Efficacy and Impact of National Apprenticeship Training Scheme (NATS) – All India Study

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Efficacy and Impact of National Apprenticeship Training Scheme (NATS) – All India Study

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Preface

Training and skill upgradation is important component of human resource development policy. Any country progressively moving towards becoming a global knowledge economy must meet the rising aspirations of its youth. This can be partially achieved through relevant skills upgradation. The size of the current technical training infrastructure in India is not only smaller than what is required, but also, there is a significant gap between skill requirements of the industry and the skill levels of technical and engineering graduates.This calls for focused efforts on market driven skills amongst potential labour pool. In this context, the National Policy on Skill Development and Entrepreneurship puts emphasis on advancement of skills that are relevant to the emerging economic environment. The challenge pertains not only to a huge quantitative expansion of the facilities for skill training, but also to the equally important task of raising their quality.

The formal education system in our country has limitations in producing the "work ready" youth and they need exposure to actual working conditions and on job training in real-time situations on shop floor of production processes. Educational and Training set-up at the institutional level have limited capacity to cater to the growing demand for required skill-sets. With multiple sectors facing huge skills gaps in the coming years, apprenticeships hold tremendous promise in nurturing our youth right from the schooling level. To minimize the gap, every country is taking its own policy decision. In the case of India, the National Apprenticeship Training Scheme is a powerful vehicle for skill development as it facilitates "learning by earning "and "learning by doing". Crucial amendments to "The Apprentices Act,1961" have been made to facilitate industrial training and exposure to modern methods of industrial processes to the fresh Graduate Engineers and Diploma holders entering into the labour market. The scheme is implemented by the Ministry of Human Resource Development (MHRD) through the four independent regional bodies, i.e., Boards of Apprenticeship Training (BOAT) located at Mumbai, Kanpur, Chennai, and Board of Practical Training (BOPT) located at Kolkata.

Looking at the critical role played by skill development in the economy, MHRD has entrusted the task to the National Institute of Labour Economics Research and Development (NILERD) to examine the ground realities, the employment and training experience of the apprentices, and the views of industry in regards to NATS. Against this background, the present study "Efficacy and Impact of National Apprenticeship Training Scheme (NATS) – All India Study" has been conducted by NILERD.

The study team has travelled extensively to the states falling under the four regional Boards to collect information from various stakeholders. Focus of inquiry was on employability and skill enhancement, role of establishments in eliminating skill gaps of trainees, effective Industry-Institute collaboration through structured schedules, focused group discussions and informal debates.

I wish to express my gratitude to MHRD for awarding the study to NILERD.I duly acknowledge the Directors of four regional Boards for providing insights into the issues and extending required support to NILERD team in completing the assigned task and bringing the study into its final shape. The present study is an outcome of hard work and collective effort of a dedicated team of researchers led by Dr. Shachi Joshi, Joint Director and supported by technical and editorial section of the Institute. I wish to place on record my sincere appreciation for the entire team.

I am pleased to present this report for consideration of MHRD. I hope findings of this study would be useful for policy planners and other professionals associated with Skill Development in India.

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(Dr. Yogesh Suri)
Director General

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Executive Summary

Apprenticeship is a system in which workers obtain on-the-job training. Apprentices work full-time and are paid a minimum wage or stipend. The age of entry and the amount paid to an apprentice varies from country to country. The system of apprenticeship facilitates linking the need of labour market and industrial establishments, thus helping in provision of skills required by industry. At the end of apprenticeship period, the apprentice has valuable work experience and certification that allows him/her to work in an industry.

In order to augment the demand of skilled labour in the emerging industrial activities, and with a view to imparting tangible skills-in-demand to the aspiring youth entering into the labour market, the Government of India enacted Apprenticeship Training Scheme (ATS) through The Apprentices Act, 1961 to utilize and provide training facilities in establishments. The main objectives of the Act are a) to regulate the programme of training of apprentices in the industry so as to conform to the prescribed syllabi, period of training, etc. as laid down by the Central Apprenticeship Council; and b) to utilize fully the facilities available in the industry for imparting practical training with a view to meeting the requirements of skilled manpower for industry, in order to achieve synergy among all stakeholders.

The Act has been amended four times 1973, 1982, 1992, and 2014. Since its enactment Amendment to the Act in 1973 provided last-mile skilling opportunities for all graduates and diploma holders (including sandwich courses) from Engineering Colleges and Polytechnics respectively. The ATS Act was further amended in 1986 to include all pass-outs from 10+2 vocational schools, taking into account dynamics of the skill-ecosystem in those times. These two landmark amendments are called National Apprentice Training Scheme (NATS).

Execution & implementation of this amended Act is done by MHRD through four Regional Boards, in Southern Region, Northern Region, Western Region and Eastern Region, located at Chennai, Kanpur, Mumbai and Kolkata respectively.

Since June 2017, the implementation of apprenticeship training for Technician (Vocational) Apprentices has been transferred to the Regional Directorate of Apprenticeship Training, Ministry of Skill Development and Entrepreneurship.

Main objectives of NATS are (i) to bridge the gap in skills, in so far as the practical/hands on experience of fresh graduate engineers, diploma holders in engineering and 10+2 vocational pass-outs are concerned, which they do not acquire during their regular studies under normal practice, (ii) to secure facilities for training in different establishments, both in private and public sector organizations for the pass-outs of technical institutions covered under NATS as

stated above, (iii) to arrange for dissemination of information on various aspects of practical training through lectures, films and other methods of communication, among other things.

Thus, the main purpose of NATS is to provide last mile skilling of technical & skilled personnel coming out of Technical Institutions. Through one year practical training under NATS, the graduates enter the labour market with industry-ready/work-ready/job-ready skills/attributes. In order to assess the functioning of the scheme there is a need to look at the ground realities based on empirical evidence. This study has been undertaken as a step towards fulfilling that need.

The present study is a PAN India study covering all states and UTs with objectives to examine the impact of the scheme on employment; to assess the input use efficiency of the scheme; to analyze requirement and availability of the apprentices; to assess the scope and coverage of the scheme; to assess the convergence of other similar schemes and training programs of various Ministries and Departments; to assess the relevance of the scheme to achieve the national priorities and sustainable development goals (SDGs); to identify the bottlenecks in implementation of the scheme and to recommend remedial steps to improve the effectiveness of the Scheme.

The sample included all the stakeholders: BOAT Offices, Establishments, Apprentices, and Institutions. The establishments were classified broadly into (i) central, (ii) state, and (iii) private units for sampling purpose. On-roll apprentices, ex-apprentices and institutions imparting degree and diploma were included in the sample.

Primary data was collected from all stakeholders through structured & open-ended questionnaires. In order to capture opinions and view-points of all categories of stakeholder's focus group discussions were also conducted with the help of BOAT officials in all four regions of the country.

Salient Findings of the study:

Employment:
- Survey results reveal that overall about 79 percent of the trainees were employed (73 percent wage employed and 6 percent self employed).
- About 88 percent of these were employed in the private sector.

Bridging Skill Gap:
- Large percentage of establishments surveyed (41% of CPSUs, 47% of SPSUs and 56% of Private establishments) strongly felt that after one-year of NATS training and exposure apprentices are fit for absorption in any industry.
- About 37% of the responding establishments felt that NATS provides last mile repair i.e. adds to skills required for employability; 27% establishments felt that

NATS provides interventional repair i.e provides re-skilling in some areas needed for labour market; and 54% felt that NATS fills the structural gap i.e. adds to altogether new learning in terms of theoretical/analytical/practical skills.

- About 85 percent on roll apprentices feel that this training is helping them in filling the skill gap between theoretical knowledge obtained at technical educational institutes and practical exposure required for work.
- About 69 percent educational institutions were of the opinion that NATS bridges the gap partially between College education and Industry Requirement while 13 percent opined that NATS fills in the gap left at educational Institute fully.

Efficiency and productivity:

- Overall 69 percent of establishments were of the view that apprentices help the establishment in meeting the shortage of manpower.
- Many establishments put the apprentices on actual job after 3 to 4 months of joining the training hence apprentices have positive impact on the productivity of the establishment.
- About 71 percent of establishments are giving higher stipend than the one specified by the Government.

Stakeholder –wise Findings:
BOAT/BOPT
- The number of students enrolled has increased by around 79 percent, industries by 75 percent and institutions by 38 percent from 2016-17 to 2017-18.
- Number of seats utilized by CPSUs and Private industries has increased between 2015-16 & 2017-18 while the number of seats shows a declining trend in SPSUs.
- NATS contributes towards SDG Goal No. 4 by providing training opportunities to SC, ST, OBC, minorities and women. For SC category BOAT Northern region and BOPT Eastern region are utilizing less than a 50 percent seats, BOAT Western region has utilized 51-75 percent of seats while 100 percent seats were utilized by BOAT Southern Region. For Scheduled Tribes, all regions show utilization of less than 50 percent seats. For OBCs except for Eastern Region (Less than 50) all other regions have 100 percent utilization.

- The major challenge faced by regional offices relates to paucity of funds. Financial constraints affect their work as finances are required for salary and administrative expenses and for reimbursement of government share of stipend to establishments, which is often delayed by the Ministry.
- The number of support staff in position is much less than the sanctioned strength across all the regional offices.

- There is a shortfall in the utilization of seats under the scheme; reasons as cited by BOARDs include lack of awareness, no job guarantee after completion of training, low stipend vis-a-vis high cost of living in the cities, delayed reimbursement of stipend by MHRD and non-availability of training in nearby areas.
- Introduction of regional and national level competition among establishments for their significant participation and providing them some memento may encourage participation of establishments in the scheme. It was suggested by BOPT that Act may mandate establishments to reserve 10% of their annual addition in the employment to NATS pass outs.
- As suggested by BOAT/BOPT, the General Attribute Development Programme (GADP) as part of the apprenticeship training programme may be extended to current apprentices and final year degree diploma students by providing scholarship to these students equivalent to course fee through AICTE. BOAT/BOPT under the collegiums of industries is conducting 40 hours of modular programme on GADP for the above target groups but participation of final year students is not encouraging.

