

WELDING EDUCATION, TRAINING, SKILLS AND CAREER DEVELOPMENT FOR WOMEN AND GIRLS IN INDIA.

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SUMMARY

India is having substantial growth in its economy including the need for qualified and certificated welding personnel at all levels across many industry sectors. Even with the sophisticated Government and Industry framework existing in the education and training system, immense challenges still exist. IIW-India has identified many of these challenges and is preparing a proposal for the implementation of a National Welding Skills Strategy covering all levels of personnel required to improve India's National Welding Capability.

IIW-India also supports the recently released International Institute of Welding (IIW) IIW NWC-SDGs report "The Importance of a Country's Welding Industry, its National Welding Capability (NWC) and their Significance to the UN Sustainable Development Goals (SDGs)." It is freely downloadable on:

<https://iiwelding.org/iiw-jointothefuture/iiw-and-sustainable-development/>

Although IIW-India is progressing all 17 UN SDGs as it improves its NWC, this paper focuses on two of the SDGs.

- UN SDG 4 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' - which can have such a positive effect on all the other SDGs
- UN SDG 5 'Achieve gender equality and empower all women and girls.'

It is widely believed that if gender congruence is accomplished in India's workforce, the GDP could be raised by 16%. According to the World Bank however, in 2018, female participation was only 26.97% and India was ranked 163 out of 181 countries in female workforce participation [X].

When one considers that only 2.3% of the workforce in India has undergone formal skills training and 35% of urban households are classed as poor, as well as probably 73% of poor people are living in rural areas, endless opportunities could be created for people, particularly women and girls, to join the welding industry [Y].

The paper shows some of the challenges and potential solutions for women and girls to enter the welding industry.

1. INTRODUCTION

India is undertaking a massive industrialisation phase through manufacturing and construction. This can lead to economic growth, and very importantly with the creation of quality jobs with a high labour absorption rate. In metals manufacturing and construction, welding is the enabling technology that allows these activities to take place. Welding, as a career choice, is able to absorb unskilled, poorly educated people and give them in-demand, well-paid, quality jobs in the welding industry as well as through further education and training, give them career paths to even better opportunities such as welding engineers and technologists, welding supervisors, welding inspectors and designers amongst others.

As part of the global community, The Indian Institute of Welding (IIW-India) embraces collective international action, cooperating and collaborating where applicable, to apply global solutions to global challenges. For example, IIW-India is working in line with the Indian Government's national initiatives to help India to achieve the United Nations Sustainable Development Goals (SDGs) by 2030.

A downloadable report 'IIW-India and India's National Welding Capability and their Significance to the UN Sustainable Development Goals (SDGs)' is available on:

<http://iiwindia.com/wp-content/uploads/2022/02/IIW-India-NWC-Report-on-UN-SDG.pdf>

2. SKILLS CHALLENGES FOR THE WELDING INDUSTRY

In 2016, G. A. Soman presented an overview paper on the Welding Skill Development Scenario in India [Z]. It was acknowledged that a “Dearth of properly qualified and competent welding personnel at all levels, from welder to Welding Engineer, is today recognised as a major constraint for the Indian fabrication and construction industries.”

Other points he included were that:

- India was on a threshold of a gigantic leap forward and at the time, it was expected that India would need 1.2 million welding professionals by 2020 including 720,000 welders. There were 786 Industrial Training Institutes (ITIs) training about 24,000 welders per year which was not enough to meet the needs of the growing industries.
- Even though there were also many private and public industries training welders, the numbers were lower than those from the ITIs.

Today, even with the very significant growth in the number of ITIs offering welder training and the number of welders entering industry, demand still far outstrips supply.

There are however a large number of welders who are not formally trained and certified who with some upgrading can help meet the demands of industry.

Other target populations could include those in the rural areas. According to Census 2011, India had 55 million potential workers between the ages of 15 and 35. By developing the welding skills and productive capacity of the rural youth from poor families this could make a viable contribution to the shortage.

In India, Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the flagship scheme of the Ministry of Skill Development and Entrepreneurship (MSDE) implemented by the National Skill Development Corporation (NSDC). The objective of this Skill Certification scheme is to enable Indian youth to take up industry relevant skills training that will help them in securing a better livelihood [224].

A key objective therefore could be to train as many people as possible in the rural areas in the appropriate welding skills and knowledge for any eventuality which may arise.

