IMPACT ASSESSMENT REPORT

RPL III TRAINING PROGRAMME FOR RAC TECHNICIANS OF HPMP

2018 - 2019

IMPACT STUDY BY
INDIAN INSTITUTE OF
CORPORATE AFFAIRS

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Executive Summary

Assessment of HCFC Phase out Management Plan (HPMP) Project on up-skilling Air Conditioner Service Technicians under the Recognition of Prior Learning (RPL) Type 3 of the Pradhan Mantri Kaushal VikasYojana- PMKVY 2.0 is conducted by Indian Institute of Corporate Affairs. The Ministry of Environment Forest and Climate Change (MoEFCC) and Ministry of Skill Development and Entrepreneurship (MSDE) have agreed to jointly undertake upskilling and certification of 100,000 RAC service technicians on good servicing practices and knowledge of alternative refrigerants to ozone-depleting chemicals. The methodology adopted for this assessment is a mixed method approach which involves qualitative as well as quantitative methods. The efficient and knowledgeable team of NFCSR from different disciplines conducted telephonic interview, compiled and analyzed the primary data. The team members visited the training centres for physical inspection of the centre and verification of the data collected through telephonic interview from the beneficiaries during the course of the impact assessment study, and to ensure the quality of data through back checks and spot checks. The quantitative data was analyzed using statistical software followed by interpretation and logical conclusions. With respect to the qualitative data, a zone-wise SWOC analysis was conducted to provide a realistic, fact-based, data-driven look at the strengths, weaknesses, opportunities and challenges of the project, and its impact.

Trainings imparted as part of RPL were reviewed as well as the access of infrastructure available at the training centers were physically verified at all centres in all the three zones. The quality of trainers and assessors were also checked by conducting telephonic feedback of trainees as well as physical verification of the NFCSR team. The quality of training with respect to training provided vis-a-vis industry requirement and findings of the same have been different zone wise, explained further int the report. The effectiveness of the training with respect to Ozone Depleting Substances (ODS) phase out programme and its impact has been mentioned in the report. The report also mentions further improvements in the infrastructure for training, delivery of training programme, employability of trainees, awareness and outreach of training, etc. The assessment of the following was carried out in consultation with Ministry of Skill Development and Entrepreneurship (MSDE):

- **Trainings undertaken**
  The training was successfully conducted as per the schedule at all the ten centers. It can be stated that 242 trainees out of the total sampled beneficiaries indicated that the theoretical lectures were as per the schedule while 241 respondents mentioned that the practical sessions were also conducted as per the schedule. Most of the beneficiaries were satisfied with the quality of practical and theoretical trainings imparted. Satisfaction level on most of the lectures based on topics such as: safety and first aid, refrigerant recovery, alternative refrigerants and lubricants, installation and services of window air conditioner & tools, impact of refrigerants on environments, were quite

high among the respondents which is received through the call validation. During the call validation, beneficiaries were asked for their reason for joining the RPL training program. Based on the responses received it can be stated that most of the trainees from the West zone joined the training program for attaining the certificate affiliated by NSDC, while in case of North zone, most of the beneficiaries attended the programme to attain skill training. An elaborate analysis in the report explains that respondents from South zone did not provide a clear trend and few wanted to avail skill training, while only few were interested in the certificates and some of them were looking for placement opportunity.

- **Infrastructure available at the training centre**
- Each of the centre visited during the physical inspection had different set of findings when analysed on the basis of availability of infrastructural facilities. It was observed tha while two of the centres were well equipped with spacious rooms in the South zone, one of the centres had a very small room with limited equipment and tools. Similarly, in case of the North zone, one of the centre lacked benefits in terms of accessibility as well as providing training related equipment. However, the other centres were well equipped. First Aid facility was present in all the centres except one centre in the North Zone. All the centres had fire extinguisher which were not mounted at that point of time in some of the centres, though the provision for the same was provided. Zone wise detailed analysis has been provided in the SWOC analysis conducted for the 10 centres visited.

- **Quality of trainers and assessors**

  All the trainers appointed for delivering the training programme were assessed and recommended by ESSCI. It was indicated that the trainers were well learned and had more than 10 years of experience in the domain. The FTAC trainers at all the centres were SSC certified and experience of the job role along with SSC certification. Theoretical as well as practical training were provided to the trainees by the trainer in most of the centres. The trainees were also provided with education kits that comprised of cap, t-shirt, notepad, E-books in most of the centres, Online App access, as per NSDC and ESSCI guidelines were provided.

- **Feedback from the trainees**

  Among the responses received from people of Sothern region mixed responses are received wherein they were able to manage as well as they had access to training centre location. It was found that 66 percent candidates of north zone found the training centers most accessible to their homes as compared to south zone wherein 22 percent candidates said that they found difficulties in reaching the training centres. The candidates were asked about the facilities received at training centre during their training period. 84 percent of candidates from south zone agreed that the facilities received were good and satisfactory while 11 percent candidates of north zone didn’t find the facilities up to the mark. The elaborate analysis is stated in the

report based on the feedback received from trainees across ten training centres in India.

As it was finalized, manufacturers and industry associations were also partners in the review. In the ensuing discussion, there was general appreciation of the efforts of The Ministry of Environment, Forests and Climate Change (MoEFCC), ESSCI and of the implementing agencies and the overall approach was deemed a good one Though the overall impact of the RPL training programme was satisfactory, it was observed that the beneficiaries from differences zones of the country have varied experiences. However, some challenges remain that casts doubts on long-term sustainability of projects, which can be improved.

List of Acronyms

ACRONYMS AND ABBREVIATIONS	
DDUGKY	Deen Dayal Upadhyaya Grameen Kaushalya Yojana
ESSCI	Electronic Sector Skill Council of India
GST	Goods and Services Tax
HCFC	Hydrochlorofluorocarbons
HPMP	Hydro chloro fluro carbons Phase Out Management Plan
ITI	Industrial Training Institute
KII	Key Informant Interviews
LPG	Liquefied petroleum gas
MoEFCC	Ministry of Environment Forest and Climate Change
MSDE	Ministry of Skill Development and Entrepreneurship
MSME	Ministry of Micro, Small and Medium Enterprises
NFCSR	National Foundation for CSR
NGO	Non-Governmental Organisation
NOS	National Occupational Standards
NSDA	National Skill Development Agency
NSDC	National Skill Development Corporation
NSQF	National Skill Qualification Framework
PIA	Project Implementing Agency
PMKVY	PradhanMantriKaushalVikasYojana
QP	Qualification Pack
RPL	Recognition of Prior Learning
SDMS	Skill Development Management System
SSC	Sector Skill Council
SWOC	Strength Weakness Opportunity Challenges
ToR	Terms of Reference
TOT	Training of Trainers

ABOUT THE HCFC PHASE OUT MANAGEMENT PLAN (HPMP)

1. About the HCFC Project

India's building sector currently consumes close to 40 percent of the nation's electricity, and its energy consumption is expected to double by 2040. The building sector anticipates rapid growth due to urbanization, accelerated by the government's Smart Cities and Housing for All programmes. Space cooling and refrigeration account for significant amount of building energy consumption. In warmer cities like New Delhi, air-conditioning can comprise half of the city's power demand in the summer months. Demand for air conditioners is expected to grow from 3.8 million a year to 6.2 million in 2020-21 (increase of 63% Cumulative Annual Growth Rate (CAGR) (Ozone Cell, 2017).

India's cooling industry use ozone-depleting substances (ODS) such as hydro chloro fluorocarbons (HCFCs), which are controlled by the Montreal Protocol, and their alternatives (e.g. HFCs) are also potent greenhouse gases (GHGs), contributing significantly to global warming. Increasing real estate and infrastructure development across India is leading to higher demand for HCFC and HFC-based solutions. The Ministry of Environment, Forests and Climate Change (MoEF&CC) through its Ozone Cell implements the HCFC Phase-out Management Plan (HPMP) as per the reduction schedule agreed with the Protocol. It aims to phase out use of HCFCs by switching to non-ozone depleting by 2030.

According to the National HCFC Consumption Survey 2012, HCFC-22 accounts for 97% of the total consumption of HCFCs, with the remaining 3% being the HCFC-142b contained in the refrigerant blend R406A. Negligible amounts of refrigerant blends R-409A and R-408A were also imported.

The Ministry of Environment Forest and Climate Change (MoEFCC) and Ministry of Skill Development and Entrepreneurship (MSDE) have agreed to jointly undertake up skilling and certification of 100,000 RAC service technicians on good servicing practices and knowledge of alternative refrigerants to ozone-depleting chemicals. The project will be funded under the Skill India Mission –Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the same has been approved by the Competent Authority. The skilling and certification of technicians under PMKVY will have twin benefits of significant environmental benefits and a positive influence on the livelihoods of technicians. The project also includes the train-the-trainer programmes, updating of National Occupational Standards, and certification. The project is being implemented by the Electronic Sector Skill Council of India (ESSCI) and the Ozone Cell,The Ministry of Environment, Forests and Climate ChangeMoEFCC. The project is being supported by industry and service sector associations for creating awareness and mobilisation of candidates.

The programme on upskilling air conditioner service technicians under the recognition of prior learning (RPL) and NSDC is being implemented by various implementing partners across the various States of India, to meet the demand of the industry. An assessment on the impact of the skill development initiative undertaken by ESCCI and The Ministry of Environment, Forests and Climate Change(MoEFCC) is taken up by Indian Institute of Corporate affairs. Under the assessment study conducted, officials from IICA are visiting 10 training centres across India.

1.1 Need for the skill training programme

The need of the skill training was realised by the Ministry of Environment and Climate Change, to facilitate India's compliance with the Montreal Protocol control targets for consumption of HCFCs, with minimal impacts on the national economy, on environment and on occupational health; and in order to implement a combination of interventions such as technology transfer investments, policy and regulatory actions, technical training and capacity-building, awareness and education of the A.C. technicians. To meet the demand for substitutes for ozone depleting substances, as far as possible from indigenous sources and contributing to achieve sustainable reductions in consumption of HCFCs, the skill training program was initiated. The major purpose of the training program was to train experienced A.C. technicians regarding the HCFC technology, hence one of the most important steps prior to enrolment was to ensure that the program was reaching out to individuals who were not only eligible for the technical skill training, but would also be able to successfully undergothe theoretical and practical components of training. However, it was observed in the trainees' data sheet maintained by the training centre that, most of the students were young and inexperienced. The year of birth of few trainees were between the years 2003-2004, who school were going children with qualification of up-to class VIII. Technical skills such as HCFC should be provided to candidates above the age of 14 years, who are not child labour, to enable them to learn in schools.

1.2 Salient Features of the Project

1. Project jointly proposed by the Ozone Cell, Ministry of Environment Forests and Climate Change (MoEFCC) and the Electronic Sector Skill Council of India (ESSCI).
2. Updation of National Occupation Standards, training material and post-training resources in line with Montreal Protocol;
3. Training of trainers to build a pool of qualified trainers;
4. Training of 100,000 technicians on good service practices and safety practices and
5. Technician assessment and certification as per the National Skill Qualification Framework.

