communities, increasing visibility, and offering professional development opportunities tailored to women in surveying and geomatics.

Empowerment in geomatics extends beyond technical competence; it also requires emotional resilience and interpersonal growth. Women in surveying often navigate environments where they may be the only female professional on a field team, in a classroom, or within a technical committee. These experiences can create feelings of isolation or heightened pressure to prove one's capabilities. Facilitators and mentors who cultivate safe spaces for emotional expression and professional dialogue help women develop confidence, self-awareness, and a sense of belonging. This holistic approach ensures that empowerment encompasses not only technical mastery but also personal strength, emotional well-being, and relational support elements essential for long-term success in demanding and evolving technical fields.

4.3 Labor, Development and Workforce Trends

Labor market data from the U.S. Department of Labor (DOL), the Puerto Rico Institute of Statistics (PRIS), and global workforce agencies reveal significant trends shaping opportunities in surveying, geomatics, engineering, and construction. These sectors are undergoing rapid transformation driven by infrastructure investment, climate adaptation, and technological modernization. Understanding these trends is essential for contextualizing women's participation in technical professions and identifying areas where targeted interventions can expand access and equity.

The Puerto Rico Institute of Statistics reports that the construction and development sector in Puerto Rico has experienced steady growth over the past decade, largely due to post-hurricane Maria's reconstruction, federal recovery funding, and modernization of critical infrastructure. According to PRIS (2023), employment in construction and land development has increased, yet the workforce remains predominantly male. Women represent less than ten percent of workers in construction related occupations, including surveying, engineering technicians, and field operations. The Puerto Rico Department of Labor and Human Resources (2023) notes that the island's ongoing recovery efforts, coastal resilience projects, and renewable energy initiatives continue to expand demand for skilled professionals, creating opportunities for women to enter and advance within the sector.

In the United States, the Department of Labor identifies surveying, mapping, and geospatial occupations as fields with stable demand and competitive wages. The Bureau of Labor Statistics (2023) projects continued growth in surveying and geospatial technologies due to infrastructure renewal, transportation modernization, and the expansion of digital mapping technologies. The construction sector, supported by federal legislation such as the Infrastructure Investment and Jobs Act, is experiencing one of the largest workforce expansions in decades. However, women remain underrepresented, comprising approximately eleven percent of the U.S. construction workforce (BLS, 2023) and an even smaller percentage of licensed Professional Land Surveyors. Federal hiring platforms such as USAJobs reflect similar patterns: while opportunities in geospatial analysis, land management, and environmental planning are increasing, female applicants remain a minority in these technical roles (USAJobs, 2023).

Globally, the International Labour Organization (ILO) and World Bank data show that construction and land development are among the fastest growing sectors in emerging economies. Development, climate adaptation, and infrastructure expansion are driving demand for surveyors, GIS specialists, and geomatics engineers worldwide. According to the ILO (2022), women represent between ten and twenty percent of the global surveying workforce, with lower participation in regions where cultural norms restrict women's access to technical education or field based professions. Despite these challenges, international initiatives promoting gender equity in STEM combined with the increasing digitalization of surveying are gradually opening pathways for women to enter and lead in the global geospatial sector.

Across Puerto Rico, the United States, and the international community, labor market data reveal a consistent pattern: the construction, development, and geospatial industries are expanding, yet women remain significantly underrepresented. These disparities highlight the importance of targeted programs, mentorship networks, and institutional support systems that encourage women to pursue careers in surveying and geomatics.

As infrastructure needs intensify and technological innovation accelerates, the inclusion of women in these fields is not only a matter of equity but also a strategic imperative for building resilient, diverse, and future ready workforces. Empirical evidence consistently demonstrates that the empowerment of women and girls significantly contributes to economic growth, social

progress, and inclusive development outcomes. Once again said, the initiative of WiSPR plays a vital role in addressing and mentoring to narrow these challenges and creating supportive communities.

5. DISCIPLINES OF EXECUTION THROUGH WISPR

The Disciplines of Execution applied within WiSPR provide a structured, intentional framework for empowering women in land surveying. Unlike general mentorship or informal support, these disciplines emphasize clarity, focus, accountability, and community driven action. They function as a bridge between the challenges women face and the outcomes they seek, ensuring that empowerment is not abstract but operationalized through consistent practices. By applying these disciplines, WiSPR transforms individual experiences into collective progress and creates a sustainable model for professional growth among women surveyors in Puerto Rico. Along the execution,three mainly priorities have been address:

1. Clarifying situations and establishing focused proirities. A central discipline of execution involves clearly identifying the specific situations women encounter throughout their academic and professional journeys. This includes recognizing generational differences, family related pressures, and the physical and logistical demands of fieldwork. Rather than revisiting these challenges, the discipline focuses on classifying them in ways that allow women to set priorities and determine where support is most needed. This classification process helps participants distinguish between obstacles that require personal strategies and those that require structural or organizational change.