Establishments
1. The study covered 339 establishments engaging apprentices of which, 75 were central Government/PSUs, 43 were state government establishments and 221 were private establishments.
2. Overall utilization of seats by establishments has decreased from about 106 percent during 2015-16 to about 87 percent during 2017-18; the main reason for this was change from offline to online registration/enrollment process.
3. In 2017-18, utilization of seats was highest for establishments in the Western region (96.10%), followed by Southern region (88.51%), Eastern region (81.73%) and Northern region (76.51%).
4. Among CPSUs, utilization of seats as percentage of the seating capacity was more than 100 percent in Eastern and Western regions during 2016-17 and 2017-18; in the other two regions it was more than 70 percent.
5. The seat utilization as percentage to seat allocated ranged between 51 to 71 percent in case of state owned establishments during the last three years.
6. In private sector the seat utilization at all India level is more than 100 percent for two years (2015-16 and 2016-17) and 88 percent for 2017-18. Private sector establishments revealed during FGD that they were willing to take more apprentices than the sanctioned strength. It was also highlighted that they recruit large number of apprentices but many of them either do not join or leave in between the training period. This leads to wastage of their efforts. Most of the times the reason for leaving/not joining is employment opportunities or admission for pursuing higher study.

7. It also emerged during the FGDs that many establishment put the apprentices on actual job after three to 4 months of joining the apprenticeship training, hence one can infer that apprenticeship have positive impact on the productivity of the establishment.

8. All India average for seat utilization as a percentage of seat capacity stood at more than 80 percent in 2017-18 with Chhattisgarh, West Bengal and Gujarat showing highest utilization of seats.

9. Highest rate of utilization for reserved category seats was in the private sector followed by central and state establishments.

10. Absorption of apprentices by the establishment has shown an increasing trend from 2015-16 to 2017-18. Eastern region has highest absorption, followed by Western region, Northern Region and Southern region.

11. Large percentage of establishments surveyed (41% of CPSUs, 47% of SPSUs and 56% of Private establishments) strongly felt that after one-year of NATS training and exposure apprentices are fit for absorption in any industry.

12. Overall 69 percent of establishments were of the view that apprentices help the establishment in meeting the shortage of manpower.

13. Out of 278 establishments who responded, around 37% felt that NATS provides last mile repair i.e. adds to skills required for employability; 27% establishments felt that NATS provides interventional repair i.e provides re-skilling in some areas needed for labour market; and 54% felt that NATS fills the structural gap i.e. adds to altogether new learning in terms of theoretical/analytical/practical skills.

14. About 52 percent surveyed establishments do not face any problem in getting required number of apprentices, 35 percent experience problems occasionally, and only 16 percent faced frequent problems in getting the requisite number of apprentices.

15. Almost 80 percent of the private firms are engaging apprentices in production process; in case of CPSUs, only 4 out of 6 firms give this opportunity to apprentices.

16. Around 87 percent (181 out of 209) of surveyed private sector establishments are absorbing the apprentices after completion of their training. Among these 181 establishments, majority (70%) hire around 100 ex-apprentices per year, 24 establishments (13%) absorb between 101 to 300 ex-apprentices per year, 21 establishments (12%) take more than 500 ex-apprentices annually while 9 establishments(4.97%) have taken 301-500 ex-apprentices per year during the last three years.

17. The establishments opined that all the trainees are suitable to be molded to their working and competency levels, irrespective of the trainees' academic background.

18. All Establishments have expressed their satisfaction towards the method of selection of apprentices. Irrespective of type of units, all opined that the current procedure of identification of candidates / apprentices is full proof and satisfactory.

19. About 71 percent of establishments are giving higher stipend than the one specified by the Government. Majority of these establishments fall under private sector.

Apprentices

Ex-Apprentices
1. In total 1220 ex-apprentices were covered in the survey, of which 974 were males and remaining were females.
2. Gender wise distribution reveals very low participation of women in NATS (only 20%). The participation of females in the scheme was lowest in Eastern region (9.9%) and highest in the Southern region (around 29.5%)
3. Participation in the Scheme is highest by Upper Social Categories.
4. About 75 percent of ex apprentices were in 21-25 years age group.
5. Majority of apprentices (61%) were from urban background.
6. Employment of ex-apprentices is one of the indicators to find the effectiveness of the scheme. About 73 percent of the trainees were in wage employment, 6 percent were self employed (thus in all 79 percent of ex trainees were in employment) and around 9 percent were unemployed; around 3 percent were pursuing higher education.
7. Eastern Region topped in wage employed ex-apprentices (92 percent), followed by Southern Region (74 percent), both Northern Region and Western Region had 72 percent wage employment.
8. No marked difference was noticed in wage employment among male and female apprentices.
9. Manufacturing industries, IT sector are the core sectors which absorb majority of the ex-apprentices in Western, Northern and Southern regions.
10. The construction sector also provided employment opportunities to the apprentices mostly in Eastern region.
11. Out of the total respondents, about 88 percent were employed in the private sector, 11 percent were in CPSUs, 1 percent was employed in SPSUs and only 2 percent worked in cooperatives.
12. Majority of NATS pass outs get placed in employment within 3 months of the completion of their training.
13. NATS training enhances the employability of students by 50-80% as they learn not only practical skills but also interpersonal and communication skills.
14. A vast majority of ex apprentices were satisfied with the practical knowledge, workshop facilities and the duration of training under NATS
15. Sixty Eight percent of the ex-apprentices feel that NATS was highly useful to get the employment after the completion of training under NATS.
16. Another 14 percent of the ex-apprentices feel that the NATS was partially useful for getting the employment opportunities.

17. Less than 2 percent of ex-apprentices found NATS not at all useful in getting employment opportunities.
18. Majority of the ex-apprentices expressed enhancement in their skills as a result of the apprenticeship training.

On-roll apprentices
- Over all 1176 on roll- apprentices were covered in the survey. Of these 52 percent of the trainees belonged to private sector, followed by CPSUs (42 percent) and 6 percent from SPSUs.
- Only 19 percent of the sample was female. Participation of women was highest in Southern Region followed by Western region. Participation of women was low in Northern and Eastern regions
- Highest number of surveyed apprentices belonged to OBC category.
- Representation of SC category trainees was far below other categories.
- About 93 percent of trainees felt that the training will be useful to them in getting employment.
- About 85 percent apprentices feel that this training helps in filling the skill gap of education obtained at educational institutes.

Educational Institutions
- 97 percent of surveyed educational Institutes had placement cells.
- About 62 percent of institutions had collaboration with industries for placement and industrial training.
- About 53 percent Institutes were fully satisfied with the course content in the colleges, while 47 percent were not satisfied with the course curriculum.
- Sixty nine percent of educational institutions were of the opinion that NATS bridges the gap partially between College education and Industry Requirement, 13 percent were of opinion that NATS fully fills the gap left at educational Institute.

General Observations through FGDs
- All stakeholders agreed on the usefulness and impact of NATS and felt that it is one of the most relevant schemes for students coming from economically weaker and socially backward sections of society.
- It was also expressed that NATS is an excellent scheme and should be continued for economic development of the country, for the benefit of establishments and for better job opportunities for participating students who enhance their employability.

- There are huge opportunities for NATS trainees in manufacturing, processing, and IT sector.

- Enhancement of Skills, employability & opportunities in the labour market through NATS is clear in all the states.
- It was felt that the awareness about the NATS among the students is not up to desired level; efforts should be made to generate awareness and improve its popularity.
- All stakeholders agreed that the duration of training was sufficient for acquisition of skills.
- The scheme is more popular in Eastern and Southern states.
- Scheme should allow flexibility to organizations to take number of apprenticesas per their requirement.
- With rapid technological changes, educational Institutions fail to prepare students for industry–specific requirements; Apprenticeship training is the only platform for acquiring practical/specific skills required by a sector; thus two internships during B. Tech should be made mandatory
- Apprenticeship training enhances the employability of students by 50-80% as they learn not only practical skills but also interpersonal and communication skills;
- Private industries absorb about 60 -70% of the trainees.
- AICTE should develop a curriculum which should be followed by all institutions. Integration of apprenticeship training should be a part of the course. Dual System training (DST) is strongly recommended.
- The role of institutions is passive at the moment. They should be included in the loop. For NATS, industry-institution collaboration is required. At present there is no platform for interface between academic institutions and industries.
- When the survey started in May/June many establishments, institutions and students reported facing difficulty while registering online, but no such incidents were reported during later part of the survey.
- Delay in reimbursement of Stipend was an issue faced by majority of establishments.
- The process of uploading documents especially performance reports, needs to be simplified.
- Institutions are largely interested in direct placement procedure rather than opting for training students under NATS scheme, there is a need to link TPOs of institutions with the scheme.
- Since there is no assurance of absorption/employment after training under NATS program, many students leave training in-between for the want of better career option. Therefore a mechanism needs to be worked out whereby weightage/preference/marks should be given in recruitment and selection process to those who have completed apprenticeship. This will enhance seat utilization in the scheme.
- The scheme suffers due to low stipend rates paid to apprentices.
- The establishments that are paying higher stipend than the rate specified by BOAT/BOPT or providing other benefits like subsidised or free food, transport etc. are able to attract large number of apprentices.

- It happens many a time that establishments are recruiting large number of trainees under NATS but finally very few join and among those who join many of them leave before completion of one year. Proper guidelines/directive should be put in place for addressing the issue of dropout of trainees. Aspiration mapping was also suggested to overcome problem related to drop-outs.
- Majority of establishments were taking apprentices themselves either directly from the educational institutions or through a selection process.
- NATS portal should provide information regarding the students selected for NATS, their subject fields,   the companies in which they have been absorbed.
- Institutes should also put information about their students who are currently undergoing and have completed NATS training in the past, on their dashboard.
- Portability of enrolment number should be allowed to help both the establishments and students, particularly of sandwich courses.
- Girl students under Sandwich pattern are finding it difficult in getting training opportunities.
- It was also suggested that BOAT should communicate changes made in the scheme to all stakeholders.

Way Forward:

- National Apprenticeship Training Scheme (NATs), should continue with revised stipend rates approved vide Gazette Notification dated 25th September, 2019.
- About 79 percent of apprentices are able to secure job after finishing Apprenticeship Training (either in the same industry or in other industry). It can be said that scheme is fulfilling its designed objective of making unemployed technical manpower employable and providing them with jobs. Hence, the scheme should not suffer due to lack of funds, for this enhancement in budgetary allocation and timely release of funds may be considered.
- The outreach of the scheme may be widened by involvement of educational institutions and setting of State offices on the Boards especially in larger states.

CHAPTER-I
Background of Apprenticeship

1.1: Introduction

Since time immemorial, societies have ensured that skills are transferred from one generation to another. Artisans were skilled workers who created things/products or provided services. These artisans were divided into two categories; a master craftsman and a journeyman or apprentice. The master craftsmen were highly valued and respected and in order to uphold the standard of their trades formed Craft Guilds/Independent Collegia.