Such people could use the skills and knowledge for agricultural purposes but also develop other businesses in the rural areas as well as increase the opportunities for employment in various industries in the towns and cities. In particular, a true entrepreneurial culture could be developed at the micro-enterprise level.

3. CHALLENGES FOR WOMEN AND GIRLS AND SOLUTIONS

The achievement of UN SDG 5 would grant women and girls equal rights, opportunities to live free from discrimination including workplace discrimination or any violence. Education is a key to fostering equal rights to economic resources, property ownership and financial services for women, promoting empowerment of women through technology and adopting, strengthening policies and enforcing legislation for gender equality, hence the importance of enabling young girls to access as many educational opportunities as possible [6].

Countries such as India, China, Romania, Bulgaria, Latvia and Estonia as well as the former USSR, have all recorded high percentages of women as STEM graduates while countries such as Australia, Canada and Japan might have only 10-14 percent of engineers as women and have probably reached the growth limits.

In many developed and developing countries today, women and girls showing that they are competent to fulfil careers and employment roles are employed on an equal basis to men.

One of the best ways to enable women and girls to show that they are competent to perform any type of work is to show that they have achieved the required qualification and certification criteria specified for a particular type of work or application.

Due to women and girls showing that they are competent to fulfil the employment roles, they are employed on an equal basis to men at IIW (India) Member companies such as INOX which has implemented training programmes to achieve this objective.



Seven female workers at INOX India, Kalol Plant, Gujarat, India

Unfortunately, there may be countries where due to a variety of reasons, this does not apply. There may therefore be a need to change a number of cultures in a country to achieve equality and empowerment including a skills respect culture [9].

This would include equal pay, having in place diversity, inclusion and anti-discrimination policies including gender equality and women and girls' empowerment.

In some countries, there are still complex issues concerning male dominance and patriarchy that need to be addressed in order to step up efforts towards achieving sustainable development [18].

Governments however can commit to a range of national policies which are either gender focused or contain gender equality considerations and can lead to promoting women's economic empowerment and enhance women's participation in the labour market [23].

For example, in terms of assisting girls to achieve their potential, due to the very negative impact that Covid-19 had on girls' education, the G7 group of countries produced and agreed a significant policy paper during 2021 titled "Declaration on girls' education: recovering from COVID-19 and unlocking agenda 2030" [54]. Such initiatives should be supported and promoted where appropriate.

4. IIW-INDIA INITIATIVES

IIW (India) has become involved in programmes in India enabling women and girls to enter the welding related fields at various levels and areas such as education, training, research, development and technology transfer accompanied by the appropriate career paths.

The implementation of scholarships and support for STEM initiatives, are examples of how IIW (India) is working towards gender equality and greater diversity to progress SDG 5. Similarly with the use of welding skill competitions [X].

The Indian Institute of Welding (IIW-India) started the young professionals' activity in 2017, with the objective to bring more and more young people to take up welding as their professional career including encouraging girl students to participate in such programmes.

The campaign started in the Engineering colleges where Mechanical and Metallurgical streams are in force. IIW-India has succeeded in establishing 22 such colleges as Students' Chapters resulting in over 700 young professionals actively taking welding as a career.

5. SOME SPECIFIC CHALLENGES FOR WOMEN AND GIRLS

The Indian Government has introduced programmes of reserving specific jobs for women both in private and government organisations and is continually requesting industries to recruit more women and girls. Specific challenges still exist however, and a few are shown below with solutions:

- In many rural areas in India, young girls often struggle to attend school since there are no school buses available to take them the long distances to the nearest schools. In West Bengal, a programme to give 4 million bicycles to young girls in rural areas was introduced with great results in 2015. This is a great initiative with lots of benefits which the welding industry could contribute significantly to [57].

<https://wbsaboojsathi.gov.in/v2/>

- In some cultures, girls may be subjected to early marriage before completing their education. In West Bengal, India, the Kanyashree Prakalpa Yojana scheme of assisting with payment for girls' education is both simple and tremendous. It was designed by the Department of Women Development and Social Welfare. It uses a social safety net mechanism that has shown a high degree of success in transforming the lives of children and adolescents in several countries in the world through a Conditional Cash Transfer Scheme. Its main objective is to assist girls from socio-economically disadvantaged families or girls with special needs to avoid marriage until they have completed their education at a minimum of 18 years of age [58].

https://www.wbkanyashree.gov.in/kp_4.0/index.php



The programme has had much recognition including awards. For example, it was honoured by the UN with the UNPSA Award 2017. It has received national and international recognition for its design and features of good governance. The welding industry could link into such programmes particularly by creating career opportunities for such girls.