Once situations are clarified, WiSPR emphasizes the importance of focusing on “wildly important” priorities those actions that have the greatest potential to improve women’s experiences and professional outcomes. These priorities may include strengthening peer networks, developing leadership confidence, or improving communication strategies in male dominated environments. By narrowing attention to the most impactful areas, the group avoids dispersing energy across too many initiatives and instead channels its efforts toward meaningful, measurable progress. This discipline ensures that empowerment is not accidental but the result of deliberate, strategic focus.

2. Creating structured, safe and energizing spaces. Another discipline of execution centers on the intentional design of meeting environments. WiSPR meetings have been structured to promote psychological safety, open dialogue, and collaborative problem solving. This structure is not merely organizational, it is foundational to empowerment. Timed agendas, clear expectations, and consistent meeting formats help participants feel grounded and respected. These elements also ensure that discussions remain productive and that every participant has the opportunity to contribute meaningfully.

A defining feature of these spaces is the commitment to non-judgment. Participants have been encouraged to share challenges, uncertainties, and professional setbacks without fear of criticism. This openness allows women to process experiences that may be difficult to discuss in traditional workplace settings. The discipline of maintaining a judgment free environment

requires active listening, empathy, and mutual respect skills that strengthen group cohesion and reinforce the value of collective support. When women leave meetings feeling energized, understood, and motivated, the discipline has achieved its purpose.

3. Sustaining commitment through accountability and community. The final discipline of execution has involved maintaining momentum through accountability and ongoing engagement. Facilitators and participants have committed to following through on goals, reporting progress, and revisiting priorities as needed. This accountability is not punitive; rather, it reinforces the shared responsibility of building a supportive professional community. When women know that others are counting on them, their level of commitment naturally increases, strengthening both individual and group outcomes.

Community building is also a key component of this discipline. WiSPR fosters opportunities for women to connect beyond formal meetings, whether through networking events, collaborative projects, or informal conversations. These interactions deepen relationships and create a sense of belonging that extends into academic and professional environments. By sustaining engagement and nurturing community ties, the discipline ensures that empowerment is continuous rather than episodic. This long-term commitment transforms WiSPR from a support group into a professional movement grounded in shared purpose and collective growth.

6. WiSPR: A STORY OF SUCCESS

Women in Surveying in Puerto Rico, nationawide known as WiSPR is a nonprofit organization founded in November 2023 to empower, connect, and elevate women in the surveying profession across Puerto Rico and beyond. Its inaugural virtual meeting was held on December 5, 2023, with 41 participants, including professional land surveyors, surveyors in training, bachelor's graduates, and students of land surveying from PR but geolocated all around the world. As of 2025, WiSPR has an active membership of 80 women, reflecting rapid growth and strong community engagement.

Throughout 2024, WiSPR held monthly virtual meetings, each designed to foster professional development and personal well-being. In 2025, the meetings shifted to a quarterly format, maintaining their signature structure: a warm welcome, a 30 to 35 minute presentation by a special guest (including successful women surveyors from Latin America and the United States, health professionals, life coaches, psychologists, and others), followed by a 30 to 35 minute social wellness activity. These activities ranged from creating charcuterie boards and crafting to painting acrylic canvases and making Christmas ornaments. Each meeting concluded with a wrap-up and announcements of upcoming events.

These gatherings have helped members build professional and personal connections, secure employment, and develop relationships they previously lacked. Women reported gaining confidence, expanding their networks, and discovering new opportunities through the supportive environment WiSPR provides. The meetings also served as safe spaces where women could share challenges, celebrate achievements, and receive encouragement from peers

and mentors. This emotional and relational support strengthened the community and contributed to the holistic empowerment of its members.

On March 8, 2025, WiSPR hosted its first in-person event in celebration of International Working Women's Day, also livestreamed for members outside Puerto Rico. The event honored the contributions of women surveyors whose dedication continues to shape the present and future of the profession. It provided a space to share experiences, strengthen community ties, and continue opening pathways in a field where women are increasingly leaving their mark. The event was titled *Primer Encuentro Presencial de las Mujeres Agrimensoras de Puerto Rico*, and it marked a milestone in WiSPR's journey. WiSPR also participated in major professional events, including *Mega Viernes Civil 2025*, where members showcased their pride and presence in the civil engineering and surveying community. Notably, WiSPR had a strong presence at the Women Surveyors Summit hosted by the Future Surveyors Foundation. In 2024, eleven members attended the summit in Pittsburgh, Pennsylvania. In 2025, nineteen members represented Puerto Rico at the summit in Las Vegas, Nevada. The group expressed their excitement and gratitude for being part of such an empowering, influential, and inspiring community of women surveyors.