The nature of apprenticeship has changed over time with considerable variation among countries, but the apprenticeship method by which trainees learn a craft or trade by hands-on experience while working with a skilled worker is being practiced all over the globe.

Apprenticeship is backbone of Technical Education and is complete only when conceptual knowledge at educational institutions is supplemented with effective and practical hands-on-training in industry.

The apprentice system provides an opportunity to an apprentice to earn while learning, it is both a form of full-time employment and a process of education and training. Because of this dual character of apprenticeship, the training and education of apprentices must be designed in such a way as to help apprentices meet these two objectives.

1.2 Apprenticeship in different countries

Apprenticeship is a system in which workers train on-the-job – earning wages and doing productive work – while also taking courses. After completing the apprenticeship, the apprentice has valuable work experience and certification that allows them to work in an industry/trade.

The period of apprenticeship may vary from trade to trade and may last between one to six years. Apprentices work full-time and are paid a minimum wage or stipend. The age of entry and the amount paid to an apprentice varies from country to country.

There are three types of apprenticeship[1]:

- Time-based: the apprentice's progress is measured by the number of hours spent on the job and in the classroom.
- Competency-based: the apprentice's progress is measured by his or her ability to demonstrate the application of relevant knowledge, skills and abilities.

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[1] https://innovativeapprenticeship.org/what-is-apprenticeship/

- Hybrid: the apprentice's progress is measured through a combination of hours spent in the program and competencies demonstrated in the workplace.

This section looks at apprenticeship system in different countries.

Australia: Australian apprenticeship caters to more than 500 occupations with an intake capacity of nearly four lakh trainees. The training is provided through Australian Apprenticeship Support Network[2].Australia also has a fairly unique safety net in place for businesses and Australian Apprentices with its Group Training Scheme. In addition to a safety net, other benefits include support for both the host employer and the trainee/apprentice through an industry consultant who visits regularly to make sure that the trainee/apprentice are fulfilling their work and training obligation with their host employer. .

Canada: In Canada, each province has its own apprentice programme. At the completion of the provincial examination they may write the interprovincial standard examination. British Columbia is one province that uses these exams as provincial exam. This means a qualification for the province will satisfy the whole country. The interprovincial exam questions are agreed upon by all provinces.

France: In France, the first batch of training centers for apprentices were set up in 1961 and in 1971 apprentices were legally made part of professional training. In 1986 the age limit for beginning an apprenticeship was raised from 20 to 25 years. The minimum training time rose to 360 hours a year in 1961, then 400 in 1986. From 1987 the range of qualifications achievable through an apprenticeship was widened to include the certificate of vocational aptitude, the vocational baccalaureate diploma, the advanced technician's certificate, engineering diplomas and more.

Germany: Apprenticeship training forms an integral part of Germany's dual education system and is recognized as most successful model of apprenticeship. The dual system means that apprentices spend most of their time in companies and the rest in formal education. Usually, they work for three to four days a week in the company and then spend one or two days at vocational school. In 1969, a law (the *Berufsausbildungsgesetz)* was passed which regulated and unified the vocational training system and codified the shared responsibility of the state, the unions, associations and chambers of trade and industry. Finding employment without having completed an apprenticeship is almost impossible which makes the training mandatory for all. The employer is responsible for the entire programmecoordinated by the German Chamber of

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[2]Australian Apprenticeships Home Page"www.australianapprenticeships.gov.au accessed on November 10, 2019

Commerce; apprentices are not allowed to be employed and have only an apprenticeship contract which protects him/her from abrupt dismissal until the programme ends.

Japan: In Japan, apprenticeship and employee training have often featured a personal orientation rarely found in other industrial nations. The unique Japanese concept of apprenticeship stems from a difference in the relationship between employer and employee. Although this arrangement does not hold for most small and medium-sized companies, large Japanese companies have had a social obligation to provide lifelong work for employees who, in return, are required to continue with the same employer (until death or retirement)—no matter what the job assignment. Because Japanese apprenticeship emphasizes employment with a particular company, the close relationship between an apprentice and a specific trade, common elsewhere, is missing in Japan.

United Kingdom: In 1995, the UK government introduced Modern Apprenticeships (the name was changed to Apprenticeships in 2004), again to try to improve the image of apprenticeships and encourage young people to take them up. Work was begun on developing a more regulated system, defining frameworks for apprenticeships (such as Business Administration or Accounting) and linking them to particular qualifications and certificates. Those who complete an Advanced Apprenticeship (previously known as an Advanced Modern Apprenticeship) receive National Vocational Qualifications, a technical certificate and an apprenticeship certificate. The apprenticeship training is revitalized and as of 2009, there are 180 trades under apprenticeship programme in UK. Young people learn core skills rather than concrete subjects or abilities; employers have an employment contract with the apprentices and at the same time, independent companies offer them formal education. There is no minimum time requirement, although the average time spent completing an apprenticeship is roughly 21 months.

Government funding agencies contract with 'learning providers' to deliver apprenticeships and may accredit them as a Centre of Vocational Excellence or National Skills Academy. These organizations provide off-the-job tuition and manage the bureaucratic workload associated with the apprenticeships. Providers are mainly private training companies but might also be further education colleges, voluntary sector organizations, chamber of commerce or employers themselves.

United States: As per US Department of Labour, Apprenticeship is a proven approach for preparing workers for jobs while meeting the needs of business for a highlyskilled workforce. It is an employer-driven, "learn-while-you-earn" model that combines on-the-job training, provided by the employer that hires the apprentice, with job-related instruction in curricula tied to the attainment of national skills standards. The model also involves progressive increases in an apprentice's skills and wages. There are five components of typical apprenticeship programs. These include:

- Business Involvement: Employers frequently work together through apprenticeship councils, industry associations, or other partnerships to share the administrative tasks involved in maintaining apprenticeship programmes.
- Structured On-the-Job Training: Apprentices receive hands-on training from an experienced mentor at the job site. On-the-job training focuses on the skills and knowledge an apprentice must learn during the programme to be fully proficient on the job. This training is based on national industry standards, customized to the needs of the particular employer.
- Related Instruction: One of the unique aspects of apprenticeships is that they combine on-the-job learning with related instruction on the technical and academic competencies that apply to the job. Education partners collaborate with business to develop the curriculum, which often incorporates established national-level skill standards.
- Rewards for Skill Gains: Apprentices receive wages when they begin work and receive pay increases as they meet benchmarks for skill attainment. These helps reward and motivate apprentices as they advance through their training.
- Nationally recognized Credential: Every graduate of an Apprenticeship program receives a nationally recognized credential. This is a portable credential that signifies to employers that apprentices are fully qualified for the job.

The above-mentioned developed countries are implementing the Apprenticeship Training Programme successfully as compared to the developing countries. The present challenge in front of developing countries is to blend these skills at work and in technical training. This will require continued work on defining what is needed. When the Apprenticeship system takes lead in defining what skills are needed, the system can then turn to service providers to fulfill those needs more directly. This approach is respectful of adults who usually have limited resources to prepare for success. It may also motivate reluctant participants to gain confidence that essential skills training relates to their goal of completing apprenticeship.

1.3 Apprenticeship in India

India has a highly underutilized and mostly unknown formal apprenticeship system that began in 1961. Our roughly 700,000 formal apprentices are less than 0.01% of our labour force (Germany has 2.7%). We have only about 35,000 employers appointing apprentices (UK has 200,000). The Apprentices Act has been amended four times, but the 2014 amendment laid the foundation for reaching an ambitious goal of 10 million apprentices[3].

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[3] https://www.livemint.com/opinion/columns/opinion-apprenticeships-could-address-india-inc-s-human-capital-hurdle-1558000436650.html

1.3.1 Apprenticeship Training Scheme (ATS)

At the time of independence India had a large pool of uneducated and unskilled labour. India's planned path to development with state and public sector playing a major role emphasized on industrial development. This created a demand for new set of skills in various sectors of economy which were not currently available.

The policy makers had envisioned that large pools of human resource were going to enter into labour market every year, majority of whom would be unskilled school dropouts from rural areas without any functional and marketable skills. To equip them with vocational and functional skills, it was thought of linking this large labour force with the industrial establishments for learning of several skills and trades. In order to augment the demand of skilled labour in the emerging industrial activities, and with a view to imparting tangible skills-in-demand to the aspiring youth (school leavers and drop outs) entering into the labour market, the Government of India enacted Apprenticeship Training Scheme (ATS) through The Apprentices Act, 1961 to utilize and provide training facilities in establishments.

The Apprentice Act, 1961 gave an opportunity to the youth in the age group of 14 to 21 years to practically learn the skills while they were paid wages for a stipulated period ranging from six months to four years depending on the type of skill and their previous exposure to formal vocational training.

Most of the training was to be done on-the-job while working for an employer who helps the apprentices learn their trade, in exchange for their continuing labour for an agreed period after they become skilled. The Apprentices Act, 1961 was enacted with the following objectives:-

- To regulate the programme of training of apprentices in the industry so as to conform to the prescribed syllabi, period of training, etc. as laid down by the Central Apprenticeship Council; and
- To utilize fully the facilities available in the industry for imparting practical training with a view to meeting the requirements of skilled manpower for industry, in order to achieve synergy among all the stakeholders.

1.3.2 Amendments to Apprenticeship Training Scheme Act, 1961

The Act was first amended in 1973 to include training of Graduate and Diploma Engineers as "Graduate" and "Technician" Apprentices. The Act was further amended in 1986 to bring within its purview the training of the 10+2 vocational stream as "Technician (Vocational)" Apprentices.

In 1997, various sections of the Act were further amended as regards definition of "establishment" and "worker", termination of apprenticeship contract, number of apprentices for a designated trade, practical and basic training of apprentices, obligation of employers, penalty for contravening the provisions of the Act and cognizance of offences.

Various sections of the Act were again amended in 2008 as regards reservation for candidates belonging to other backward castes (OBCs). The main provisions of the Act are:-

Central Apprenticeship Council (CAC) has been established as an apex statutory tripartite body to advise the Government on laying down of policies and prescribing norms and standards with respect of Apprenticeship Training Scheme (ATS). Union Labour and Employment Minister is the Chairman, and the Minister of State for Education in the Union Ministry of HRD, is the Vice Chairman of CAC.

As per The Apprentices Act 1961, as amended in later years, certain category of establishments as identified by the BOAT/BOPT of the concerned region(s) are identified to engage certain number of freshly passed out Engineering Graduates, Diploma holders and Technician (Vocational) Apprentices for one year Apprenticeship training without guarantee of job after completion of training. However, employers are advised to give preference to ex-apprentices for their own benefit. The salient features of apprenticeship training are as follows:

- Apprentices are given opportunity and exposure to the latest techniques, processes, and technology of the establishments during the tenure of Training
- Practical exposure in their field of specialization
- Students are allowed to discontinue Training on securing job
- Upon successful completion of one-year training, the trainees are awarded a Completion Certificate by BOAT/BOPT. This certificate is treated as one year industrial/practical experience for securing a permanent job elsewhere.