2. Objectives of the Impact Assessment Study

The objective of the Impact assessment is to measure broadly the impact of the programme on the beneficiaries as well as the implementation methodologies of the centre. The rationale of this study was to assess and evaluate the implementation of the projects, the role and responsibilities of the relevant stakeholders and moreover, the effectiveness of the through which training was delivered. And benefit the immediate beneficiaries, and examine the model of implementation and monitoring & evaluation to suggest mid-course corrections so that the project achieves its purpose with transparency and successfully.

As the study aims at assessing the impact of the PMKVY funded RPL project of HCFC Phase out Management Plan (HPMP), the major focus of this assessment will be to derive a holistic view from the targeted beneficiaries of the various projects that has been implemented and to see how these initiatives of the company have helped the local people in improving their socio-economic standards. The broad objectives of the study are outlined as below:

i. **Quality of the training programme** – To understand how the efforts that have been made had an impact on beneficiaries in order to make progress towards the effectives of the interventions.

ii. **Efficiency and Quality of the Assessors-**
   - To assess the stock of trainers and program managers
   - To assess the quality of trainers and assessors

iii. **Effectiveness and Impact of the training programme-**
   - To assess the procedure of connecting beneficiaries to employment opportunities and provision of certification
   - to find the improvement in employability of the trainees and various, positive and negative impacts created by the project.

iv. **Availability of well-equipped infrastructure facilities** – To study whether the required resources are available that would sustain the project.

3. Literature Review

Recognition of Prior Learning (RPL) was defined by the NTB (1992)[1] as the: determination on an individual basis of the competencies obtained by a person through previous formal or in-formal training, work experience and/or life experience. It can lead to advanced standing that a learner is entitled to in relation to a training course.

According to VEETAC (1993)[2], the purposes of RPL, especially as it relates to training organisations can be organised according to the stakeholder involved; that is the student, the worker, the enterprise and the training organisation. Purposes for which individuals seek RPL include:

- seeking placement within a course or program
- seeking to have their skills recognised within the Australian Qualifications Framework
- seeking to have qualifications gained outside Australia
- wishing to be recognised for an industry/enterprise skill/wage classification
- Being assessed for staff recruitment, promotion purposes, or as part of a skills audit and training needs analysis.

Up-skilling or right skilling of the present workforce is an essential component as it offers potential quick-wins to achieve the training targets for the first few years. The Indian economy comprises a large no. of small 1-5 employee establishments that largely operate in the unorganised sector.

According to reports by Ministry of Labour and Employment, Director General of Employment and Training, Government of India, on the extent of workforce in the organized and unorganized sectors, the share of organized sector was 7.93percentin 1983, which declined to 6.10percentby 2016-17. The corresponding share of unorganized workforce was 92.07percentin 1983, which was rigorously increased to 93.90percentin 2016-17.

No formal training is provided and minimum wage, social benefits etc. are often not followed. Consequently, 79 per cent of the informal or unorganized sector workers belong to the poor and vulnerable groups managing at very meagre family income as per the report by Development Commissioner (MSME), Ministry of MSME. Recognition of Prior learning (RPL) is a possible step to enhance the employability, mobility and income of those unorganised sector workers who have acquired and honed their skills on the job mostly under the guidance of more experienced peers.

Recogonition of Prior Learning commonly known as RPL largely refers to an assessment process used to evaluate a person's existing skill sets, knowledge and experience gained

[1] National Training Board 1992, National competency standards: policy and guidelines, 2nd ed, National Training Board, Canberra

[2] Vocational Education Employment and Training Advisory Committee 1993, Arrangements for the recognition of prior learning in Australia, DEET, Canberra

either by formal, non-formal or informal learning. RPL under PradhanMantriKaushalVikasYojana (PMKVY) 2016-20 primarily has threefold objective.[3]

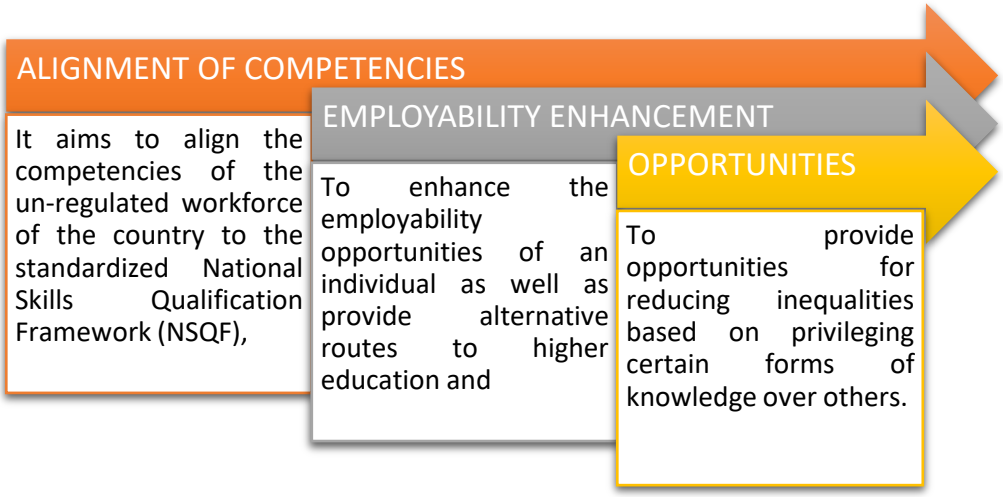

Figure 1: Objectives of RPL

The proposing entity under RPL is referred to as the Project Implementing Agency (PIA). Additionally, individual entities may be on-boarded by the PIA for conduct for various on-ground activities such as mobilization (Mobilization Agency), counselling, pre-screening and orientation delivery (RPL Facilitator Organization). RPL extends to 2000+ job roles aligned to NSQF provided these are QRC and NSQC approved.

Recognition of Prior Learning (RPL) is a platform to provide recognition to the informal learning or learning through work to get equal acceptance as the formal levels of education. It aims to appreciate prior learning irrespective of the medium of achieving it. In short, RPL is a process of assessment of an individual's prior learning to give due importance to learning as an outcome rather than learning as process.

To ensure that the candidates being assessed under RPL are also oriented to the standardized NSQF levels, QP-NOSs are followed under RPL same as the one followed under fresh training. Further, to ensure the acceptance of RPL in Indian market, various pilots have been conducted by different sector skill councils and NSDA and the learning's are incorporated while preparing the guidelines for RPL in the PMKVY.

Under PMKVY, special focus is given to RPL by recognizing prior competencies of the assessed candidates and provides a certificate and monetary reward on successful completion of assessments. It is mandated that following reward amount be left for the trainee. This will encourage the trainee to participate in the process of RPL.

[3]PMKVY guidelines (https://rpldap.pmkvyofficial.org/)

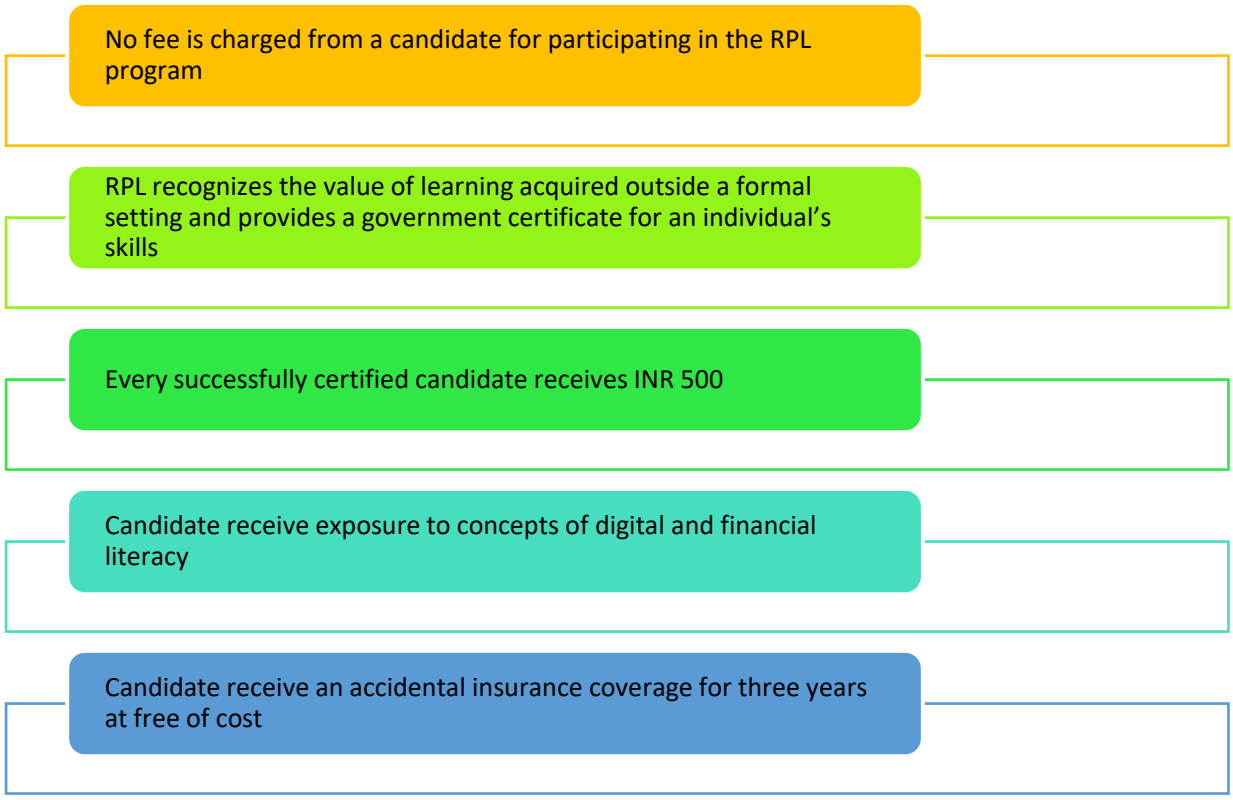

Figure 2: Benefits of RPL

3.1 Benefits for the workforce

Through RPL assessment and certification, the candidates align existing competencies with the National Skills Qualification Framework (NSQF) for better opportunities in higher education. Besides creating an equitable system, RPL also helps them explore different options in skilling and upskilling to bridge the knowledge and skill gaps.

3.2 Benefits for the industry

By getting the workforce certified under RPL, the industry gets the dual advantage (1) formally recognized skill levels mapped with QPs and job roles and (2) open up different paths for workers to upskill and grow through short term training and bridge courses.

RPL assesses the prior knowledge and skills of individuals and certifies them mainly in the unregulated sector. The objectives of RPL are:

- Align the competencies of the unregulated sectors of the country with the National Skills Qualification Framework
- Enhance the chances of employment of individuals and provide them with more options for higher education.
- Reduce the inequalities that are present due to the privileges given to some types of skills and knowledge over others.

RPL will be implemented in the following 3 types of projects: RPL Camps, employers' premises and RPL centres using the 5-Step process:

3.3 Mobilization

Either a mobilizing agency like an Association/NGO or Training partner helps in mobilizing potential candidates or the employer directly handles it. The different implementation modalities and the stakeholders involved for each project type have to be taken into note during this stage and the prescribed guidelines for each have to be followed.

3.4 Counseling and Pre-screening

Training partners are engaged as RPL facilitators to conduct the counseling and pre-screening of the candidates. Counseling is done on the following topics by the facilitators:

- What is PMKY?
- What is RPL (including the 5 step process followed)
- How will Skill Certification according to NSQF help in transforming the candidate's life?