This year was marked by meaningful connection, collective growth, and a deep sense of community. From virtual meetings to impactful in person events, every moment highlighted the strength, unity, and resilience of women in surveying and engineering. We are profoundly grateful for every woman who participated, contributed, and helped make this year so significant. As we look ahead to 2026, we are excited to welcome new members, expand our initiatives, and continue building a network that uplifts and inspires women across and beyond.

7. SYNERGY OF EMPOWERMENT

As the founder and primary facilitator of WiSPR, the responsibility of guiding women surveyors extends far beyond organizing meetings or leading discussions. It involves cultivating a synergy between empowerment and accountability, which defines an intentional balance where leadership is exercised with purpose, clarity, and ethical commitment. Although facilitators cannot accompany women into every academic, personal or professional environment, the goal is to equip them with the confidence, awareness, and tools necessary to confront discrimination and inequity wherever they arise. Ending discrimination against women is not only a fundamental human right; it is also essential for building sustainable, resilient societies. Research consistently demonstrates that empowering women and girls contributes to economic growth, community development, and long-term social stability. Within WiSPR, this principle becomes a guiding force that shapes every interaction, initiative, and discipline of execution.

The responsibility of facilitation also includes acknowledging the persistent inequalities that women continue to face in the labor market. Even as more women enter the workforce, many still encounter environments where discriminatory practices remain embedded in workplace culture. In some regions, women are systematically denied equal work rights, fair

compensation, or opportunities for advancement. These inequities are compounded by the unequal division of unpaid domestic labor, barriers to public leadership roles, and the disproportionate impact of economic instability on women. As a facilitator, I assure to know the WiSPR members and recognizing their realities to have the benchmark to design meaningful support systems. WiSPR does not attempt to eliminate barriers; instead, it empowers women to navigate them with resilience, strategic awareness, and strength.

Encouragement and empowerment are central to fostering greater equality and professional growth. When women feel supported, validated, and connected to a community that understands their experiences, they are more likely to pursue leadership roles, advocate for themselves, and challenge discriminatory norms. Empowerment is not merely motivational it is transformative. It reshapes how women perceive their capabilities, how they respond to adversity, and how they envision their future within the surveying profession. As a facilitator, nurturing this transformation requires consistency, empathy, and a commitment to modeling the values that WiSPR promotes. The synergy between empowerment and responsibility becomes a catalyst for change, enabling women to thrive both individually and collectively.

7. CONCLUDING REMARKS

The synergy of empowering women in surveying and related fields is a powerful force for equitable growth beyond 2030. By integrating education, mentorship, community building, and international engagement, initiatives like WiSPR are transforming the profession and contributing to the global goals of the SDGs. The empowerment of women surveyors strengthens the profession, enriches academic environments, and enhances Puerto Rico's capacity for sustainable development.

The work of empowerment is ongoing, and the responsibility of facilitation is both profound and deeply rewarding. Every meeting, conversation, and shared experience contributes to a broader movement toward equity and representation in land surveying. Women who participate in WiSPR carry forward the strength, knowledge, and confidence cultivated within the group, influencing their workplaces, communities, and future generations. As founder and facilitator, the commitment is to continue fostering spaces where women feel seen, supported, and inspired to grow. The journey toward equality is long, but with discipline, unity, and unwavering encouragement, women surveyors in Puerto Rico and beyond will continue to rise, lead, and redefine the profession.

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BIOGRAPHICAL NOTES

Dr. Evi De La Rosa Ricciardi has been a professor at the Civil Engineering and Land Surveying Department of the Mayagüez Campus from the University of Puerto Rico since 1996. She is a professional land surveyor registered and engineer in training in Puerto Rico. Her professional interests are in land surveying education, water boundaries surveys and land tenure/land administration. She has tirelessly served as a Surveying mentor in Puerto Rico, USA, Ibero-america and at global levels in working groups, radio programs, podcasts, conferences and more. With great joy and enthusiasm, she enlightens and advocates the importance of women in our workforce. She has served as expert witness and philanthropy consultant. Throughout her career, she has served in leadership roles of the land surveying associations in Puerto Rico and has received recognitions from her students, peers and society. WiSPR Founder and Chair.

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