Employers/Establishments engage fresh batch of trainees every year, who are found eligible as per the prevailing practice, and approved by BOAT/BOPT. Employers are required to pay the stipend as prescribed by the Government of India and 50 per cent of the minimum rate is reimbursed to the employers on quarterly/half-yearly/yearly basis.

No person shall be engaged as an apprentice to undergo apprenticeship training in a designated trade unless such a person or his/her guardian (if he/she is a minor) has entered into a contract of apprenticeship with the employer.

1.4 Genesis and Significance of National Apprenticeship Training Scheme (NATS)

India is a country with strong formal education sector and high levels of educational attainment. In the domain of professional education, a significant amount of analytical knowledge is embedded in the degrees/diplomas which give more value to qualification/certification than the actual skills needed in an industry. This is perceived as skill-deficient manpower entering into labour market, and leads to complaints from Establishments that the professional manpower is "not industry-ready". As a result there were series of brainstorming sessions/interactions among the stakeholders, mainly, among the supply-side and demand-side players of the

professional/technical/vocational skilled human resources. This problem was well documented in the empirical research reports of skills and employment, employability etc. One of the available literature[4] describes the above problem as India's labour transitions, as illustrated in three broad steps such as: (a) Matching (connecting supply to demand - Employment reform), (b) Mismatch (repairing supply for demand- Employability reform), (c) Pipeline (preparing supply for demand - Education reform, a fundamental reforms warranting urgent structural changes at educational level).

Development of human resources is crucial for the industrial development of any nation. Upgradation of skills is an important component of human resource development policy. Training imparted in institutions alone is not sufficient for acquisition of skills and it needs to be supplemented by training in the actual work environment.

Education and skills training play a crucial role in the process of developing human resources for industrialization. Realizing the importance of education and training in fulfilling the educated and trained manpower needs, several developed countries such as Germany and Japan deliberately set and organizes their education systems in order to speed up the modernization of their economies (Timmons, 1988). Grayson voiced a similar expectation for education and training to improve the future economy of the United States of America as he argued, "America's ability to compete in the world's market place rests on the education of its people, but the educational system needs to be improved to assure a bright economic future" (Grayson, 1988, as cited in Razik and Nalbone, 1990).

In many other countries, especially developing countries, the responsibility for developing human resources rely heavily on the government. This is particularly true in the case of Malaysia, where the increase of government-led training capacities as well as budget allocations can be seen as indicators. For example, the number of public skills training institutes has increased from one hundred in 1995 to more than two hundreds in the year 2000 (Othman and Morgan, 1998). In essence, various measures were taken to increase skills training capacity, including the continuous supports for the construction of new training institutes.

However, these measures were inadequate to meet the demand for skilled manpower as the growth in skilled manpower demand over recent years has outstripped the supply capacity of public training institutions, although training capacity had continuously been increased. Furthermore, it is quite impossible for these institutes to provide training to meet the specific needs of a particular industry or enterprise due to the complexity of each industry.

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[4]India Labour Report-2008: Team Lease Report

The apprenticeship programme for the training of skilled manpower provides a good example where close partnership between the training institutions and employers can be fostered. Mathews regarded apprenticeship as "a model of skill formation" which involves a combined on-the-job and off-the-job or institutional training, a guaranteed employment throughout the training period, and a lower rate for indentured apprentices (Mathews, 1989). Coy saw apprenticeship as "the means of imparting a specialized knowledge to a new generation of practitioners … It is a means of learning things that cannot be easily communicated by conventional means" (Coy, 1989). Liepman described apprenticeship as beyond training when she argued that it is "not merely the future craftsman's training, [but] it is also used as a means for other ends, pertaining to the sphere of industrial relation in general" (Liepman, 1960).

The concept of apprenticeship, as described by Liepman, "is characterized by duality of its nature: the apprentice is both learning and earning, the employer is both training him and paying him for productive work". She further explained that "apprenticeship… forms part of the system of education and part of the economic system and the adequacy of apprenticeship turns largely upon its success in harmonizing the interests of education and the production" (Liepman, 1960).

The systematic literature review conducted by Cabral and Dhar (2019) has identified the significance of skill development wherein the implementation of such schemes mitigate poverty, utilize demographic dividend, socio-economic empowerment of under-privileged sectors, achieve economic growth, reduce social challenges, and economic inclusion. As far as institutional mechanism is concerned, the National Skill Development Corporation (NSDC), Ministry of Skill Development and Entrepreneurship and the scheme - Prime Minister's KaushalVikasYojana (PMKVY) have showed considerable results, but not achieved the expected outcomes. The study argues for the requirement of skill development to achieve technology adoption and women empowerment in the country.

In a study conducted by the World Bank in 2009 across sectors and regions in India, the survey asked 157 employers to rate their satisfaction with new engineering hires with respect to 25 skills. The results confirm a widespread dissatisfaction with current engineering graduates. Over 64 percent of employers hiring fresh engineering graduates have expressed dissatisfaction about the quality of the new hires (Blom and Saeki, 2011).

The NASSCOM-McKinsey report also points out that only 26 percent of India's engineering graduates were employable. A New Delhi-based employment solutions company, Aspiring Minds, conducted employability–focused study based on 1.5 lakh engineering students and found barely 7 per cent of them suitable for core engineering jobs. As many as 97 per cent of graduating engineers want jobs either in software engineering or core engineering. However, only 3 per cent have suitable skills to be employed in software or product market, and only 7 per cent can handle core engineering tasks (Bijeesh, 2016).

On the other hand country's demographic dividend is skewed in favor of youth and country is going to have more than 60 percent of the population under the working age (Aiyar and Modi, 2011). India is going to be the largest country in the world with maximum share of young population in coming next two decades. As per the Census of India 64 percentof the country's total population will be under the age category of 15 years to 59 years in 2021while United Nations Population Division, puts the figure at 63.5 percent in 2020. This implies that there will be huge number of new entrants into the labour market in the coming years. A study by Asian Development Bank in 2008 estimated that nearly 12 million youths are entering into the labour market every year. In order for India to exploit this demographic advantage in the future, there is a need to create a model to impart vocational education and training that is flexible, sustainable, inclusive, and creative. The challenge therefore facing the country is how to train and equip this young population with ways and means of gaining productive and meaningful employment (Majumdar, 2008). Country is having more than 4400 engineering and technology institutions offering graduate degree programmes and equal number of Polytechnics together they enroll to the tune of 3 million students. Around 1.0 million engineers are coming out from these institutions and entering into the job market every year. However, as stated previously, all the pass-outs are not industry-ready and significant skill-gap is observe amongst them.

Long before the above problems were identified, Government of India, with its vision for development of technical and skilled manpower for growing industrial sector, has brought policy framework to fill the gap between demand-supply of Industry-ready human Resources, and to increase the degree of employability in the booming industrial sector, especially manufacturing sector.

On the recommendation of the Scientific Manpower Committee of the Government of India an Apprenticeship Training Scheme for Engineering Graduates and Diploma holders was introduced for the first time in India in 1950. The scheme known as Practical Training Stipendiary Scheme (PTS) was operated by the Ministry of Education, Government of India. This scheme, which was purely on voluntary basis, placed limited number of engineering graduates and diploma holders in the industries for practical training on a monthly stipend. The stipend was fully borne by the Government of India.

Advancement in industrial process and technologies from mid-1970s has changed the dimensions of the skilled manpower, and the need for new-age skilled technicians/engineers etc. Due to continuous and rapid changes in technologies and processes, and due to India's transformation from traditional industrial technologies to modern/high-tech establishments, the workforce needs at the high skill-level has become more dynamic. Though, there was a network of interaction among the Industries and Establishments to mold the syllabi and to make the curriculum industry oriented, there were many gaps in the system. As a result, it was felt by all the stakeholders at the demand and supply side of the skilled workforce, that there is a genuine need for exposure(for a reasonable duration) of processes, techniques, technologies of the

modern establishments to the outgoing graduates of all technical institutes, i.e., engineering colleges and polytechnics. This was felt inevitable to the new-breed of engineers/technicians to make them "industry-ready", and to mold their academic knowledge with practical exposure in a synergetic manner in the high-tech environment of processes/technologies.

After taking cognizance of the above facts and, Government of India introduced National Apprenticeship Training Scheme Act in the year 1961 in India.

The APPRENTICES ACT, 1961, was enacted in December, 1961 to make it statutory obligation for each and every establishment in Government, Public and Private Sector to engage Trade Apprentices for certain specified period and imparting training to the apprentices.

This was a landmark policy framework to prepare skilled workforce for industrial sector. This Act gives an opportunity to the vocational graduates at ITI to gain extra skills at the enterprise level by direct involvement in production and other processes at the work site.

This apprenticeship training is a one-year programme equipping technically qualified youth with practical knowledge and skills required in their field of work. The Apprentices are imparted training by the organizations at their place of work. Trained Managers with well-developed training modules ensure that Apprentices learn the job quickly and competently. During the period of apprenticeship, the apprentices are paid a stipend amount, 50% of which is reimbursable to the employer from the Government of India. At the end of the training period the apprentices are issued a Certificate of Proficiency which can be registered at all employment exchanges across India as valid employment experience. The apprentices are placed for training at Central, State and Private organizations which have excellent training facilities. National Apprenticeship Training Scheme is one of the flagship programs of Government of India for Skilling Indian Youth.

The Act was amended in 1973 to include all graduates from Engineering Colleges and Polytechnics as Apprentice Trainees, who are called as Graduate Apprentices (GA) and Technician Apprentices (TA). Later on, the Act was amended further in 1986 to include all pass-outs from Vocational Schools who are known as Technician (Vocational) Apprentices. In 1992 there was an Amendment of Apprenticeship rules. The Apprentices Act was again amended in 2014 with a focus on improving transparency, execution, and to remove the bottlenecks at implementation stage. Since June 2017, the implementation of apprenticeship training for Technician (Vocational) Apprentices has been transferred to the Regional Directorate of Apprenticeship Training, Ministry of Skill Development and Entrepreneurship.