After the counselling, the pre-screening of the candidates is done in two parts - Part 1 – Collecting supporting documentation or proof from the candidates and any documentation available for the job role and Part 2 – A Self- Assessment by the candidate. A self-assessment sheet is created for each job role containing questions based on the NOSs of the job role. Once the counseling and screening is complete candidates are enrolled under the scheme. It is mandatory that the candidates have Aadhar cards and a bank account at the time of enrolment.

3.5 Orientation[4]

Every enrolled candidate has to undergo the Orientation which includes the following activities:

- Domain Training (clarification of any doubts/gaps a candidate may have with respect to Job Role) - 6 Hours
- Soft Skills and Entrepreneurship tips specific to the Job Role - 4 Hours
- Familiarization with Assessment Process and Terms - 2 Hours

3.6 Final Assessment

PIA will identify Assessment Agencies that conduct the Final Assessment of the candidates. The assessment agency grades the RPL candidates as per NSQF to ascertain the competency level of candidates in each job role. Upon completion of the assessment each candidate will is assigned grades based on his/her performance which will either be Pass grades (A/B/C) or a Fail grade (D).The assessment results are uploaded within 2 days of completing the assessment and at the end of the final assessment the candidates fill a feedback form which is stored for a minimum of 2 years.

[4] Orientation duration updated as per 6 th PMKVY Steering Committee, Compendium of Guidelines and amendments for Recognition of Prior Learning under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) (2016-2020)

3.7 Certification and Payout

Within 5 days of the final assessments the candidates are notified their Grades and details regarding where to collect their Certificates and mark sheets. Candidates with pass grades (grades A,B and C) are eligible for certificates. They are awarded a skill Certificate, mark sheets and a pay out of Rs.500. Only candidates with valid Aadhar cards (or alternate Ids where applicable) are eligible for the skill certificates. Candidates with the fail grade (grade D) will be given the mark sheet only.

Once the certificates and mark sheets are collected the Pass grade candidates are made aware of the opportunities available to re-skill/up skill themselves and the fail grade candidates will be similarly briefed on new training opportunities for them. Only certified candidates receive the payment of Rs.500 which is directly deposited in their bank accounts and hence only candidates with valid bank accounts are considered by NSDC.

3.8 Concept of SWOT Analysis

According to Raymon(2000)[5], training program should be evaluated to identify the program's strengths and weaknesses. This includes determining if the program is meeting the learning objectives, the quality of learning environment, and if transfer of training to the job is occurring. This is also the way to assess whether the content, organization, and administration of the program including the schedule, accommodations, trainer, and materials contribute to learning and the use of training content on the job. The actual usefulness of SWOT analysis depends on what is done as a result of the analysis. Ultimately it derives from the investigation of a wide range of factors.

- Strength
- Weakness
- Opportunity
- Threats / Challenges

During SWOT analysis, organizations identify strengths, weaknesses, opportunities and threats (the four factors SWOT stands for) pertaining to organizational growth, products and services, business objectives and market competition. A two-by-two matrix is used to build a SWOT analysis, with horizontal pairings of internal (strengths and weakness) and external (opportunities and threats) factors and vertical pairings of helpful (strengths and opportunities) and harmful (weaknesses and threats) factors in achieving an objective. Final results of the analysis will help the organization determine whether objectives, products, services, projects or goals are a strategic fit. The best strategic fits are when the internal environment (strengths and weaknesses) aligns with the external environment (opportunities and threats).Strengths and weaknesses are internal factors that are dependent on the objective, project or initiative being analysed. Since it's subjective to the chosen objective, what's considered strength for one objective or project might be a weakness for another.Opportunities and threats are part of the external environment — it includes factors that impact the objective or project from outside the company. This can include economics, technology, regulation and legislation, socio-cultural changes and shifts in competition.

[5]Raymond, A., "Employee Training and Development,"McGraw-Hill Book Companies, Singapore, 2000 Edition, pp 130o-131.

According to the SWOT Analysis Guide, the three main steps for performing a SWOT analysis are:

1. Collect relevant information and list all current known strengths and weaknesses. This can be achieved through talking to others in the organization or through larger brainstorming sessions. You should come prepared with questions pertaining to the SWOT objective and aim to get thoughtful and insightful responses from your team.
2. Consider all the potential opportunities that exist for the organization, including future trends and technologies.
3. Review the SWOT matrix to build a plan that addresses each area including everything that's working and everything that needs to change.

METHODOLOGY USED FOR THE IMPACT ASSESSMENT STUDY

4. Methodology

The methodology adopted for this assessment is a mixed method approach which involves qualitative as well as quantitative methods. The efficient and knowledgeable team of NFCSR from different disciplines conducted telephonic interview, compiled and analyzed the primary data. The team members visited the training centres for physical inspection of the centre and verification of the data collected through telephonic interview from the beneficiaries during the course of the impact assessment study, and to ensure the quality of data through back checks and spot checks. The quantitative data was analyzed using statistical software followed by interpretation and logical conclusions. With respect to the qualitative data, a zone-wise SWOC analysis was conducted to provide a realistic, fact-based, data-driven look at the strengths, weaknesses, opportunities and challenges of the project, and its impact.

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In the ensuing discussion, there was general appreciation of the efforts of The Ministry of Environment, Forests and Climate Change (MoEFCC), ESSCI and of the implementing agencies and the overall approach was deemed a good one Though the overall impact of the RPL training programme was satisfactory, it was observed that the beneficiaries from differences zones of the country have varied experiences. However, some challenges remain that casts doubts on long-term sustainability of projects, which can be improved.

The Impact Assessment study includes reviewing projects from RPL up-skilling training centres from different locations. Since, the geographical location of the study area is varied; the methodology for the study adopted three ways i.e. **key informant interviews, interview schedule for beneficiaries (telephonic) and physical verification of the centres.**

4.1 Identification of sample size

The data collection and analysis involves both qualitative and quantitative research methods. The sample size for selecting beneficiaries was calculated based on **Quota sampling**.
In quota/strata sampling the researcher divides the population of interest into strata, or groups of individuals (beneficiaries of the skill training program) that are similar in some way that is important to the response.
The locations for physical verification have been shortlisted based on the following criteria:

- Geographical coverage, and
- Number of technicians trained

Location and total number of beneficiaries contacted during the impact assessment study:

Table 1 Location and total number of beneficiaries contacted during the impact assessment study

S.No.	Location	States	No. of technician	Sample size
i.	Kottayam	Kerala	27	6
ii.	Hyderabad	Telangana	42	6
iii.	Chennai	Tamil Nadu	45	6
iv.	Tili Road	Madhya Pradesh	73	10
v.	Bhattu Road, Fatehabad	Haryana	593	40
vi.	Gandhinagar	Gujarat	146	15
vii.	Fazilka	Punjab	399	25
viii.	Mundka	Delhi	150	12
ix.	Hisar	Haryana	788	55
x.	Pune	Maharashtra	1110	75
	TOTAL		**3373**	**250 beneficiaries**

4.2 Sampling Criteria

The sample size was calculated using Confidence interval- 90percent and margin of error- 5%. Therefore, a sample size of 250 beneficiaries is calculated out of the total number of trainees who have attended the skill training program.

The efficient and knowledgeable team of NFCSR from different disciplines conducted telephonic interview, compiled and analyzed the primary data. The team members visited the training centres for **physical inspection** of the centre and verification of the data collected through telephonic interview from the beneficiaries during the course of the study, and to ensure the quality of data through back checks and spot checks.

The **quantitative data was analyzed using statistical software** followed by interpretation and logical conclusions. With respect to the **qualitative data,** a **SWOC analysis** was conducted to provide a realistic, fact-based, data-driven look at the **strengths, weaknesses, opportunities and challenges** of the project, and its impact.

The details regarding the trainees contacted during the telephonic interview shall be provided in an annexure separately.

4.3 Tools used for Data Collection

Table 2 Data collection tools

Qualitative Method	Quantitative Method
a) Key Informant Interviews (KII) for Trainers of training centre • To examine the monitoring and reporting mechanism of company and the ability to achieve the objectives, results and outcomes • Assess availability of provision of improved curriculum and training learning material	**a)** Secondary data and Literature Review regarding short term skill development projects
b) Physical inspection and verification of training centers through check-list • Availability of provision of improved curriculum and training learning material • To assess the infrastructure available at training centers • To assess whether the training centers have sufficient training staff and provide quality training. • Following centres were visited during the study:	**c) Semi-Structured Interview Schedule for Trainees/ Beneficiaries** (telephonic) with open ended questions regarding their overall experience regarding the programme • to ensure the accessibility of training facilities and supplies to analyze the awareness level about the program • to understand the change in 'before' and 'after' situation of the beneficiaries

