PLUMBING TRAINING IN INDIA
A NATION WITH OVER 5000 YEARS OF PLUMBING
The Plumbing Industry faces the mammoth challenge of huge gap between the supply of skilled labour and the demand of skilled labour.

A very small percentage of the plumbing workforce is actually skilled in India. And it becomes our duty as plumbing professionals, members of the plumbing industry and other various plumbing related organizations and associations to ensure that skilled and certified manpower in adequate numbers is provided across industries using plumbing skills to raise plumbing standards in India to global levels.
By 2020, India will have the largest young workforce

India is set to become the youngest country by 2020

By 2020, India will be the youngest country in the world, with a median age of 20 years, compared with a median age of 37 years in China at that point. India’s large youth population, often called a “demographic dividend,” could potentially make India the biggest consumer market and the biggest labor force in the world.
THE CHALLENGES
AGE, TABOO, EXPERTISE
TRAINING TO TAKE LIVES

TRAINING TO CURE LIVES

TRAINING TO SAVE LIVES

FREE

? ! ?

TRAINING TO SAVE LIVES

COSTLY

TRAINING TO CURE LIVES
THE CHALLENGES
LACK OF GLOBAL SKILL

The PLUMBER protects the HEALTH of the NATION
THE CHALLENGES

LANGUAGE DIVERSITY

2 Official
23 Recognized
37 Local Languages
Hundreds of Variations

India now claims to be the world's second-largest English-speaking country. The most reliable estimate is around 10% of its population or 125 million people, second only to the US and expected to quadruple in the next decade.

Nov 27, 2012

English or Hinglish - which will India choose? - BBC News
The MoUD via Central Public Health & Environmental Engineering Organization directs over 3255 Urban Local Bodies as Municipal Corporation and Municipalities.
The Municipal Corporations and Municipalities in turn have their own set of rules, regulations and bye-laws derived from CPHEEO Manuals in case of Plumbing, Water Supply, Sanitation and Sewage Disposal.
Local Bye-Laws take precedence over National Codes. Since the National Codes are not mandated by the Central Regulating Authority they are just considered “Guidelines.”

A sincere lack of uniformity in Standards is very evident.
THE CHALLENGES
LICENSING PLUMBERS

Few Municipal Corporations of Cities like Delhi, Mumbai, Thane, Nasik, Pune, Bengaluru, Shimla, etc issue a Plumbing License. This does not mean all Urban Local Bodies Comply.

Though the parameters and eligibility for the individual applying for a plumbing license vary, they are no where near the global licensing system. The words “Apprentice”, “Journeyman” or “Master” are conspicuously missed.

For example, the city of Mumbai issues a Plumbing License to any Diploma or Degree Holder in Civil, Mechanical and Electrical Engineering, Diploma Architect or even a Diploma in Construction Technology.

The applicants do not have to appear for any test, practical or even prove any experience in the field of Plumbing.
THE INITIATIVES
CODES & CONTENT
1950: Craftsman Training Scheme
A few years after India gained its independence in 1947, the Craftsman Training Scheme (CTS) was introduced by the government of India in 1950 to ensure a steady flow of skill workers in different trades for the domestic Industries, to raise quantitatively and qualitatively the industrial production by systematic training, to reduce unemployment among the educated youth by providing them employable training, to cultivate and nurture a technical and industrial attitude in the minds of younger generation. The scheme, most important in the field of vocational training, has been shaping craftsmen to meet the existing as well as future manpower need, through the vast network of ITIs' the day-to-day administration of ITIs' under the craftsman Training Scheme was transferred to State Governments with effect from the year 1956.

Thus forming Industrial Training Institutes (ITIs) throughout the country under the umbrella of “Directorate of Vocational Education & Training”
Under the CTS, two sub-categories exist for plumbing works:

a. Engineering courses of 6 months.
   i. Sanitary hardware fitter.
   ii. Building maintenance.

b. Engineering course of 1-year duration to be an ITI-certified Plumber.
1961: Apprenticeship Training Scheme
Acute shortage of manpower in the skilled categories is felt in many Industries in India. With this objective, the Apprentices Act 1961 was enacted in the Parliament in 1961. The Act came into force from 1st March 1962 and is applicable to the whole of India.