Three female welders at INOXCVA, Kalol Plant, Gujarat, India

- A very good example of a training initiative in India is down to the Government of Gujarat [66]. <https://weldfabtimes.com>interviews>
‘SPARK’ is a corporate social responsibility initiative promoted by INOXCV, a leader in delivering Cryogenic storage, distribution and transportation solutions worldwide. The Cryogenic industry has a huge demand for welding professionals. As a part of woman empowerment and gender equality initiatives, INOXCV has collaborated with ITM (SLS) Baroda University (ITMBU), Jarod, Vadodara to implement an on-campus Skilled Development and Welding Excellence Centre.
The company identifies girls to learn welding and related soft skills and carries all expenses of training and hostel facilities at the Centre and also pays a stipend to the girl welders to help them in alleviating the poverty and overcoming the economic constraints. At the end of training, all female welders are absorbed by INOX India and the nearby fabrication industry in employment. This initiative also motivates local industries to adopt such initiatives which are also encouraged and supported by the Government of Gujarat.
- Unfortunately, in many developing countries, basic finance is a major impediment to women progressing. A good example of overcoming this however is that of the Indian government which has enabled new avenues of credit, insurance and Direct Benefit Transfers to the poor, including to over 200 million women, thereby accelerating their economic empowerment which can lead to pursuing opportunities in welding related fields [63].
- Missing school due to a lack of safe and clean toilets can lead to some girls dropping out of education altogether and never returning, placing them at greater risk of child marriage and other forms of gender-based violence. According to a survey conducted in 2022, around 68 percent of schools in rural India had a separate, usable toilet for girls in 2022. Around 13 percent of the girls' toilet facilities were unusable in the country as of that year. Even in companies, women face issues such as the lack of separate washrooms in shop floor areas.

6. SOME RECOMMENDED STRATEGIES TO PUT IN PLACE

There are numerous Indian Government and Industry programmes taking place which one can be part of, as well as examples from other countries which can be useful. Some strategies in the IIW report complete with potential resources are shown on pages 16 to 20 in the Long Report Volume 2. These include:

- Analyse existing national and international programs and lobby governments to improve and/or introduce programs to assist women to access resources including finances, insurances and other matters, which might be constraints, to start their own Micro, Small and Medium Enterprises (MSMEs) with the support of the welding related industries thereby accelerating their economic empowerment which can lead to pursuing opportunities in welding related fields.
- Implement a plan to provide scholarships and support for Science, Technology, Engineering and Mathematics (STEM) initiatives to encourage women and girls to build careers in the welding industry.



Sabooj Sathi wheels of change

- Implement a plan to enable women and girls to show that they are competent to perform any type of welding industry related work by achieving the required qualification and certification criteria specified for a particular type of work or application.
- Analyse existing national and international programmes and introduce similar programmes to encourage and attract girls and women to take up careers and work in the welding industry. Examples could include Cell C Take a Girl Child to Work Day® [67], On-campus Skilled Development and Welding Excellence Centre [63], Women of Steel [58].
- The welding industry could implement a project to encourage employer organisations, trade unions, governments, individual companies to have equal pay for men and women performing the same work as well as support UNICEF's projects on preventing abuse of child labour.
- Analyse the problems and challenges facing women and girls in relation to issues such as finance, transport to schools, amenities at schools and in industry, learning opportunities in industry amongst others, and in conjunction with governments and industry, implement solutions.

7. CONCLUSIONS AND RECOMMENDATIONS

IIW-India should complete its proposal for the implementation of a National Welding Skills Strategy covering all levels of personnel required to improve India's National Welding Capability. This would include the role of women and girls in line with UN SDG 5.

IIW-India should include national development programs to ensure that unconscious biases are addressed, ensuring that there are support programs in place for women entering the workforce, reviewing procedures to remove physical requirements that may disadvantage women, having materials to support change within the industry and programs that can identify the role that men play as advocates for gender parity, since these all play a role in gender equality and empowering women and girls.

The welding industry in India must therefore become involved in supporting programmes promoting the correct cultures and enabling women and girls to enter the welding related fields at various levels and areas such as education, training, research, development and technology transfer accompanied by the appropriate career paths.

8. REFERENCES

- [99] All the references shown can be found with the same numbers in the IIW Long Report Volume 2 pages 50 to 57 and is freely downloadable on:
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