4.4. Training centre locations visited

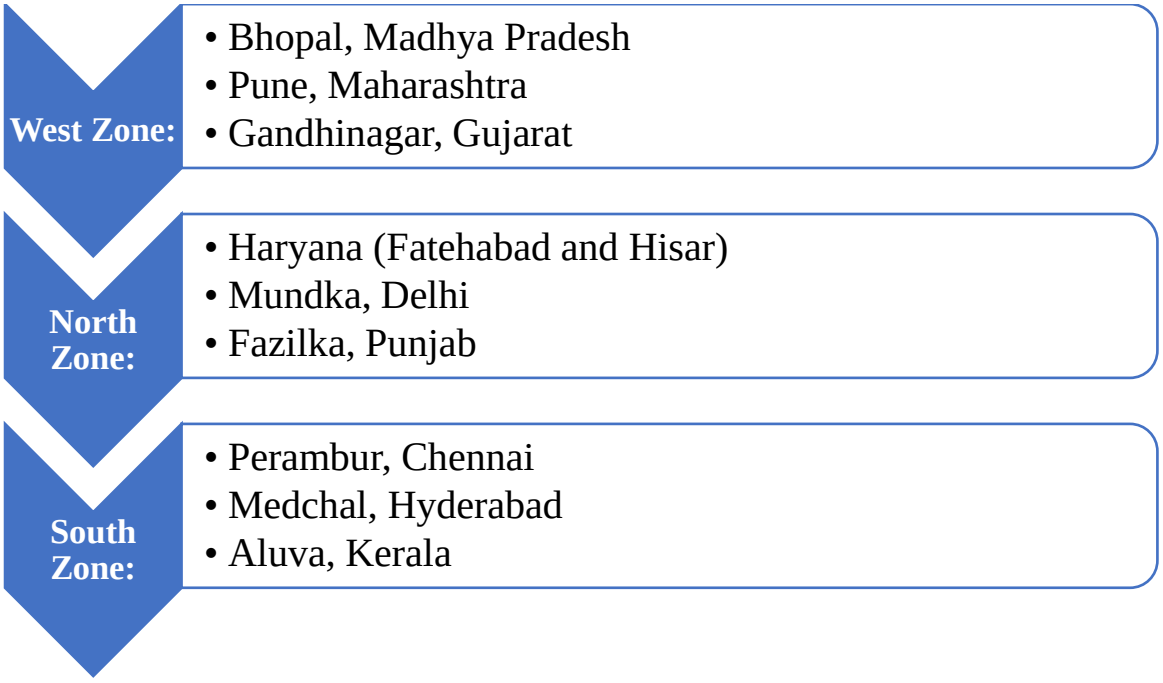


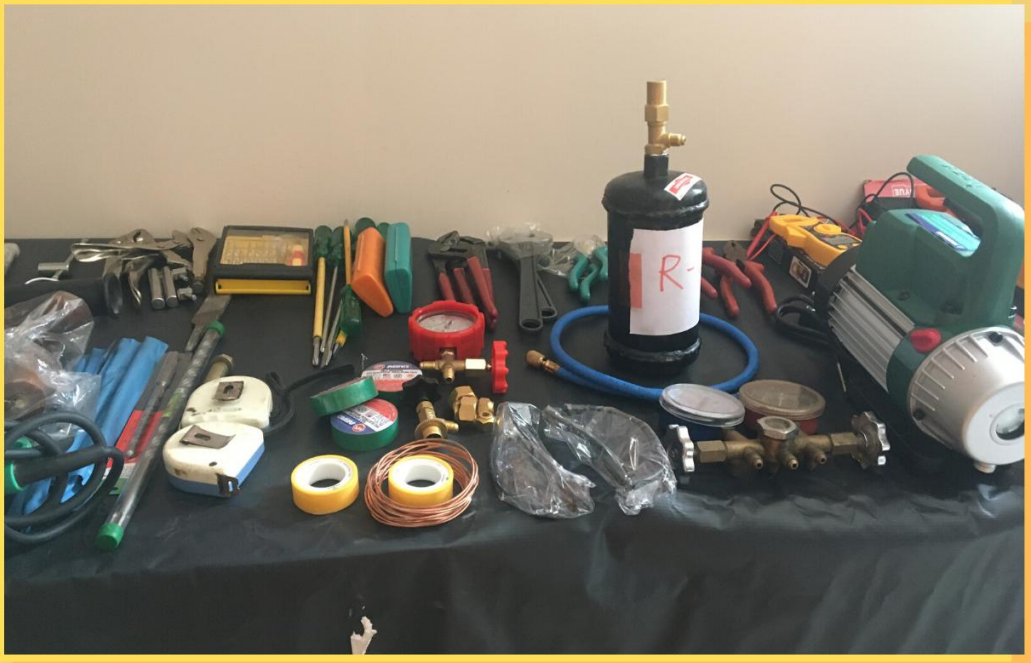
Figure 3 Locations visited for observing HPMP training

4.5. Impact analysed on the basis of following parameters

Table 3 Parameters for impact analysis

Questions Addressed	Parameters
Relevance	Lecture on Impact of Refrigerants on environment.
	Lecture on Electricity, Airconditioning and tools.
	Lecture on Installation and service of Window Air conditioner.
	Lecture on Alternative refrigerants and Lubricants.
	Lecture on Refrigerant Recovery.
	Lecture on Safety & First Aid.
	Tools & Equipment.
	Installation of Window and Split AC.
	Leakage testing, evacuation, gas charging.
	Service and repair Window & Split AC.
	Refrigerant recovery
	Clarity of lecture delivery by trainer
	Training Centre location and accessibility of venue.
	Lunch, snacks, etc.
Efficiency and Effectiveness	Punctuality of Timing of programme on both the days.
	Lectures were as per schedule
	Practical session was as per schedule
	Effectiveness practical session conducted by trainer
	Have you received the certificate
	Format of question asked from the content taught during the training (both practical and theory)
	Facilities at the class room including computer / laptop , projector and audio facilities.
	Power supply during the programme
	Complete Tool Kit was available
	Quality of Tools
	Air conditioners for training was available
	Quality of Air conditioner on which trained
	Understanding of course material in language
Impact	Was the assessor experienced in the trade
	Training Centre location and accessibility of venue.
Sustainability	Provision of training in line with industry requirement

SWOC ANALYSIS OF THE TRAINING PROGRAMME



5. SWOC Analysis

5.1Strength, weakness, opportunity and challenges of the HCFC project - West Zone

5.1.1 Infrastructural facilities of the Training centres

Strength

- Out of the three centres visited in the West Zone, one of the centres was spacious and had multiple well equipped classrooms that were airy and well ventilated with desktop computers, CCTC cameras, furniture, fan and exhaust fan. It had a classroom and lab (700 sq. ft and 550 sq. in size respectively) with seating capacity of 50.
- The other centre had a combined classroom and lab with783 sq.ft. and good ventilation, electrical wires and switchboard as per guidelines, dustbins in classroom, water purifier with RO as well as packaged Water dispenser, fire fighting equipment and first aid kit.
- Both the centres of West zone had facilities of separate toilets for men and women.
- Drinking water facility was available and satisfactory all the three training centres.
- First Aid facility was present in only two centres.

Weakness

- Out of the three centres visited in the West zone, one centre had signed a memorandum of understanding with an industrial training institute (I.T.I) in their district. According to the centre staff, the training was implemented in the I.T.I and it had a classroom and a laboratory set-up as per the requirements/ guidelines but the same could not be physically checked due to visit scheduled at PMKVY centre from where the centre currently functions.

5.1.2 Laboratory facilities, tools and equipment

Strength

- The equipments were well displayed on the table at all the three centres of West Zone. At one centre the equipments had name tags printed and pasted on the table.
- One centre had 46 equipments available out of the 49 listed in the assessment format (attached as Annexure) another centre had all the listed 49 tools available at the centre.

- For handling the highly flammable gases gloves and goggles were being used during the training and were first aid facility and fire extinguisher also available at both the centres.

Weakness

- Out of the list of 49 items, following equipments were not available in the centre lab in one centre of West Zone.
  - Refrigerant Recovery cylinder 10 kg capacity each for R-22 and R-32 was not available.
  - Core Removal Tool - It was informed that this was damaged in practice session
  - Butane Torch Heat Reflector
  - Further, it was mentioned that following items have been procured on rent during the time of training i.e. Double Stage Pressure Regulation Make ESAB model dura for use with Oxygen, Double Stage Pressure Regulation Make ESAB model dura for use with Nitrogen.
- Product specification tag and GST bills of the products that were purchased were not available at one centre.
- At one centre there was multiple refrigerant recovery cylinders, out of which only one of the cylinders was ISI marked and had the capacity of 7 kgs instead of 10 kgs. The vent hose which is supposed to be of 25 meter long as per the check list, was available, however it was only 3 metre long for demonstration purpose.
- No safety measures like safety suit, gloves or goggles were available in the laboratory in one centre. At one Centre the Regional Manager stated that all the equipment's were available during the training implementation at I.T.I
- One centre in the West zone did not have 28 tools and equipments out of 49 as per the check-list provided by ESSCI

5.1.3 Instructional facilities and Trainers

Strength

- At two centres the trainees were also provided with education kits that comprised of cap, t-shirt, notepad, E-books, Online App access, as per NSDC and ESSCI guidelines. Practical training was provided to the trainees by the trainer.
- The practical trainings at all centres were imparted by dividing the batch of 30 in a group of 5 members each as informed by centre staff.
- At one centre apart from the course content, the trainees were provided training on customer behaviour, improvised industry related information and latest technology.
- At two centres, as informed by Centre/ Regional Manager during the centre visit, the largest proportions of trainees were contacted through their employer/ companies as well

as they were mobilized by the community mobilizer at the local AC repair shops through market visits.

- The trainee to trainer ratio at this centre was nearly 30:1 at two centres and 30:2 at one centre.
- There were no parallel batches at all the three centres as the trainings were conducted only in the morning.

Weakness

- According to the trainer and the centre manager, the trainers have domestic knowledge restricted on A.C. only. The centre felt that the program will help the beneficiaries in gaining practical knowledge about the latest technology.
- The trainees' specifications were asked during the centre visit and staff responded that the details are maintained by the team placed at the Head Office. Hence, the information wasn't readily available at the centre.
- The trainer highlighted that attendance of trainees on the last day (the day of assessment) was a constant issue.
- At one centre the non-availability of candidates during peak season (summer) is a challenge
- One centre highlighted that there is delay in certification from the SSC and Primary and secondary toolkit differentiation for distribution
- Some candidates don't have Aadhar linkage thus they do not receive INR 500 in their bank accounts.
- The certificates for the 2 batches and the assessment result for batch 3 were pending. The insurance policy comes along with the certificate.

5.1.4 Certification and other benefits

- The FTAC trainers at all the three centres were SSC certified and experience of the job role along with SSC certification.
- At one centre, Regional Manager stated that this is the ideally designed programme for unorganized sector candidates. The short duration, free of cost benefit and up gradation of trade as per household needs is the main strength of the programme.

5.1.5 Opportunities/ Recommendations

Based on the suggestions received from trainers, centre managers, domain experts and observation, the following recommendations should be considered for way forward:

- The duration of the skill training should be increased to impart more on-field experiences and deliver training through industry experts.
- There should be more content on the chapter on refrigerant. The content being provided during the theoretical training is 3 years old and getting outdated which should be revised

- The technology with respect to R-410 is outdated, but still exists in the market, it will be closed soon. The trainees need to learn about the latest technology as per the industry needs.
- The RAC training is limited to one equipment, which should expand to other domains such as fridge, oven, as specified knowledge limited to one equipment might not be of great benefit.
- For this being a completely industry based technical training, representatives from AC and cooling companies working in the industry should be involved in the training curriculum from the beginning of the training.
- The programme should be made compulsory for the employees working in the specified domain.
- The practical exposure for the trainees is critically important to address the issues related to HCFC and enhancing the competitive strength of the trainees, hence the same should be emphasized by focussing On The Job training component.
- Out of the total training time, one whole day should be dedicated to safety module only. The trainer stated that enough time duration is not designated for safety module.

5.2 Strength, weakness, opportunity and challenges of the HCFC project - South Zone

5.2.1 Infrastructural facilities of the Training centres

Strength

- Out of the total three centres visited, two centres had well-furnished class rooms and labs for conducting the training programme. They had enough benches and desk was present, seating arrangements were proper and the classrooms were sufficiently 'lighted and provided with proper ventilation.
- Drinking water facility and urinal facility were available and satisfactory in all of the training centres.
- First Aid facility was present in all the centres. All the centres had fire extinguisher which were not mounted at that point of time though the provision for the same was provided.

Weakness

- Out of the three centres visited in the South zone, one of the training centres had a small classroom cum Lab of 20x12, with one bench for practical training. There was no separate space allocated for lab.

5.2.2 Laboratory facilities, tools and equipment

Strength

- As one of the centres was new, lab was in the process of being set up, so a lot many types of equipment were not available at the time of inspection, though they were available at the time of training, as informed by the centre manager.

Weakness

- A check-list was provided by ESSCI for the list of tools and equipment, required for the training programme. Out of the list of 49 items, 42 items were available at two of the centres while only 35 tools were available in one of the centres during the visit.

5.2.3 Instructional facilities and Trainers

Strength

- All the centres have knowledgeable and skilled trainers with over of 30years' experience in the domain and also completed his TOT. They were also involved in pre-screening of the candidates for verifying whether the candidates had ample experience to pursue this RPL course.
- The trainer felt that this program was very useful as it was able to certify these people and make them aware of the right practices and with the latest technology.
- The three day training program was conducted as per the prescribed scheduled with the first half of the day being dedicated to theoretical training and the second half of the day being devoted to practical training.

Weakness

- The content provided is very basic and meant for beginners in the industry. It does not comprise of information related to advance and latest technology. The theory needs to be revised so as to include latest technology in practice like Invertors AC, Web & mobile controlled ACs, Air cleaning process etc.