Under the Act, it is a statutory obligation on Employers in the specified industries to engage apprentices as per ratio prescribed in the designated trades.

In this case, a certain amount of stipend stipulated by the government is paid by the employer to the apprentice.

For a plumber, this programme lasts for a duration of 3 years.

The efficiency of this program or its effects have not been felt in the Plumbing Industry per se.

As such, there are 13,105 ITIs present in the country. Of Which 17.5% (2293) are government run and the remaining 82.5% (10812) are privately run. Only 264 offer Plumbing Courses.
The Apprentices Act has been amended from Dec 22, 2014.

The Government Cabinet meeting on Jul 05, 2016 approved “National Apprenticeship Promotion Scheme”
THE INITIATIVES
APPRENTICESHIP

2016 - 2017
• 500,000

2017-2018
• 1 Million

2018-2019
• 1.5 Million

2019-2020
• 2 Million

Major Thrust:
• Incentivizing Employers.
• Supporting Basic Training.
• Integration with other Skill Development Programs.
• Better Communication & Outreach Strategy.

Four Routes For Apprenticeship:
1. ITI Passouts.
2. Dual-Learning mode from ITIs.
3. Trainees from PMKvy.
4. Fresh Apprentices without formal Training.
THE INITIATIVES UNIVERSITY PROGRAMS

3-Year Diploma in Civil Engineering with specialization in Plumbing
THE INITIATIVES

SKILL DEVELOPMENT

Ministry of Skill Development And Entrepreneurship

Skill India

PMKVY

IPSC

National Skill Development Corporation
Indian Plumbing Skills Council

Indian Plumbing Skills Council (IPSC) is the apex Sector Skill Council for the Indian Plumbing Industry, operating under the aegis of National Skills Development Corporation (NSDC), an initiative of the Government of India (Ministry of Skill Development and Entrepreneurship-MSDE) to transform India as a hub for skilled manpower as envisioned by our Prime Minister Shri Narendra Modi.

IPSC’s work Includes:

• Tracking of the Labour Market Skill Gap (LMIS)
• Framing National Occupational Standards (NOS)
• Facilitating the Development of Quality Theoretical and Practical Training Content
• Ensuring Availability of Trained Faculty (Training of Trainers initiatives)
• Building Accreditation and Certification Mechanism
• Encouraging Capacity Building (Private Sector Participation)
Creating a Formal & Robust Eco System for Skill Development in Plumbing

**Training Facilities**
- Training Partners / Centres
- Centres of Excellence
- Iconic Plumbing Centres
- Pradhan Mantri Kaushal Kendra (PMKK)

**Resources & Standards**
- Framing National Occupational Standards (NOS)
- Creating Industry aligned Job Roles
- Developing Curriculum, Content, Handbooks
- Training of Trainers (ToT)

**Quality Assurance Framework**
- Accreditation Guidelines
- Affiliation Protocols
- Assessment Methodologies
- Training of Assessors (ToA)
- Certification Mechanisms

**Capacity Building**
- Private Sector Participation
- International Collaborations
- Central & State Skills Ministry Schemes
- Demand Aggregation & Placement Linkages
Every Candidate Certified by IPSC is provided a Certificate with the Government of India Emblem.

Aligned to NSQF (National Skill Qualification Framework)

Linked to UID / Aadhar Card

QR Coded
# 25 Qualification Packs / Job Roles

## Contractors

1. Plumber (General) Helper
2. Plumber (General) Assistant
3. Plumber (General)
4. Plumber (Maintenance & Servicing)
5. Plumber (Operations)
6. Plumber (Maintenance & Servicing) Assistant
7. Plumber (Pipeline)
8. Plumber (Fitter)
9. Plumber (Welder)
10. Plumber (Welder) Assistant
11. Plumbing Mason
12. Plumbing Foreman
13. Plumbing Supervisor
14. Plumbing Site Engineer
15. Plumber (Pumps & E/M Mechanic)

## Consultants

1. Public Health Systems Design Engineer
2. Wastewater Systems Design Engineer
3. Fire Protection Systems Design Engineer
4. Groundwater Engineer
5. Plumbing Draftsman
6. Bathroom & Kitchen Designer
7. Municipal Water and Sewage Assessor

## Manufacturers

1. Plumbing Products Sales Officer
2. Plumbing Products Sales Assistant
3. Plumber (After Sales Service)

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### Constitution of Qualification Packs

- **Technical NOS**: Job role related
- **Generic NOS**: Soft Skills, Teamwork Coordination, Health & Safety

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**National Occupational Standards (NOS)**: Specify the standard of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently.