As per the provisions of The Apprentices Act, 1961 as amended in 1973, and 1986, it is statutory obligation on the part of every employer (State and Central Govt. Departments/undertakings/autonomous organizations, and Private organizations etc.) to engage a prescribed number of Degree/Diploma holders in Engineering/Technology and Higher

Secondary Vocational Certificate Holders in designated subject fields as approved by Central Apprenticeship Council as (i) Graduate, (ii) Technician and (iii) Technician (Vocational) Apprentices under the Act.

1.4.1. Execution and Implementation of NATS

Execution and implementation of this amended act is done by MHRD through four Regional Boards, i.e. in Southern Region, Northern Region, Western Region and Eastern Region located at Chennai, Kanpur, Mumbai and Kolkata respectively. The Boards at South, West, and Northern Region are called Board of Apprenticeship Training (BOAT), and the one at Eastern Region is called Board of Practical Training (BOPT). All these regional boards are autonomous bodies under the administrative control of the Ministry of Human Resource Development (MHRD), and the anchoring and regulation of the Act is under the Ministry of Skill Development and Entrepreneurship, and Central Apprenticeship Council (CAC) which is an apex Statutory Body under The Apprentices Act, 1961.

This particular segment of The Apprentices Act manned by MHRD is popularly called National Apprenticeship Training Scheme (NATS).

1.4.2. Organizational Set up of BOAT

Board of Apprenticeship Training (BOAT) is an autonomous organization fully funded by Central Government and registered under The Societies Registration Act, 1860. It functions under the Ministry of Human Resource Development (MHRD), Department of Higher Education, Government of India, New Delhi. Deputy Secretary / Deputy Educational Adviser (T), MHRD, New Delhi, is in-charge of all the four Regional Boards.

Board of Governors: At the regional level, functions of the Board are monitored by the Board of Governors (BOG) comprising of members representing the State Governments, Private Sector, and Public Sector, apart from the Central Government representative. Normally, a prominent industrialist from the Region holds the post of Chairman of the BOG, and is nominated by the Government of India. The BOG guides the Board for smooth and effective implementation of the apprenticeship training scheme. The Board is responsible to the BOG in all matters of administration. The administrative powers of the Board vest with the Board of Governors. The tenure of the Board of Governors is for a period of three years.

Some details about four regional offices are as given below:

BOAT Western Region, Mumbai, is responsible for implementation of The Apprentices Act, 1961 (as amended in 1973 and 2014) in the Western Region comprising of five states viz. Chhattisgarh, Goa, Gujarat, Madhya Pradesh, Maharashtra, and two Union Territories of Daman - Diu, and Dadra Nagar Haveli. Officers of this Board visit the industrial establishments

functioning in the Region and on the basis of the manpower strength and training facilities, fix up the quota of apprentices in the subject fields related to the nature of the business carried out by these establishments. The Government of India nominated Prof. Dr. P. H. Sawant, Principal, Sardar Patel College of Engineering, Mumbai, as the Chairman of the Board on 07.11.2016. The Director of Training is the Chief Executive Officer of the Board, and a Deputy Director of Training, four Assistant Directors of Training, an Administrative cum Accounts Officer, and supporting staff work with this organization.

BOAT Northern Region was established in the year 1970 in Kanpur. Since 1973, the Apprenticeship training of Engineering Degree and Diploma holders was brought under the purview of Apprentices Act 1961 by Apprentices (Amendment) Act 1973. Subsequently, in 1986 the Apprenticeship training of 10+2 passed Vocational stream candidates was also brought under the purview of the Act by an amendment in Apprentices Act 1961. Since then, the Board continued to deal with the Apprenticeship Training Scheme as per Apprentices Act 1961 with amendments from time to time in the states of Uttar Pradesh, Rajasthan, Haryana, Punjab, Jammu & Kashmir Himachal Pradesh, Uttarakhand, National Capital Territory of Delhi and Union Territory of Chandigarh. Prof. D.S. Chauhan from GLA University was appointed as chairman of the Board w.e.f. 7.11.2016.

BOAT Southern Region covers the States of Andhra Pradesh, Telangana, Karnataka, Kerala and Tamil Nadu and the Union Territories of Puducherry and Lakshwadeep. During 2017-18, 46569 apprentices were placed for Apprenticeship Training by BOAT (Southern Region. The Board has been reconstituted w. e. f.7.11. 2016, and its term is for three years. Shri C.R. Swaminathan, Former CEO, PSG Industrial Institute, Coimbatore has been nominated by the Central Government as Chairman of the Board for a period of three years w.e.f. 07.11.2016.

BOPT (Eastern Region) covers the States of West Bengal, Bihar, Jharkhand, Odisha, Assam, Nagaland, Manipur, Tripura, Arunachal Pradesh, Mizoram, Meghalaya, Sikkim and Union Territory of Andaman &Nicobar Islands. Shri Sandipan Chakravortty, Chairman, TM International Logistic Ltd. was appointed as Chairman of the Board of Governors w.e.f. 07.11.2016.

1.5: Objectives of NATS

Main objectives of NATS are as follows:[5]

1) To fulfill/match, any gap, in so far as the practical/hands on experience of fresh graduate engineers, diploma holders in engineering and 10+2 vocational pass-outs are concerned, which they do not acquire during their regular studies under normal practice.
2) To establish liaison between the industries and technical institutions to improve the quality of technical education and develop human resource for the industries.
3) To secure facilities for training in different establishments: in private, Government and public sector organizations for the products of technical institutions.
4) To make selections for placement from among the applicants who wish to undergo training
5) To prepare training modules for the trainees in consultation with the industry, trainees and other agencies concerned
6) To arrange for dissemination of information on various aspects of practical training through lectures, films and other media of communications
7) To award certificates as may be appropriate to those who successfully complete the training course.
8) To enhance the technical competency to improve confidence level of qualified youth.

1.6: Important Features of NATS

1.6.1 Educational Qualification:

Graduate Apprentices: Degree in Engineering/Technology from a college/university/institute recognized by a University (University means any university recognized/empowered to award such degrees. Institute means any autonomous institute, deemed to be university, and professional bodies recognized by central government).

Technician Apprentice: Diploma in Engineering/Tech granted by a State Board/Council of Technical Education/University/Institute recognized by State/Central Government.

Technician (Vocational) Apprentice: A Certificate in vocational course involving two years of study after the completion of the secondary stage of school education recognized by the State Council of Vocational Education/AICTE/State Board of Technical Education.(Transferred to the Regional Directorate of Apprenticeship Training, Ministry of Skill Development and Entrepreneurship since June 2017.)

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[5]As per the literature on NATS available with MHRD, and Four Regional BOATs and their respective websites

Above categories of apprentices also covers sandwich courses in each of the above categories.

1.6.2 Period of Training and Stipend:

During the period of one year of apprenticeship training, the apprentices are paid a monthly stipend by the employers. At present the rates of stipend are as follows:-

Graduate Apprentice	4,984/-
Graduate Apprentice (Sandwich)	3,542/-
Technician Apprentice	3,542/-
Technician Apprentice (Sandwich)	2,890/-

An enhancement in the monthly rate of stipend to Rs. 9000/- , Rs.8000/-and Rs. 7000/- for Graduate Apprentice (GA), Technician Apprentice (TA), and Technician (Vocational) T(V)A respectively is under consideration by MHRD. Technical (Vocational) apprentices have been transferred to Ministry of Skill Development w.e.f. 21.9.2017.

As per the provision of the Act 50 per cent of the minimum prescribed stipend has to be reimbursed to Establishments from the BOAT for the apprentices engaged by them.

1.6.3 Selection Procedure and No. of Seats allocation:

Every establishment is allotted a variable quota of apprentices to be accommodated based on the number of skilled workforce. It is in the range of 2.5 per cent to 15 per cent of the total workforce.

All eligible and desirous candidates are to enroll for apprenticeship by registering through a centralized web portal (https://portal.mhrdnats.gov.in). The BOAT Regional Offices facilitate and counsel the candidates based on the options of the candidates to enroll in the Establishments as per the prevailing norms and rules. Candidates are identified either directly or by formal/oral selection methods by Establishments.

1.6.4 Other Operational Framework of NATS:

Stipend to the extent of 50 per cent is reimbursable to Establishments from the BOAT/BOPT. Apprentice trainees are governed by salient features of ATS Act for the duration of the training.

Monitoring of performance is recorded on regular intervals and through stipulated pro-formas. Training Cell/Training Officers are designated as responsible officers to promote skill enhancement to such trainees. At the end of the tenure, Trainees are awarded Proficiency Certificate by BOAT/BOPT on the recommendations of the Establishment. This one year certificate is treated at par with a full-fledged experience certificate, and this facilitates skill development of graduates for a gainful and suitable employment in the labour market.

Thus, NATS, through ATS Acts (1971, 1983, and 2014) regulates the programme of training of apprentices in the industry so as to conform to the syllabi, period of training etc. as laid down by the Central Apprenticeship Council and to utilize fully the facilities available in industry for imparting practical training with a view to meet the requirements of skilled manpower for industry. This scheme plays a synergetic role, since on the one side, industry gets freshly passed-out technocrats who can be trained according to the industry's own technical need, on the other side, freshly passed-out candidates get practical exposure to enhance their technical/managerial skills.

1.7: Implementation Process and Operational Mechanism

Central Apprenticeship Council is the apex statutory body to advise the Government on laying down of policies and prescribing norms and standards in respect of Apprenticeship Training Scheme. It is a tripartite body constituted by members of Government of Central and State/UTs, Employers and Trade Unions. There are four categories of apprentices i.e., Trade apprentice under DGE and T and Graduate, Technician Apprentices under MHRD and Technician (Vocational) Apprentices under Ministry of Skill Development and Entrepreneurship.

There are 163 trades that have been designated for apprenticeship training for graduates and technicians, whereas there are 137 trades for technician (vocational) training.

The MHRD is responsible for implementation of the Apprentices Act in respect of the above cited categories of apprentices in all PSU/Central, State Government and private undertakings. It is done through four Regional Boards of Apprenticeship Training located at Kanpur, Kolkata, Mumbai, and Chennai. The Regional Boards at Chennai, Mumbai and Kanpur are known as Board of Apprenticeship Training (BOAT) and the Eastern Region Board at Kolkata is known as Board of Practical Training (BOPT). Each Board is headed by a Director who acts as Regional Central Apprenticeship Adviser for the apprentices governed by MHRD.