Challenges

- The centre faced tremendous challenges while mobilisation of candidates and retaining them for attending the training program.
- One of the biggest challenges faced by one of the centre was that the candidates had adapted certain wrong practices which they were finding it difficult to unlearn and relearn the right practices. They generally found that the candidates were rigid to adapting new methodologies.
- The course material provided to the trainees was available only in English Language, and the learners were not comfortable with the English Language.

5.2.4 Certification and other benefits

- There were many technicians from the field enrolled in the training program, had tremendous experience but lacked certification, the training is very useful as it certifies people and make them aware of the right practices and with the latest technology.

5.2.5 Recommendations

- At a training organisation level, ESSCI and NSDC should be included within the broader framework of policies and procedures for training delivery process. This would then integrate RPL within the broader concept of assessment and ensure that it maintains equivalent credibility and quality assurance strategies.
- The beneficiaries can be taken through a day's orientation program to brief them about the need and benefit of acquiring the skill certificate, the steps in the assessment process and to make them aware of some standard in use terminologies and safety procedures related to their daily job.
- The trainer recommended that the course material should be prepared in regional languages as well, as the trainees find it difficult to understand the theoretical aspects and were not comfortable with the English Language.

5.3 Strength, weakness, opportunity and challenges-North Zone

5.3.1Infrastructural facilities of the Training centres

Strength

- Out of the total four centres visited in the North zone, three centres had well furnished class rooms and labs for conducting the training programme.
- One of the visited training centre was neither a PMKVY centre nor a DDUGKY centre. It was housed in a college campus.
- They had enough benches and desks at the centre, seating arrangements were proper and the classrooms were sufficiently lighted and provided with proper ventilation.
- Drinking water facility and urinal facility were available and satisfactory in all of the training centres.
- First Aid facility was present in all the centres. All the centres had fire extinguisher which were not mounted at that point of time though the provision for the same was provided.

Weakness

There was no first aid facility available at one of the centres and the fire extinguisher available had outlived its service.

5.3.2 Laboratory facilities, tools and equipment

Strength

- In two of the centres visited in the North zone, all the listed items in the ESSCI list, were purchased by the training partner and the used equipments were available for inspection in the laboratory

Weakness

- Out of the three centres visited in the North zone, one of the training centres had a classroom equipped with desktop computers for multimedia training that was airy and well ventilated, however, the lab for HPMP training did not have fan or exhaust fan.

- Though one the centres had 43 out of 49 equipments in their lab but Training could not produce bills related to its purchase. They also admitted that they had not taken bills to save on taxes.
- In one centre these equipments were not present except the following items:
    - Horse pipe with crocodile clips for N2 and O2 gas and LPG.
    - Vent Hose.
    - Cross peinHammer 250g with Wooden handle.
- In one of the centre, out of the list of 49 items, only following few equipments were available at the centre:
- Split type room air-conditioner (AC R-22), Window type room air-conditioner (R-410) less than 1 Ton which is not compatible,
- Refrigerant recovery and recycling unit system for HCFC 22 and R 32 is needed whereas R 22 was available,
- Refrigerant recovery cylinder that was available was of 3kgs whereas at least 10 kg capacity is required,
- capillary tube cutter, torque wrench (10 to 75 Nm), piercing valves, screw driver set, spirit level/ inclinometer 150-200 mm, butane torch heat reflector, paint brush (25mm) were the equipments that were available.
- The complete process involves relatively high risk as the gas being handled is highly flammable, however, no safety measures like safety suit, gloves or goggles were being used during the training

5.3.3 Instructional facilities and Trainers

Strength

- All the centres have knowledgeable and skilled trainers with above 30 years of experience in the domain and also completed their TOT. They were also involved in pre-screening of the candidates for verifying whether the candidates had ample experience to pursue this RPL course.
- The trainer felt that this program was very useful as it was able to certify these people and make them aware of the right practices and with the latest technology.

- The three day training program was conducted as per the prescribed scheduled with the first half of the day being dedicated to theoretical training and the second half of the day being devoted to practical training.
- For attracting the potential trainees to the course, firstly pamphlet are prepared and distributed among the nearby AC shops. The mobilisers visits and fill the registration form and also collect relevant documents. Then, every potential trainee is personally interviewed by the Training partner to access if the training course is suitable to him/ her or not.
- Each Centre has two trainers, one each for theory and practical respectively
- The centre staff informed that the program instead focuses on how to improve the earning capacity of technician and the business as trainees were also taught data management services such as calling clients whenever service is due.

Weakness

- The content provided is very basic and meant for beginners in the industry. It does not comprise of information related to advance and latest technology. The theory needs to be revised so as to include latest technology in practice like Invertors AC, Web & mobile controlled ACs, Air cleaning process etc.
- In one of the centres, the same mobilize is shared among the two Centre. Having asked about large number of people trained in both the Centre, the training partner told that the location of these two Centre lies in higher density of AC users.
- As per the conversation with the officials at the centre as well as the trainer, it was informed that no practical training was imparted.

Challenges

- The training Institute has a mobilization team for various kinds of training programmes. The same mobilization team put some flex banners at prominent locations. They also went to AC shops looking for untrained technicians. The suitable time chosen for the training was during summers, which also happens to be the low availability season for AC technicians, as most of them are employed wage earners and engagement of three days for the purpose of training also meant no earnings for those three days during peak season. This turned out to be prime challenge in enrolling candidates.

- Many local AC repair shop owners discourage the technicians to attend. The local owners fear that post training they might either switch the job or have better bargaining power. Hence, steps to check on such behavior should be placed.

- As per one of the centres, another challenge that was equally intricate was the selection criteria for the candidates. It was already difficult for the selectors to find the individuals who meet the minimum criteria set by NSDC like should have passed class 8 under any board of education and should already have technical knowhow of AC repairs. Moreover, the list of selected candidates would be scrutinized by a committee at NSDC, where there are chances of further rejections on the basis of information registered about those individuals. On one instance, out of 49 technicians selected by one centre, 19 were rejected by NSDC.

- Finding the right trainer in Rural area: One of the major challenges faced by the training partner is in the selection of Trainers. ESCCI has put qualification of ITI Diploma Holder with 5 years of experience as the eligibility criteria for the Trainers. People of these qualifications are not readily available in Rural areas.

- App based assessment is tough as the Hindi language used in the assessment is not matching to actual meaning of question asked.

- The partner view on objective of the training program includes global environment awareness, learning correct way to handle equipment's, insurance of technician for three years, ability to join formal sector as technician, qualifying for other benefits such as Mudra loans etc.

5.3.4 Certification and other benefits

- ESSCI appoints Training and Certification Assessors for each batch of training. The Assessors generally reach at the last day of training and assess candidates' ability and expertise given through training using a pre-defined checklist. Based on the assessment of Assessors. ESSCI gives certificates and other benefits to the trainees.

- The certificate that is valid for three years from the date of issue, also serves as a bond for insurance with death or permanent physical disability cover for the same duration.

- In one of the centres, it was observed that the students, who have appeared for examination in April 2019, have not collected their certificates from the centre yet. On asking further, the centre officials informed that since the technicians are engaged in full time employment, they are usually busy and do not have the time to visit the centre to collect the certificates.

- Apart from certificates, the trainees are also given a training manual in Hindi, a slip pad & pen from ESSCI, T-Shirt & a cap as well as access of post training support throughmobile app.

- According to one of the centre, all the candidates had also received Rs. 500 as honorarium. This was confirmed from sample database checked at the centre of SDMS of NSDC.
- As per one of the training centre, the trainees feel empowered to earn certificate with Government of India logo and also to be able to apply to the formal job market along with insurance facility.
- The training partner claims that the main focus of the program is to make the trainee aware of the global environmental issues and also updating their skills to meet the market and government regulations. The practical training consists of replacing coolant gases namely R290, R410 with R22.
- The certificate also acts as assurance that the technician is eligible for Mudra Loan to be able to start endeavours of their own.

1. 5.3.5. Opportunities/ Recommendations Trainer Point of view:
    a. Upgrade module to R32 (green gas), as R32is greener but highly inflammable. Update to latest technology and accordingly modify the program as this will benefit the trainee in coming time and won't make this training program obsolete.
    b. The program should be complemented by Consumer awareness program in the nearby locality.
2. Currently there is no monitoring mechanism in place from ESSCI side of the RPL training. Instead ESSCI could have used existing infrastructure at centre like web based CCTV cameras and Bio-matrix system as well as Assessors to keep a check on the quality of training being imparted at the training centre.
3. The Assessors appointed by ESSCI come to the training centre only on the last day to certification. Instead monitoring of training centre and the training session should be incorporated in the ToR of the Assessors so that they can be held accountable for lapse in training as well as training infrastructure.
4. The duration of the skill training should be increased and there should be more emphasis on practical training to support theoretical inputs
5. Training centres should be equipped with better infrastructure, tools, appliances to support practical training
6. Program mobilization and awareness should take into account only experienced A.C. technicians, to generate a holistic understanding and importance of the skill training
7. For this being a completely industry based technical training, representatives from AC and cooling companies working in the industry should be involved in the training curriculum.

6. Overall Trainee Feedback

6.1. Training Programme Schedule

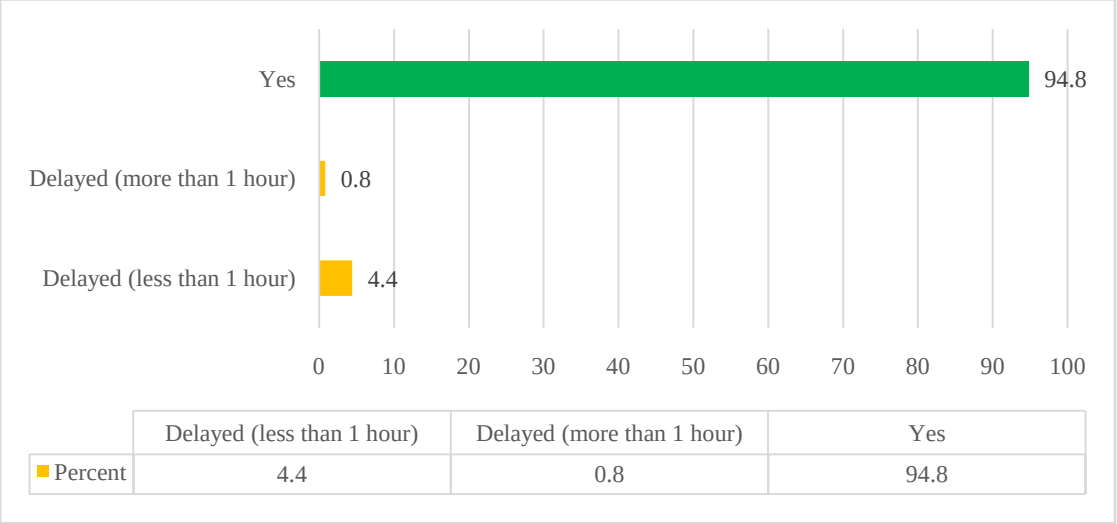


Figure 4 Commencement of Programme on correct time

As described in the figure 4, 94.8 percent of the trainees responded that the programme commenced on correct time. 237 respondents out of the 250 respondents were satisfied with the schedule of the program. It was observed that 242 trainees out of the total sampled beneficiaries indicated that the theoretical lectures were as per the schedule while 241 respondents mentioned that the practical sessions were also conducted as per the schedule, shown in figure 5.