- Each NOS defines one key function in a Job Role
- Each NOS is a Benchmark of Good Practices
- Each NOS describes Performance Criterion (PC), Knowledge (K) and Skills (S)
Career Progression for Candidates

National Skills Qualification Framework (NSQF) organises qualifications according to a series of levels of knowledge, skills and aptitude. These levels are defined in terms of learning outcomes which the learner must possess regardless of whether they were acquired through formal, non-formal or informal learning.

NSQF is a nationally integrated education and competency based skill framework that will provide for multiple pathways, horizontal as well as vertical, both within vocational education, vocational training, general education and technical education, thus linking one level of learning to another higher level.

For the First time, the Plumbing Workforce can clearly Identify their Career Path & Progression

This will enable a person to acquire desired competency levels, transit to the job market and, at an opportune time, return for acquiring additional skills to further upgrade their competencies.
National Occupational Standards & Qualification Packs

Development & National Endorsement of the National Occupational Standards & Qualification Packs

NOS / QPs are Dynamic and Revised Every 3 Years
**Different Kinds of Trainings**

**Short Term Trainings for Youth**
Short term training for 576 Hours for General Plumber L3
Classroom & Practical Training (30:70 Ratio)
80 Hours of Practical Training is On-the-Job Training

**Recognition of Prior Learning (RPL)**
IPSC launched Recognition of Prior Learning Programme (RPL) named UTTHAN in 2014.
This concept was adopted by IPSC long before it was made mandatory as a Skill Development Model by NSDC and Ministry.

**B Voc. Programs**
Designed as per UGC (University Grants Commission) Guidelines
Based on Credit System
Multiple Exit Options → Year 1: Diploma → Year 2: Advanced Diploma → Year 3: Bachelor Degree

**Integrated School Programs**
To curb the increased drop out rate from schools
Integrating Vocational Training in school system
NSQF L1 Plumbing Helper (Class 9)
NSQF L2 Plumber Assistant (Class 10)
NSQF L3 Plumber General (Class 11 & 12)
Assessments

Leveraging Technology for Conducting Assessments

Assessment Process

ONLINE

Theory (Invigilator)
Test link generated on METTL portal
Result generated and shared

Practical / Viva (Invigilator)
Orientation of candidates
Test link shared with candidates for assessment

OFFLINE

Theory (Field Ops Team)
Test link uploaded on Tablet
Result generated and shared

Practical / Viva (Assessor)
Orientation of candidates
Theory – Through Tabs
Practical / Viva - Assessor records responses and gives scores on tabs

Audio and video are also recorded for future audits

Framework

Skills
Technical Skills, Generic Skills & Soft Skills

Knowledge
Technical & Conceptual

Aptitude
Motor Coordination & Reasoning etc

Behaviour
Motivation, Integrity & Self Management
Developing Pool of Trainers

<table>
<thead>
<tr>
<th>Job Role</th>
<th>Minimum Educational Qualification</th>
<th>Minimum Experience (In Yrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plumber General Level 3</td>
<td>12th Pass</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ITI (Plumbing)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Diploma (Plumbing/Civil)</td>
<td>3</td>
</tr>
</tbody>
</table>

Training of Trainers Program:
• 10 Days
• Domain Training (QP Related Domain Skills)
• Platform Training (Teaching Pedagogy)
Training Facilities Coverage

Presence in Almost all States of India:

- 95 Training Partners
- 150 Training Centres

Including:

- Regional Training Centres
- Centres of Excellence
- Iconic Plumbing Centres
- Pradhan Mantri Kaushal Kendra (PMKK)
- PMKVY Centres
Glimpses of Some Training Facilities

Plumbing Laboratory, Chitkara University, Punjab

Regional Centres

Don Bosco - Grohe Jal Academy, New Delhi
Glimpses of Some Training Facilities

Plumbing Lab, College of Engineering, Pune
A Journey of a thousand miles Begins with the First Step

Thank You