Fresh Engineering Graduates, Diploma holders and sandwich course students who want to enroll themselves for apprenticeship training have to register themselves through the NATS portal www.mhrdnats.gov.in within three years after passing out their final examination. They have to fill in personal information in the given Performa and upload scanned copy of final year mark sheet /degree/diploma certificate and proof of identity such as Aadhaar etc. these uploaded documents are verified by the Board. After verification, the aspirant can apply to the companies related to his/her branch online through the portal. The name of the aspirant appears on the dashboard of the company concerned which can arrange for selection process under intimation to the office of Board. (For Details refer https://pmil.in/wp-content/uploads/2019/07/NATS-Registration-Manual.pdf)

Institutions interested in availing the benefits of this scheme should register themselves with the NATS Web Portal. Tie up with Boards of Apprenticeship Training/ Board of Practical Training, exposes institutions to the current market expectations from industries, which help them tailor

their curriculum and training programmes to suit the present scenario (For details refer manual at http://mhrdnats.gov.in/sites/default/files/NATS_User_Manual_Inst_Enrol.pdf)

The establishments possessing the requisite infrastructure and trained managers can engage apprentices by registering themselves through NATS portal. Selection of apprentices is solely the prerogative of the employer. After a candidate has been selected as an apprentice and has joined the industry/establishment, a contract is created by the industry through NATS portal for acceptance by the Board.   (For details refer

http://mhrdnats.gov.in/sites/default/files/NATS_User_Manual_Est_Enrol.pdf).

The NATS portal can be accessed by four types of users — Educational Institutions, Establishments, BOAT/BOPT Officials and Candidates.

The National Apprenticeship Training Scheme (NATS) portal allows stakeholders to gain detailed information on the Apprenticeship Training Scheme (ATS), and access services provided by the Board of Apprenticeship and Training (BOAT)/Board of Practical Training (BOPT). The stakeholders can use the portal as described below:

• Technical Institutions can upload information about their students and view the details related to their selection, sponsorship and placement status in different industries or establishments. They can also view details of available training slots based on subject, branch and fields.

• Establishments can view information on how to enroll apprentices for the training scheme, receive notifications for new training positions and recruit apprentices, manage various reports posted to BOAT/BOPT, and submit apprenticeships, contracts, and claims.

• Employees of BOAT/BOPT can use the portal to send a list of candidates to industries or establishments for apprenticeship training, issue Registration Numbers and certificates, display list of industries with vacancies for apprenticeship training, view details on claims reimbursement, and send all correspondence related to NATS.

• Candidates or students can use the portal to enroll for the Apprenticeship Training, receive information on available Apprenticeship vacancies and their benefits, employment news, interview tips, and view information related to their reports and certificates.

As stated in previous sections, through the above mechanism of training through NATS, the candidates receive tangible benefits, some of which are as follows: (a) the national policy on education has stated that, practical training should form an integral part of technical education; (b) apprenticeship training is the important component of technical education to bridge the gap in so far as the practical/hands on experience of fresh graduate engineers, diploma holders in engineering which they do not acquire during their regular studies; (c) bridging the gap of last mile skilling at the establishment, which is otherwise deprived at Institutional level; and (d)

providing exposure and opportunity to graduates to the practical aspects of their professional path, which is a stepping stone of their career.

The explicit and tangible benefits for the entire country in general and to the establishments/industries in particular are many. Some of them are (i) training a pool of future-ready/job-ready human resources on latest technologies, (ii) cost-effective training facilities at the Industries which are otherwise not available at College level, (iii) preparing demand-driven skilled human resources with sufficient exposure in industries, (iv) enhancing the productivity, and matching of skills at establishment level etc.

Given the above background the need was felt to get an all India evaluation of this scheme. The task was awarded to the National Institute of Labour Economics Research and Development (NILERD) by Ministry of Human Resource Development (MHRD), Government of India through Board of Practical Training, Eastern Region, Kolkata. The next chapter highlights the objectives and methodology of the study.

CHAPTER-II

OBJECTIVES, SCOPE, COVERAGE, AND METHODOLOGY

2.1 Need for the Present Study

The present study was awarded to National Institute of Labour Economics Research and Development. The Institute has earlier conducted separate evaluations for Western, Northern and Southern regions. The study intends to examine the issues related to NATS and identify the areas for improvement of the effectiveness of NATS by tapping all the stakeholders of the scheme, i.e., Apprentices (all types Ex and On-roll), Establishments (of all types/categories), Institutes (all types. As BOAT/BOPT are the implementing bodies of NATS,view point and issues of these organizations are also documented. In view of the above, the study has the following objectives:

2.2 Objectives of the study:

To examine the impact of the scheme on employment

- To assess the input use efficiency of the scheme
- To analyze requirement and availability of the apprentices
- To assess the scope and coverage of the scheme
- To assess the convergence of other similar schemes and training programs of various Ministries and Departments
- To assess the relevance of the scheme to achieve the national priorities and Sustainable Development Goals (SDGs)
- To identify the bottlenecks in implementation of the scheme
- To recommend remedial steps to improve the effectiveness of the Scheme

2.3   Scope and Coverage

The study was conducted in all the states across the country covered under four regional Board of Apprenticeship Training/Board of Practical Training. The sample covered the following stakeholders:
i) Tracers (NATS Ex-apprentices)
ii) NATS On-Roll Trainees
iii) Students Control Group (Student opted NATS but could not get enrolled)
iv) Establishments – Engaging Apprentices
v) Establishment control group - Notified Not Engaging Apprentices
vi) Regional Offices of BOAT
vii) Educational Institutions

2.4 Sampling

Notified establishments which are engaging apprentices were considered for selection of the sample. The list of such establishments was obtained from respective BOAT/BOPT offices. A sample size of 348 establishments was obtained on the basis of confidence level of 95% and margin of error 5%. The sample included CPSUs, SPSUs and Private sector establishments. An effort was made to distribute proportionately the sampled establishments among the regions; the region wise respective share of establishments is: SR-97, ER-56, NR-101 and WR-94. Further, within the region, these establishments were distributed proportionately according to the type of their ownership i.e. Central Government owned, State Government owned and Private sector owned. An effort has also been made to include all the states in the region. North eastern state excluding Assam will be considered as one state. Trainees covered in the sample consisted of on-roll apprentices, control group and ex-NATS apprentices.

A tracer study of NATS Ex apprentices has been conducted to examine the impact of training on employability. Educational institutions, both degree and diploma, were also surveyed in the districts where sample establishments fell. To document the impact a control group has been formed for the purpose- those establishments which are notified for providing apprenticeship training but are not engaging apprentices and students who wanted to opt for the apprenticeship training but were not enrolled have been included in the control group.

2.5 Methodology:

In order to address the above objectives, the study covered extensively all the states and UTs. The establishments were enlisted by state and by type of management. From each state, the industries were classified broadly into (i) central, (ii) state, and (iii) private units for sampling purpose.

Along with three types of establishments, the two categories of Apprentices ((i) graduates, (ii) technicians) and also those establishments who have not taken apprentices (as Control Group) were also covered in our sample. The opinions were collected from on-roll apprentices and those who have completed apprenticeship training (not more than 3 years ago) on random basis. Primary data was collected through structured and open-ended questionnaires canvassed among all the stakeholders.

2.6 Focused Group Discussions (FGDs):

As part of methodology, FGDs were conducted with major stakeholders. In addition, BOAT /BOPT gave insights into the NATS scheme through rigorous interactions on the issues and areas for further improvement of the scheme in its implementation.

2.7 Indicators: The following indicators have been examined to meet the objectives of the study:

- Financial Resources with BOAT/BOPT-availability and utilization
- Critical Gaps in the target, achievements
- Optimum Size of Staff in the BOAT/BOPT
- Number of member in governing Board of regional office
- Sectoral coverage of the scheme
- Number of notified seats
- Number of seats utilized
- Number of applications received for NATS training: sector wise details
- Number of allocated seat for apprentices
- Reasons for not accommodating all requests received
- Review of other similar schemes of M/O HRD
- Review of other similar schemes of M/O SDE
- Method of enrollment: online/offline
- Maintenance of Records and Returns
- Extent to which the training curriculum for different subject fields has been matched with the needs of industry
- Addition of Subject Field added in the training list
- Difficulty faced by establishment in compliance of the Act
- Difficulty faced by establishment in getting requisite number of Apprentices
- Are there similar schemes in which establishment is providing training
- Other Ministries providing similar training
- Absorption of apprentices in the Establishment
- Adequacy of stipend paid to trainees
- Intensity of acquisition of skills of the apprentices
- Future Scenario/Technological Developments
- Matching of training with subject studies in the college
- Employability of trainees after completion of training
- Waiting period for employment
- Relevance of training in employment
- Training quality from trainees perspective
- Past evaluations of the scheme done etc.

The next chapter deals with analysis of data received from BOAT/BOPT on various issues.

CHAPTER-III

A Glance at Regional Offices Managing NATS

3.1   Introduction: The earlier chapter provides complete overview of the NATS and its implementation process. There are three major stakeholders of NATS - students, industry and institutions.

3.1.1   Students: NATS offers an opportunity for students to get trained in some of the best organizations in the Central, State and Private Sectors. Degree and diploma holders in engineering and technology can apply for Apprenticeship Training after enrolling themselves with the NATS web portal.. At present 162 subject fields have been designated by the Central Apprenticeship Council (CAC) for imparting apprenticeship training to degree and diploma holders of engineering and technology. The period of training is one year. Stipend is paid during the training period, 50% of which is reimbursed to the employer by Government of India. Students can register for apprenticeship training through the NATS web portal. Students are advised to attend the Apprenticeship fairs that are held periodically to get selected for training. Selection of apprentices for apprenticeship training is the employer's prerogative. As per MHRD's official website there are 945442 students who have benefitted from NATS[6].

3.1.2   Industry: The National Apprenticeship Training Scheme, a flagship programme from Government of India aims at skilling India to meet future requirements. This scheme bridges the gap existing in the market place, between the employer's requirement in an employee and the talent pool of students available in the market. It allows the organizations to recruit raw, technically qualified candidates, train them for one year with subsidy from Government of India and absorb them on regular roles if the need arises. The apprentices are governed solely by the Apprentices Act, 1961. The organization engaging apprentices should possess the requisite infrastructure and trained managers to impart training to the apprentices. The National Apprenticeship Scheme thus helps in building a steady pool of talent, which is industry ready; to meet the Human Resources needs of an organization, at an optimum cost. Selection of apprentices is solely the prerogative of the employer. As per MHRD's official website there are 13597 industries registered with NATS.