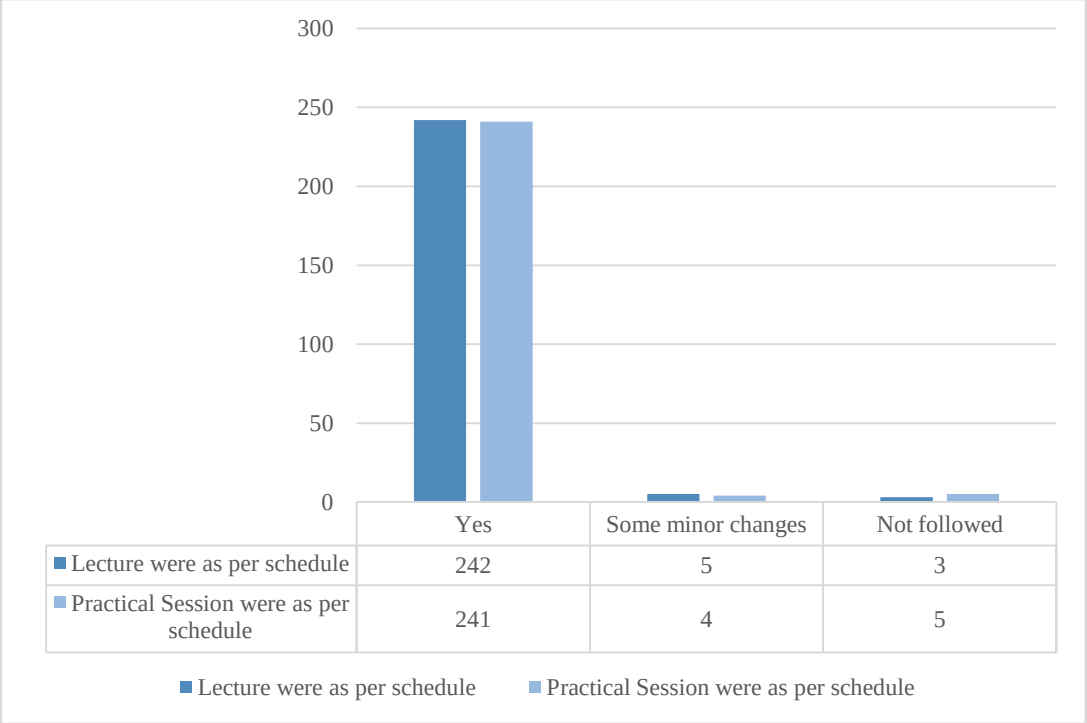


Figure 5 Sessions as per schedule

6.2 Facilities available at the centres

As indicated in the figure 6, it was observed that 68percentof the respondents were quite satisfied with the quality of the facilities available at the training centres and rated it as ‘good’, while 23percentof the respondents claimed that the quality of the facilities available at the centres were average.

Out of the total 250 sampled beneficiaries, 144 trainees claimed to have received the complete tool kit, while 106 responded that they did not receive the tool kit.

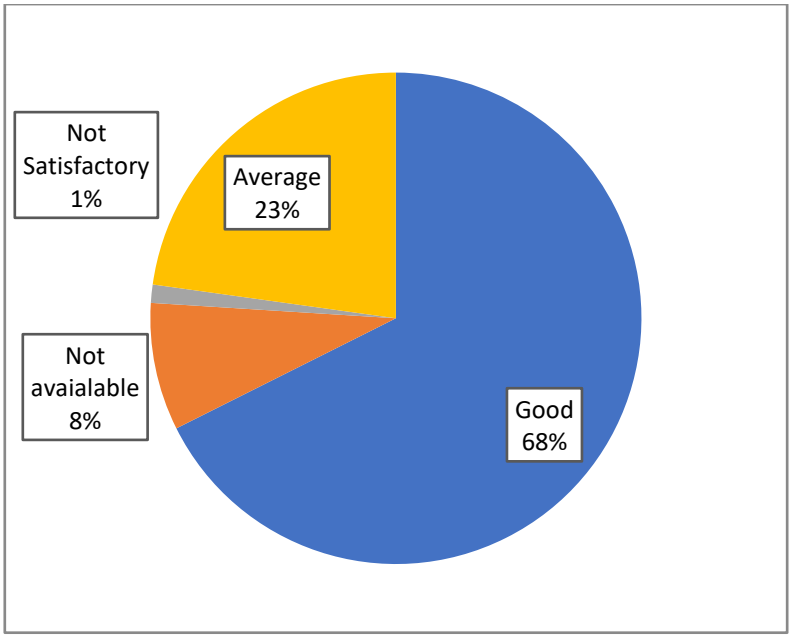


Figure 6Quality of facilities available

6.3 Training Module

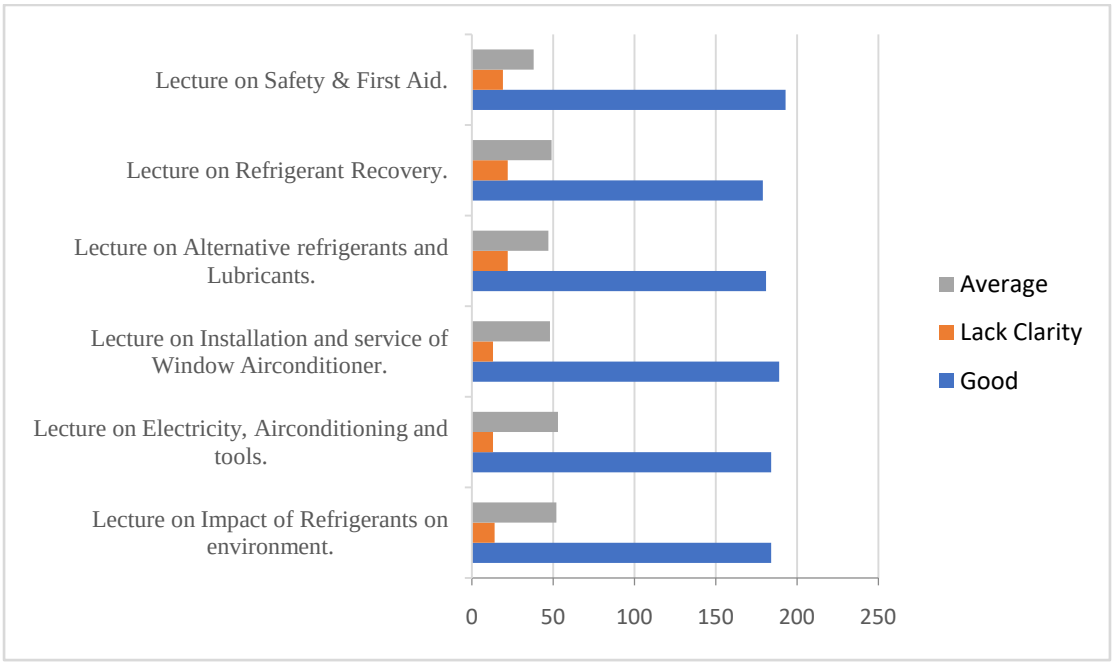


Figure 7.Clarity of lectures amongst trainees

As indicated in the figure 7, it was observed that most of the beneficiaries were satisfied with the practical and theoretical trainings delivered to them. Satisfaction level on most of the

lectures based on topics such as:Safety and First Aid, Refrigerant Recovery, Alternative refrigerants and lubricants, Installation and services of window Air conditioner & tools, Impact of Refrigerants on environments, were quite high among the respondents.

6.4. Certificate and other benefits

The beneficiaries where asked for their reason for joining the RPL training program. It was indicated that most of the trainees from the West zone joined the training program for attaining the certificate affiliated by NSDC, while in case of North zone, most of the beneficiaries attended the programme to attain skill training. As presented in the Figure 8,the responses from the South zone did not provide a clear trend as few wanted to avail skill training, while few were interested in the certificate and some of them were looking for placement opportunity.

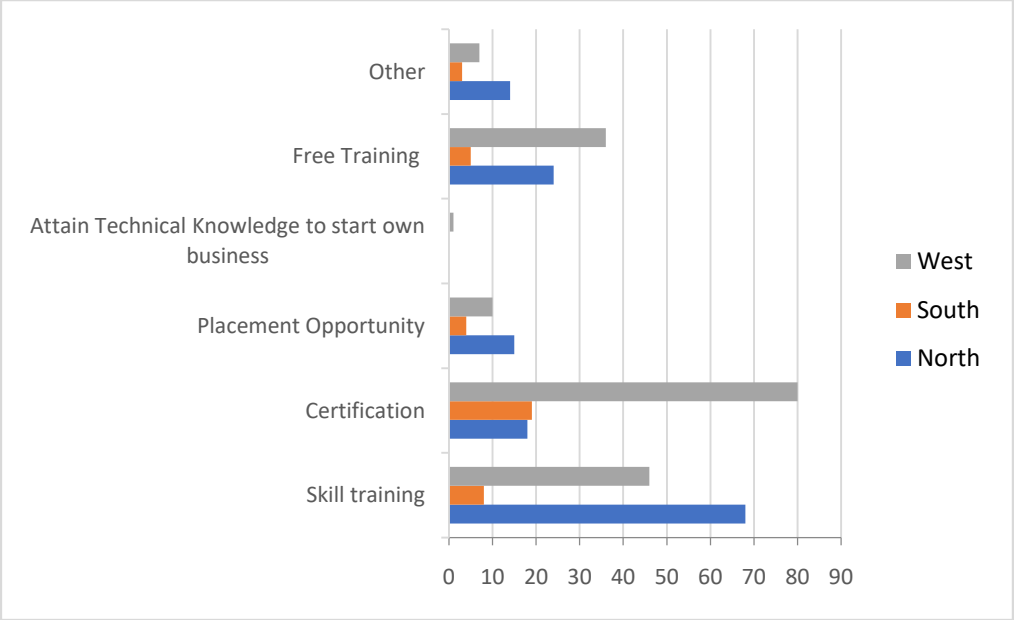


Figure 8 : Reason for joining the training program

Apart from sensitizing the trainees on HCFC, the major aspect of the training programme was to train the beneficiaries on the practical part of exchanging the gas. It was indicated by 96percentof the beneficiaries that the practical training delivered to them was highly efficient.

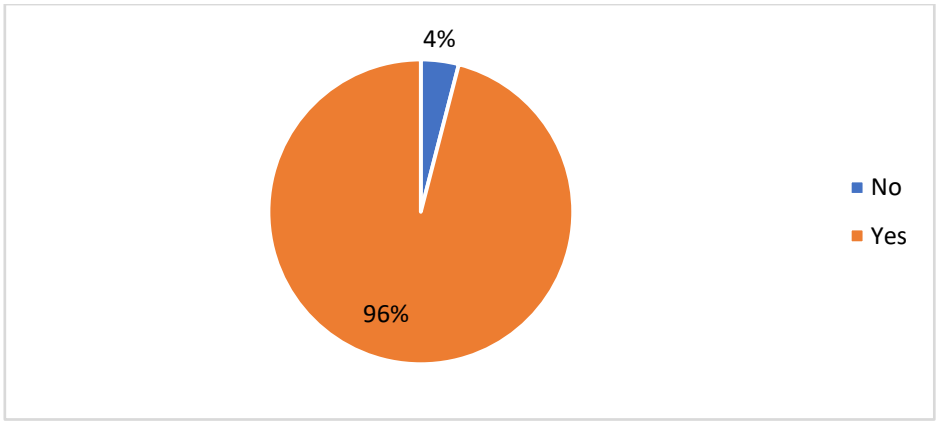


Figure 9 : Learning from Practical Sessions

The data was collected from 250 beneficiaries who have attained the training and have cleared the assessment test conducted by NSDC and ESSCI. However, it was observed that only 56percentof the beneficiaries have received the certificates after the completion of the programme.