3.1.3   Institutions: The National Apprenticeship Training Scheme helps technical institutions in placing students, passing out of their campuses, in leading organizations for Apprenticeship Training. Central, State and Private organizations engage candidates for Apprenticeship Training. Institutions interested in availing the benefits of this scheme should register themselves with the NATS web portal. Institutions traditionally located in districts/taluks, where industrial

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[6]http://mhrdnats.gov.in/ accessed on October 28, 2019.

clusters are lacking face difficulties in placing their students. This Scheme helps these institutions to get better access for opportunities to their students, currently available to urban candidates. Tie up with Boards of Apprenticeship Training/ Board of Practical Training, exposes institutions to the current market expectations from industries, which help them tailor their curriculum and training programs to suit the present scenario. As per MHRD's official website there are 2565 institutions registered with NATS.

Table3.1 shows the number of students, industries and institutions registered with NATS during the period 2016-17 and 2017-18. The number of students enrolled has increased by around 79 percent, industries by 75 percent and institutions by 38 percent.

Table 3.1 Enrolment during 2016-17 and 2017-18

Stakeholders	Enrolment	
	2016-17	**2017-18**
Students	236321	422805
Industries	2696	4724
Institutions	2453	3389

Source: http://mhrdnats.gov.in/

3.2   Budgetary Allocation and Expenditure pattern of the scheme:

As has been mentioned in chapter one that MHRD implements this training scheme through four regional offices located at four different regions of the country**.** The following section depicts region-wise expenditure pattern of BOAT/BOPT. The budgetary allocations are made under four heads for the regional offices viz. salary head, non-salary head, stipend to trainees which is reimbursed to the establishments and miscellaneous head.

3.2.1   Northern Region

Table 3.2.(a) provides Salary and Non-salary budget allocation and expenditure pattern for BOAT Northern Region. It can be   observed that revised estimates are higher for all the four years under consideration as compared to budget estimates. When we look at the expenditure it is observed that actual expenditure was less than the budget and revised estimates under both salary and non-salary head. A glance at expenditure pattern of stipend in table 3.2. (a & b) shows that actual expenditure was lower than budget and revised estimates from 2015-16 to 2017-18 but showed nearly 3.8 times increase in 2018-19.

Table 3.2 (a): Budget Allocation and Expenditure Pattern for Northern Region (Salary and Non-Salary)   (Rs. in Lakhs)

Year	Salary			Non Salary		
	BE	RE	AE	BE	RE	AE
2015-16	210.50	369.00	199.08	70.59	149.00	94.52
2016-17	203.00	434.13	255.00	131.55	180.00	98.40
2017-18	250.00	495.11	233.89	230.00	195.00	187.16
2018-19	250.00	387.66	250.91	110.00	207.75	138.17

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

Table 3.2 (b): Budget Allocation and Expenditure Pattern for Northern Region (Stipend and Miscellaneous) (Rs. in Lakhs)

Year	Stipend			Miscellaneous		
	BE	RE	AE	BE	RE	AE
2015-16	1310.68	3005.00	1245.03	25.00	90.40	19.99
2016-17	1310.68	5400.00	1396.48	10.00	94.00	13.44
2017-18	9360.00	9360.00	1202.50	20.00	28.50	10.44
2018-19	1065.00	1065.50	4036.17	60.00	60.00	6.23

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

3.2.2   Southern Region

As far as expenditure pattern of southern region is concerned it is observed that actual salary expenditure has been less than the budget and revised estimates in all the years except 2015-16. On the other hand, non-salary expenditure does not reflect any such pattern. The actual expenditure under non-salary head was more than the budget and revised estimates in 2015-16 and nearly 2.5 times the estimates in 2016-17. As far as stipend is concerned the actual expenditure was higher than estimates for the period under study.

Table 3.3 (a): Budget Allocation and Expenditure Pattern for Southern Region (Salary and Non-Salary)

Year	Salary			Non- Salary		
	BE	RE	AE	BE	RE	AE
2015-16	409.88	438.39	438.66	125.93	253.08	128.46
2016-17	598.07	351.85	262.17	97.09	334.52	239.19
2017-18	350.00	466.29	313.11	100.00	329.50	211.65
2018-19	435.00	456.00	332.75	270.00	365.00	253.44

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

Table 3.3 (b): Budget Allocation and Expenditure Pattern for Southern Region (Stipend and Miscellaneous) (Rs. in lakh)

Year	Stipend			Miscellaneous		
	BE	RE	AE	BE(Rs. in Lakhs)	RE(Rs. in Lakhs)	Actual Expenditure
2015-16	4901.00	8104.48	4912.66	-	-	-
2016-17	4827.57	7862.90	4835.76	-	-	-
2017-18	5100.00	10100.00	2581.93	-	-	-
2018-19	#	8333.00	3757.07	-	-	-

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

3.2.3   Eastern Region

The expenditure pattern of eastern region reveals fluctuating trend for both salary and non-salary heads. As far as expenditure on stipend is concerned it has increased 1.7 times from 2015-16 to 2018-19. It is pertinent to mention here that revised expenditure for 2015-16 and 2017-18 remained same and 2017-18 and 2018-19 remained same i.e. Rs. 1600/- lakhs and Rs. 3000.00 lakhs respectively.

Table 3.4 (a): Budget Allocation and Expenditure Pattern for Eastern Region (Salary and Non-Salary) Rs. in Lakhs)

Year	Salary			Non Salary		
	BE	RE	AE	BE	RE	AE
2015-16	337.86	323.50	211.61	317.14	348.84	193.34
2016-17	317.60	304.58	240.31	375.62	627.08	184.38
2017-18	365.49	365.49	270.00	467.86	467.86	250.00
2018-19	402.04	402.04	225.00	489.99	489.99	341.81

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

Table 3.4 (b): Budget Allocation and Expenditure Pattern for Eastern Region (Stipend and Miscellaneous) (Rs. in lakhs)

Year	Stipend			Miscellaneous		
	BE	RE	AE	BE	RE	AE
2015-16	1600.00	1600.00	1297.36	0	0	0
2016-17	1600.00	1600.00	1309.51	0	0	0
2017-18	3000.00	3000.00	1125.00	0	0	0
2018-19	3000.00	3000.00	2257.51	0	0	0

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

3.2.4 Western Region

In western region expenditure on salary was more or less same in 2015-16 and 2016-17, showed a decline in 2017-18 and increased in 2018-19. The expenditure on non-salary showed a similar pattern for 2015-16 and 2016-17, however it increased in 2017-18 and decreased substantially during 2018-19. The expenditure on payment of stipend has been constantly more than the estimates for all the years under study.

Table 3.5 (a): Budget Allocation and Expenditure Pattern for Western Region (Salary and Non-Salary) (Rs. in lakhs)

Year	Salary			Non Salary		
	BE	RE	AE	BE	RE	AE
2015-16	197.80	197.80	184.82	126.35	131.35	81.24
2016-17	231.74	231.74	184.23	122.88	122.88	81.05
2017-18	190.00	220.00	151.29	195.00	265.00	90.49
2018-19	220.00	220.00	215.34	180.00	135.00	75.38

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

Table 3.5(b): Budget Allocation and Expenditure Pattern for Western Region (Stipend and Miscellaneous) (Rs. in Lakhs)

Year	Stipend			Miscellaneous		
	BE	RE	AE	BE	RE	AE
2015-16	2262.96	2251.45	2347.08	-	-	-
2016-17	2265.66	2265.66	2268.17	-	-	-
2017-18	2800.00	2098.18	2101.60	-	-	-
2018-19	2471.01	2471.01	2496.59	-	-	-

BE-Budget Estimate, RE-Revised Estimate, AE -Actual Expenditure
Source: Primary Survey, NILERD 2019

3.3   Growth and Coverage of Establishments by BOAT/BOPT

It has been observed from table 3.6 the percentage of establishments engaging apprentices has shown a declining trend.

Table 3.6: Percentage of Establishments engaging Apprentices (% with respect to identified)

Year	Central	State	Private	Total
2015-16	41.5	46.3	22.7	33.3
2016-17	46.0	39.3	23.1	31.4
2017-18	33.0	22.4	14.2	19.1
Average for 3 Years	40.0	35.3	19.8	27.6

Source: Primary Survey, NILERD 2019

Although 3.7 depicts that the number. of seats actually utilized has increased for CPSUs and private sector but when seen in terms of percentage of available seats no such trend is observed (Table 3.8)

Table 3.7 : No of Seats in Establishments under NATS and Actually Utilized

Year	No. of Seats in the Establishments				No. of Seats actually Utilized			
	CPSUs	SPSUs	Private	Total	CPSUs	SPSUs	Private	Total
2015-16	3461	5439	16469	25369	2392	4954	14300	21646
2016-17	3714	5884	18832	28430	2451	4516	19228	26195
2017-18	3734	5669	21496	30899	2779	3292	20369	26440
Total	10909	16992	56797	84698	7622	12762	53897	74281

Source: Primary Survey, NILERD 2019

Table 3.8: Distribution of Seats Utilized as percentage of Available Seats

Year	Central	State	Private	Total
2015-16	69.1	91.1	86.8	85.3
2016-17	66.0	76.8	102.1	92.1
2017-18	74.4	58.1	94.8	85.6
Average for 3 Years	69.9	75.1	94.9	87.7

Source: Primary Survey, NILERD 2019

3.4   Implementation of the Scheme by Regional Offices

In order to enhance the outreach of the scheme these offices are generating awareness amongst pass outs as well as educational Institutes by displaying about the scheme on their notice board, through web portal, notice Boards of Technical Institutes, advertisement, melas/camps etc. For identification of the establishments for taking trainees these offices are doing their own surveys, procuring list of establishments from Industries Department, using list provided by state Departments, through M/o Corporate Affairs, industry associations etc.

As far as percentage utilization of seats for different category (Table 3.9) are concerned it emerged that For SC category BOAT Northern region and BOPT Eastern region are utilizing less than 50 percent seats, BOAT Western region has utilized 51-75 percent of seats while seats were 100 percent utilized by BOAT Southern Region. For Scheduled Tribes, all regions show utilization of less than 50 percent. For OBCs except for Eastern Region (Less than 50) all other regions have 100 percent utilization.

Table 3.9 Percentage utilization of seats for different categories (in percentage)

Category	ER	WR	NR	SR
SC	Less than 50	51-75	Less than 50	100
ST	Less than 50	Less than 50	Less than 50	Less than 50
OBC	Less than 50	100	100	100
General	51-75	100	100	NA

Source: Primary Survey, NILERD 2019

In order to verify the compliance of the Act, the officers of the BOAT/BOPT periodically visit the establishments engaging apprentices to see compliance of the Act. For the period 2015-18 BOAT Northern Region reported 87 cases of non-compliance, BOPT reported 682 cases on non-compliance, 1027 cases were reported by BOAT Southern region while BOAT western Region reported only 2 cases. It was observed that periodicity of visits by officers does not vary across regional offices.