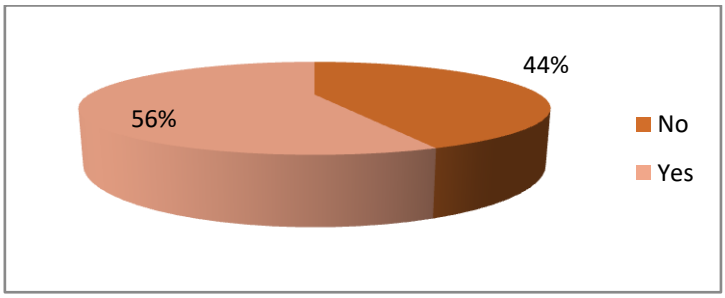


Figure 10 : Beneficiaries who have received certificates

7. Zone specific experiences of the Trainees

7.1 Infrastructural facilities of the Training centres

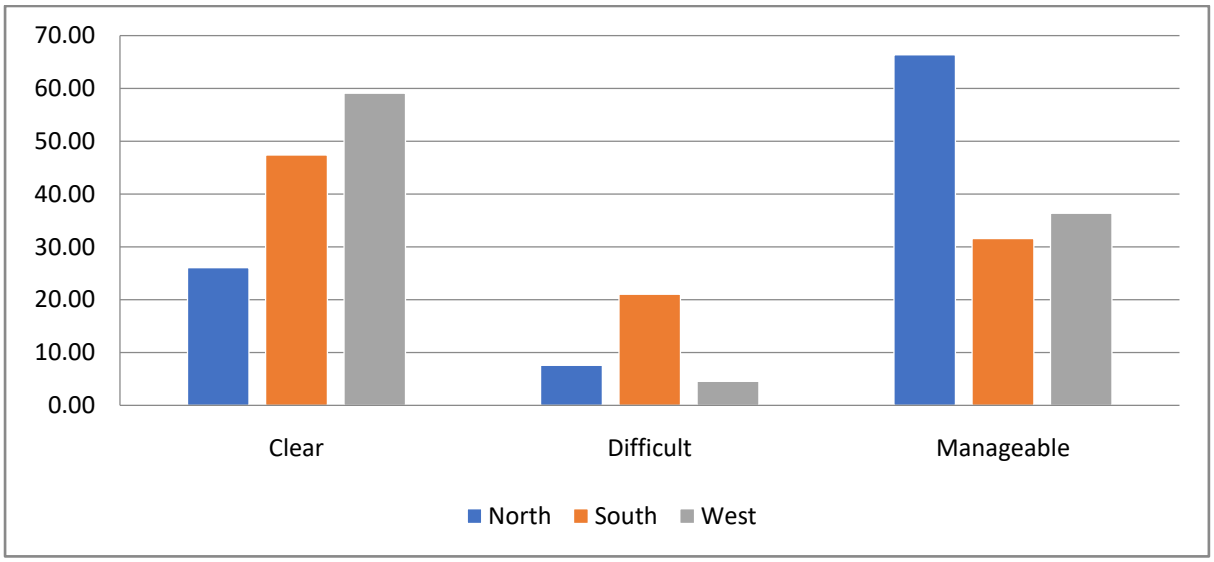


Figure 11 Training Centre location and accessibility of venue

As depicted in figure 8 the training centre location and accessibility of the venue was manageable by the people of northern region while it was clear in the western region. Among the response received from people of Sothern region mixed region is received wherein they were able to manage as well as they clear training centrelocation.It was found that 66 percent candidates of north zone found the training centers most accessible to their home as compared to south zone wherein 22 percent candidates said that they found difficulties in reaching the training centres.

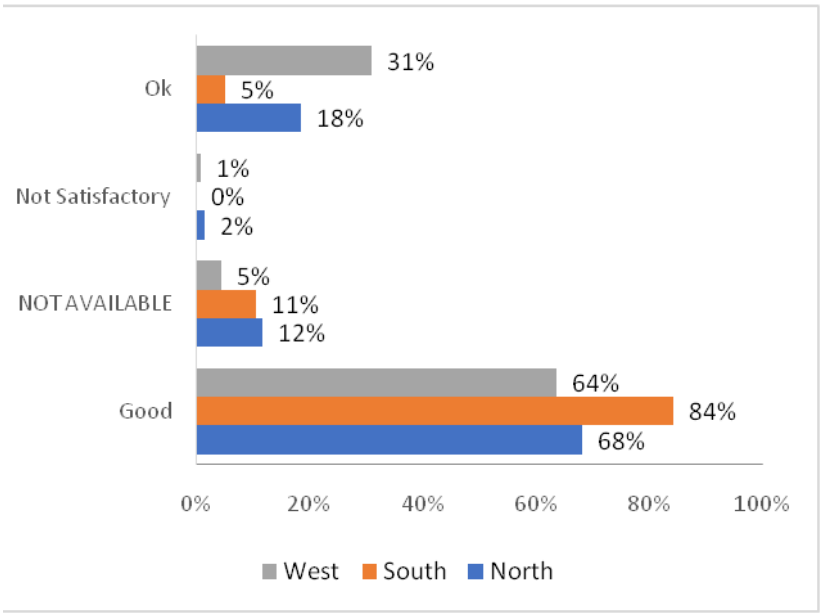


Figure 12 Facilities at the class room

The candidates were asked about the facilities received at training centre during their training period. It can be seen in figure 9 that 84 percent of candidates from south zone agreed that the

facilities received were good and satisfactory while 11 percent candidates of north zone didn't find the facilities up to the mark. The analysis is stated based on the feedback received from trainees across ten training centres.

7.2 Laboratory facilities, tools and equipment

Majority of candidates received tools, equipments and facilities at the centre which was a part of the RPL model. The trainees were asked and the responses can be seen in the figure 10 that 100 percent trainees of south zone received all the facilities and accepted by giving a great response telephonically. While 61 percent of the trainees of north zone and 25 percent trainees of west zone responded that the facilities were not provide to them at the training centre.

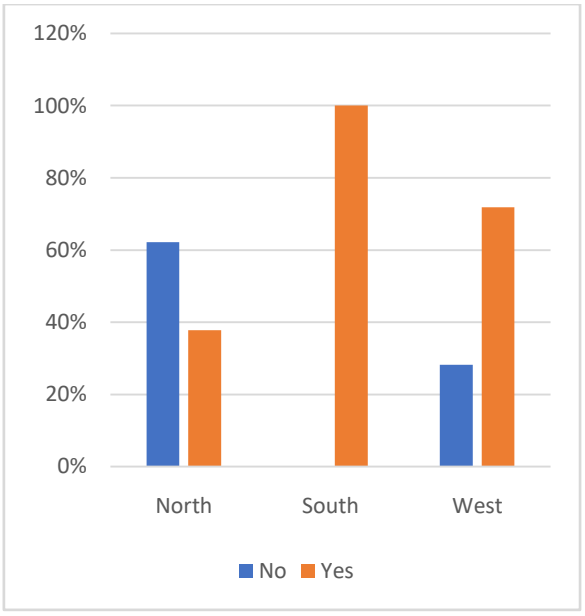


Figure 13 Complete Tool Kit was available

The trainees were asked about the tools that they received to conduct the practical during training hours. 61 percent in north zone, 89 percent in south zone and 78 percent in west zone responded that the tools given to them during training were in good quality. The finding makes it evident that the trainees found the tools helpful during practical hours of the training received by them. As mentioned in figure 11majority of trainees responded positively.

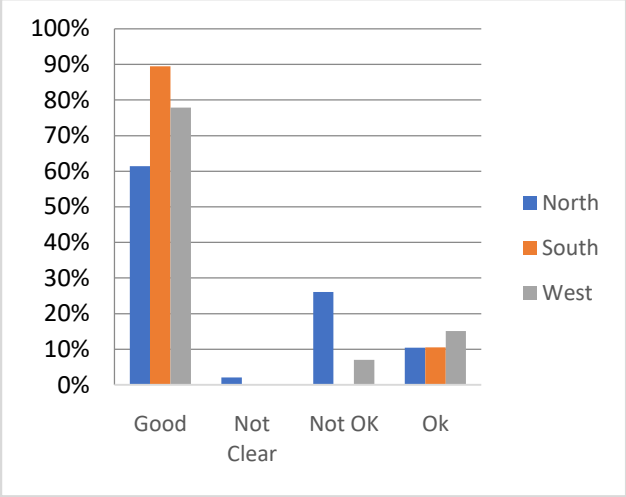


Figure 14 Tools used during practical training

The trainees responded that availability of air conditioners given to them for practical training was up to the mark. As depicted in figure 12, a total of 100 percent trainees of south zone responded that ACs were available for practical training followed by north and west zone at 88 and 87percent respectively.

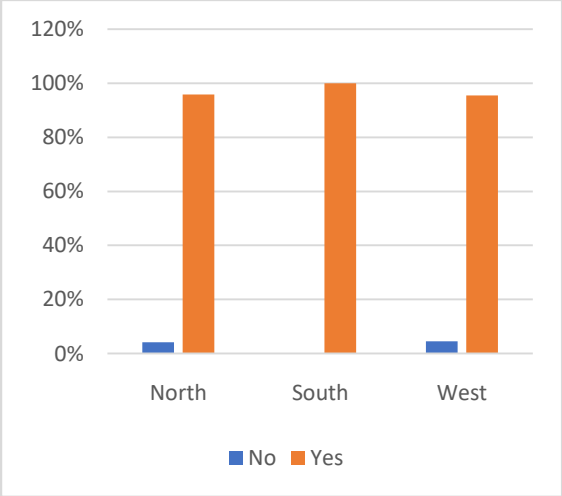


Figure 15 Availability of Air conditioners for practical training

8. Consolidated Findings

8.1 Training infrastructure

Among the response received from people of Sothern region mixed region is received wherein they were able to manage as well as they clear training centre location. It was found that 66 percent candidates of north zone found the training centers most accessible to their home as compared to south zone wherein 22 percent candidates said that they found difficulties in reaching the training centres.

- Out of the three centres visited in the West Zone, one of the centres was spacious and had multiple well equipped classrooms that were airy and well ventilated with desktop computers, CCTC cameras, furniture, fan and exhaust fan. It had a classroom and lab (700 sq. ft and 550 sq. in size respectively) with seating capacity of 50. The other centre had a combined classroom and lab with783 sq.ft. and good ventilation, electrical wires and switchboard as per guidelines, dustbins in classroom, water purifier with RO as well as packaged Water dispenser, fire fighting equipment and first aid kit. Both the centres of West zone had facilities of separate toilets for men and women. Drinking water facility was available and satisfactory all the three training centres. First Aid facility was present in only two centres in West zone.
- In South zone, out of the total three centres visited, two centres had well-furnished class rooms and labs for conducting the training programme. They had enough benches and desk was present, seating arrangements were proper and the classrooms were sufficiently ‘lighted and provided with proper ventilation. Drinking water facility and urinal facility were available and satisfactory in all of the training centres. First Aid facility was present in all the centres. All the centres had fire extinguisher which were not mounted at that point of time though the provision for the same was provided.
- Out of the total four centres visited in the North zone, three centres had well-furnished class rooms and labs for conducting the training programme. One of the visited training centre was neither a PMKVY centre nor a DDUGKY centre. It was housed in a college campus. They had enough benches and desks at the centre, seating arrangements were proper and the classrooms were sufficiently lighted and provided with proper ventilation. Drinking water facility and urinal facility were available and satisfactory in all of the training centres. First Aid facility was present in all the centres. All the centres had fire extinguisher which were not mounted at that point of time though the provision for the same was provided

8.2 Training programme curriculum

It was observed that 242 trainees out of the total sampled beneficiaries indicated that the theoretical lectures were as per the schedule while 241 respondents mentioned that the

practical sessions were also conducted as per the schedule. It was observed that most of the beneficiaries were satisfied with the practical and theoretical trainings delivered to them. Satisfaction level on most of the lectures based on topics such as: Safety and First Aid, Refrigerant Recovery, Alternative refrigerants and lubricants, Installation and services of window Air conditioner & tools, Impact of Refrigerants on environments, were quite high among the respondents.

In West zone, at one centre apart from the course content, the trainees were provided training on customer behaviour, improvised industry related information and latest technology. At two centres, as informed by Centre/ Regional Manager during the centre visit, the largest proportions of trainees were contacted through their employer/ companies as well as they were mobilized by the community mobilizer at the local AC repair shops through market visits. The trainee to trainer ratio at this centre was nearly 30:1 at two centres and 30:2 at one centre. There were no parallel batches at all the three centres as the trainings were conducted only in the morning.

In South zone, the three day training program was conducted as per the prescribed scheduled with the first half of the day being dedicated to theoretical training and the second half of the day being devoted to practical training.

In North zone, thethree day training program was conducted as per the prescribed scheduled with the first half of the day being dedicated to theoretical training and the second half of the day being devoted to practical training.

8.3 Teaching methodology including a practical training

Apart from sensitizing the trainees on HCFC, the major aspect of the training programme was to train the beneficiaries on the practical part of exchanging the gas. It was indicated by 96percentof the beneficiaries that the practical training delivered to them was highly efficient.

- The equipments were well displayed on the table at all the three centres of West Zone. At one centre the equipments had name tags printed and pasted on the table.One centre had 46 equipments available out of the 49 listed in the assessment format another centre had all the listed 49 tools available at the centre.For handling the highly flammable gases gloves and goggles were being used during the training and were first aid facility and fire extinguisher also available at both the centres. The practical trainings at all centres were imparted by dividing the batch of 30 in a group of 5 members each as informed by centre staff.
- In South zone, as one of the centres was new, lab was in the process of being set up, so a lot many types of equipment were not available at the time of inspection, though they were available at the time of training, as informed by the centre manager.

- In two of the centres visited in the North zone, all the listed items in the ESSCI list, were purchased by the training partner and the used equipments were available for inspection in the laboratory

8.4 Trainee feedback

It can be indicated that the PMKVY funded RPL project has been a popular scheme as most of the respondents i.e. 62 percent of the candidates knew about the scheme from word of mouth, followed by 17 percent from the awareness camp and 10 percent from newspaper. The major reason for candidates joining the scheme included- skill training as said by 73 of the respondents, followed by certification as said by 53 respondents. It can be noted that placement and entrepreneur opportunity didn't came across as a motivation for the candidates joining the scheme. It was further indicated that most of the candidates were happy with the reward money as well as insurance component that is being provided on successfully completing the training programme.

9. Recommendations and way forward

The Ministry of Environment Forest and Climate Change (MoEFCC) and Ministry of Skill Development and Entrepreneurship (MSDE) agreed to jointly undertake up skilling and certification of 100,000 RAC service technicians on good servicing practices and knowledge of alternative refrigerants to ozone-depleting chemicals. The skilling and certification of technicians under PMKVY had twin benefits of significant environmental benefits and a positive influence on the livelihoods of technicians. The project was being implemented by the Electronic Sector Skill Council of India (ESSCI) and the Ozone Cell, The Ministry of Environment, Forests and Climate Change (MoEFCC). The project was supported by industry and service sector associations for creating awareness and mobilisation of candidates.Since the implementation of the project for training technicians was being undertaken in a phase-wise manner, the impact assessment methodology was also designed on thesame parameters.

The impact assessment majorly focussed on specification and measurement of learner achievement levels by reaching out to the candidates of all the three zones. The physical verification of the trainings imparted or the infrastructure utilized by professionals to get a comprehensive reviewof all the trainings. While the candidates were reached out on calls, the objective was also to obtain feedback from then on the quality of training imparted and efficiency of programme with reference to trainings undertaken at their respective centre. The key informant interviews helped in analysing the quality of trainers and quality of training imparted.

The infrastructural facilities were up to the mark in South zone followed by West and North zone. Laboratory facilities and equipments were available in two out of three centres in the West zone, two centres in East zone and 42 equipments out of total list in the two centres of South zone. It was found that 94.8% of trainees responded that commencement of programme was as per the time schedule or session plan shared with them. Based on the responses, it was analysed that maximum number of candidates across India agreed that lectures and practical sessions were held as per schedule. An overall majority of 68% trainees across all zones responded that quality of facilities provided during training were good. It was analysed that there was considerably good clarity of lectures amongst trainees. A major objective of impact assessment was to address the recognition of existingskills of trainees, during the assessment it was found that West and South zone responses depicted that maximum trainees joined the training to recognize their skillset by getting certificates while trainees of North zone responded that the main reason they joined the training programme was to attend skill training and focus on enhancement of skills. Based on the responses, it can be statedthat maximum trainees across zones learnt maximum through practical sessions.

10. Concluding remarks

The recognition of prior learning is important for capacity building and equipping RAC technicians to handle the phase out and management of HCFCs as well as to deal with the influx of the new refrigerant technologies that have replaced HCFCs.

The vision of the PMKVY funded RPL project aimed that technicians trained and certified in 'Good Refrigeration and Air conditioning Practices' would assist with the reduction of both the demand and consumption of HCFCs, as well as preventing the release of ODS into the atmosphere.

The study aimed at assessing the impact of HCFC Phase out Management Plan (HPMP) Project, the major focus of this assessment was to derive a holistic view from the targeted beneficiaries of projects that have been implemented and to see how these initiatives of the company have helped the technicians in improving their socio-economic standards. The impact assessment was conducted in three zones across India. The assessment methodology ensured that both trainer and trainee reviews were given due importance. In order to up skill the technicians and for the sustainability of the project in the coming future, recommendations have been given zone wise for further improvement. The analysis is presented in the way of a SWOC analysis in order to address the key components of programme.ThisImpact Assessment research assesses the outcomes and impacts of the intervention in order to provide insights for the way forward.

Annexures

Annexure – I

Centre Checklist

Skill Sector	
Job Role	
Is the Trainee to Trainer Ratio in the range of 10:1 to 30:1 for all the batches, please specify from below options: 1. 10:1 2. 20:1 3. 30:1	
Total Number of Parallel Batches You Plan to Run for this Job Role at a Given Point of Time, please specify a number	

Select the Area, please specify from below options: 1. Counselling Area 2. Reception Area 3. Library 4. Placement And Entrepreneurship Cell 5. Pantry 6. Washrooms 7. Playground (Where Training is not conducted) 8. Parking if any 9. Any Other Centre Space 10. Any outside area which is a part of the Centre	
Carpet Area (In Sq.Ft)	
Type of Washroom, please specify from below options: 1. Male 2. Female 3. Differently Abled (This Field is valid, If the Centre Area selected is Washroom)	
Availability Of Air Conditioning	
Availability of CCTV Camera with Recording Facility, please specify Yes/ No (Invalid Field, if the Area selected is Washroom)	
Availability of Exhaust Fan, please specify Yes/ No	

Electrical Wires and Switchboard Secured, please specify Yes/ No	
Room is Well Ventilated, please specify Yes/ No	
Availability of Dustbin in the Room, please specify Yes/ No	
Is the Room clean and hygienic, please specify Yes/ No	
Any Training Activity Undergoing / Provisioned Outside the Centre, please specify Yes/ No (This Field is valid, If the Centre Area selected is Washroom)	
Remarks(If any)	

Differently Abled Friendly Details	
Availability of Ramps at the entrance of the Centre, please specify Yes/ No	
Availability of Lifts in case the Centre is extended to other floors(besides ground floor), please specify Yes/ No	
Hygiene and Sanitation	
Availability of a Dedicated Housekeeping Staff, please specify Yes/ No	
Washroom is Clean and Hygienic, please specify Yes/ No	
Availability of Daily inspection card/ checklist in the Washroom, please specify Yes/ No	
Availability of Safe Drinking Water, please specify from below options: 1. Reverse Osmosis 2. Water Purifier 3. Packaged Drinking Water Dispenser 4. None	
MEDICAL & SAFETY	
Availability of Fire Fighting Equipment (Any one of the following euipments should be available at the Centre)	
Water based Fire Extinguisher, please specify Yes/ No	
Foam Based Fire Extinguisher, please specify Yes/ No	
Dry Powder based Fire Extinguisher, please specify Yes/ No	
Carbon Dioxide based Fire Extinguisher, please specify Yes/ No	
Wet Chemical based Fire Extinguisher, please specify Yes/ No	
Fire Fighting hose Pipe, please specify Yes/ No	
Fire safety instructions displayed at the Centre, please specify Yes/ No	

Availability of First Aid Kit, please specify Yes/ No	
Is the First Aid kit wall mounted at the Centre, please specify Yes/ No	
Contact of Fire Brigade , Ambulance, Hospital, Emergency Numbers displayed in the Reception Area, please specify Yes/ No	
Other Facilities	
Availability of Photocopier, please specify Yes/ No	
Availability of Printer, please specify Yes/ No	

Type of Support Staff, please specify from below options: 1. Trainer 2. Placement Coordinator 3. Mobiliser	
Name	
Highest Qualification, please specify (of the staff mentioned above)	
Total Experience (in Years)	
Please specify Shared or Dedicated Resource	
Remarks(If any)	

Annexure – II

Photographs of visits conducted

West Zone

North Zone

South zone

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December 2019

About National Skill Development Corporation (NSDC): National Skill Development Corporation, working under the aegis of Ministry of Skill Development & Entrepreneurship, is a unique public-private-partnership which aims to catalyze creation of quality vocational training ecosystem in India. The organisation provides funding to build scalable and profitable vocational training initiatives. Its mandate is also to enable support system which focuses on quality assurance, information systems and train-the-trainer academies either directly or through partnerships. Since establishment in 2009, NSDC has trained more than 2 crore people through its partnership with 600+ training partners, wide a robust network of 11,000+ training centers spread over 600 districts across the country. NSDC has institutionalized 37 Sector Skill Councils and is also implementing Government's flagship skill development schemes such as Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Pradhan Mantri Kaushal Kendra (PMKK), National Apprenticeship Promotion Scheme (NAPS), among others.

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