3.4.1 Availability of Human Resource at Regional Offices

For successful implementation of any task, availability of human resource is an important ingredient. Hence it was enquired from four regional boards whether they have sufficient human resources with them. Table 3.10 gives cadre-wise staff position in BOAT/BOPT

Table 3.10: Cadre-Wise Staff Position

Sl.No	Cadre	ER	WR	NR*	SR
1	Director	1 (1)	1(1)	1(1)	1(1)
2	Deputy Director	1 (1)	1(1)	1(1)	1(1)
3	Assistant Director	3 (3)	3(4)	4(6)	4(7)
4	Admin cum Accts. Officer	1 (1)	-(1)	1(1)	1(1)
5	Office Superintendent	1(1)	1(1)	0 (1)	1(1)
6	Stenographer$	2(3)	1 (3)	2 (4)	2 (3)
8	Jr. Accountant	1 (2)	1(1)	0 (1)	1(1)
9	Assistant	1(2)	-	1 (2)	- (2)
10	UDC	6 (7)	7 (7)	2 (4)	9 (12)
11	LDC	7 (9)	8 (8)	8 (9)	8 (22)
12	Driver	0 (1)	1 (1)	0 (1)	2 (2)
13	MTS	7 (8)	4 (4)	5(8)	1# (7)
14	PA to Director	1(1)			- (1)
15	Analyst	1(1)			3(3)
16	System Analyst				-(1)
	Total	33 (80.42%)	28 (87.5%)	25(64.10%)	34(52.31%)
Sanctioned		41	32	39	65

Note: Figures in () reflect number of Sanctioned Positions, *excludes 8 contractual staff, #Duplicating Officer, Peon, Daftry, Chowkidar and Sweeper are taken as MTS, #includes Senior and Junior Stenographer

From the table one can see that BOAT WR has 87.5% filled positions, followed by BOPT ER (80.42%), BOAT NR (64.10%) and BOAT SR (52.31%). It is also observed that the positions of support staff are vacant; it can be assumed that officers of BOAT/BOPT would be devoting time performing administrative activities, which would be otherwise carried out by support staff. Thus, in order to enhance efficiency and effectiveness of the BOARDs there is a need to fill in the vacancies at the earliest.

3.4.2 Challenges and suggestions:

Primary aim of this training is to train Graduates and Diploma holders and make them employable. Matching of the training curriculum with industry need is an essential component.

The major challenges faced by regional offices are financial constraints; the finances are required mainly for salary and administrative expenses and also for reimbursement of the government share of stipend. The Ministry provides total financial support to these offices on monthly basis based on requirement but the pattern of grants in aid is quite irregular and does not commensurate with the requirements. The Ministry gives a target every year for engaging apprentices which requires funds for payment of stipend for engagement of apprentices. It also emerged that due to paucity of funds under administrative head, activities such as supervisory development programme and career guidance programme, industry meets etc. are minimized which adversely affects the implementation of the scheme. The other challenge faced was the lack of awareness among pass outs about the scheme.

To overcome the above mentioned constraints timely availability of funds is a prerequisite. Advertisement and campaigns may be initiated to build awareness about the scheme. The category of apprentices to be engaged by the establishments may be mentioned specifically for graduates and technicians separately and trained apprentices separately. As mentioned in the Rule 9(B) of the Act, communication from Ministry of HRD may be sent to business heads of various industries to motivate them for engaging more and more apprentices. It also emerged that giving tax benefits to the establishments may encourage them to engage more apprentices.
Further, the category of apprentices to be engaged by establishments should be mentioned specifically for graduates and technicians separately in the rule 7(B) of the Apprenticeship Rule, 2015.
Introduction of regional and national level competition among establishments for their significant participation and providing them some memento may encourage participation of establishments in the scheme. It was suggested by BOPT that Act may mandate establishments to reserve 10% of their annual addition in the employment to NATS pass outs.

As suggested by BOPT, the General Attribute Development Programme (GADP) as part of the apprenticeship training programme may be extended to current apprentices and final year degree/

diploma students by providing scholarship to these students equivalent to course fee through AICTE. BOPT under the collegiums of industries is conducting 40 hours of modular programme on GADP for the above target groups but participation of final year students is not encouraging.

It is observed that there is a shortfall in the utilization of seats of NATS. The reasons mentioned by regional offices included no job guarantee after completion of training, low stipend as cost of living in the cities is high, delayed reimbursement of stipend by MHRD and non-availability of training in the areas near their residence.

It was suggested that establishment of offices to look after the scheme will enhance outreach of the scheme.

3.4.3 Conclusions:

The regional Boards are functioning as per the requirement of the scheme i.e. they are implementing the scheme in respect of Engineering, Graduate, Technician students, and students of sandwich courses. It is due to their efforts that overall seat utilization is increasing under NATS. It is evident that the present technical education system apart from deficiencies in technical skill sets also reflects gap in soft skills. NATS is a scheme which bridges this gap and enhances employability.

It has been observed that there is a shortfall in the potential trainees coming forward for NATS. Some of the reasons highlighted by regional offices were no job guarantee after completion of training, low stipend as cost of living in the cities is high, delayed reimbursement of stipend by MHRD and non-availability of training in the nearby areas. It has been observed that these regional Boards are functions as per the requirement i.e. they are implementing the scheme for in respect of the Engineering Graduate, Technician, and students of sandwich courses. It is due to their efforts that overall seat utilization is increasing under NATS.

The input use efficiency of NATS is understood in terms of the assessed value of outputs/outcomes produced per unit of input into the scheme. The significant resources/inputs into the scheme are those by the Government/MHRD and by the establishment partners. The identified outputs/outcomes are assessed using the qualitative and quantitative responses in the present study.

The Government/MHRD inputs into NATS include resource costs of manpower, financial and physical infrastructure of regional BOAT offices, which are captured in regional data tables for the BE, RE and Actual Expenditure for Salary, Non-salary, Stipend and Miscellaneous heads. In addition, the establishment partners incur training costs such as the share of stipend they pay to the trainees, the infrastructure for training, and time spent on training by the trainers.

3.4.4 Relevance of the scheme to the SDG:

Inclusive economic growth and sustainable development founded on skill development is integral to breaking the vicious circle of poor education, low productivity and persistent poverty[7]. In particular, the twin challenges of transition from informal to formal economy and meeting the requirements of changing economies and new technologies in a globalized world need 'quality' apprenticeship systems and core skills training for young people.

Recent years have seen a slew of policy reforms and initiatives undertaken by the Government of India to build the business and skill ecosystem. It is crucial that the findings from the current study on assessing the efficacy of NATS incorporate its implications for the achievement of the nation-wide SDG agenda.

In this context, a survey of the Mapping of Central Sector Schemes and Ministries of Government of India for SDGs done by the NITI Aayog (2018a), suggests that skill development has direct 'relevance' for four major SDGs – these SDGs and relevant SDG targets set are listed as follows:

I.   End poverty in all its forms everywhere (**Goal 1**)
     1.1   By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day
     1.2   By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions

II. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (**Goal 4**)
     4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
     4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
     4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
     4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

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[7]Source: https://www.ilo.org/global/topics/dw4sd/themes/skills/lang--en/index.htm, accessed in December 2019

III. Promote sustained, inclusive and sustainable Economic growth, full and productive employment and decent work for all (**Goal 8**)

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training

IV. Reduce inequality within and among countries (**Goal 10**)

10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average

The Ministry of Skill Development and Entrepreneurship's (MSDE) Pradhan Mantri Kaushal VikasYojana (PMKVY), implemented by National Skill Development Corporation – under an umbrella framework – for development of skills, entrepreneurship, the National Board for Skill Certification, the National Skill Development Agency, Model ITIs/Multi Skill Training Institutes, apprenticeship and training, and polytechnics, is crucial to achievement of the above listed SDGs.

The 'overlap' in focus on industry-relevant skill training between the PMKVY and NATS suggests that modalities for coordination in outcomes may be explored by, for instance, catering to the requirements of skilled workers in the unorganized sector by scaling up Recognition of Prior Learning using apprenticeship under the PMKVY (NITI Aayog 2018b).

NITI Aayog (2018b) recommends that the Micro, Small and Medium enterprises should be integrated into the Apprenticeship system by linking the system with Pradhan Mantri MUDRA Yojana which provides loans upto Rs. 10 lakhs to the non-corporate, non-farm small/micro enterprises.

Last but not the least, linkages may be considered with anti-poverty programmes like MGNREGA and the National Rural Livelihood Mission, Deendayal Upadhyay Grameen Kaushaly Yojana, which focus on generating employment, skill development, micro credit and capacity building to increase employability among the poor (NITI Aayog (2018c)).

3.4.5 Earlier Evaluations:

The scheme has been evaluated earlier also. Details are given below.

Table 3.5 Past Evaluations of NATS (2012-17)

Title of the Evaluation	Name of the Agency/Institution	Year of Evaluation	Coverage	Results
Evaluation of Apprenticeship Training	Institute of Applied Manpower Research	2012	All India	The study found that the scheme

Scheme of MHRD	(now NILERD)				is beneficial
Study on Efficacy and Impact of NATS	National Institute of Labour Economics Research and Development (NILERD)	2017	Northern Region		The report was accepted
Study Efficacy and Impact of NATS	ISI Kolkata	2016-17	Eastern Region		The report was accepted
Study on Efficacy and Impact of NATS	NILERD	2017	Southern Region		The report was accepted
Study on Efficacy and Impact of NATS	NILERD	2016-17	Western Region		The report was accepted

Since the recent evaluations (Table 3.5) of the scheme had limited coverage, a need for an all India evaluation of the scheme was felt and this task was awarded to NILERD. The next chapter deals with industry perspective about the training under NATS.

CHAPTER-IV

Data Analysis: Establishments' Perspectives

Establishments are important stakeholders contributing to the promotion of NATS. They are the vehicles for realization of career growth among the aspiring youth with technical background. Establishments also play a vital role in bridging the technological gaps among the technical graduates. In the present era of rapid developments in technology and innovative practices adopted by the establishments, the Institutions, however elite they may be, are unable to mold the syllabi in tune with the latest developments. As a result, the pass-outs coming out with the qualifications are unable to cope with the demands of competencies from the establishments. This has enforced the aspiring pass-outs to have reasonable exposure in the production & process environment to complement their academic knowledge with the practically acquired skills. This will automatically eliminate the deficiencies associated with the educational institutions and enrich the prosperous skilled manpower to cope with the advanced techniques in the establishments.

In general, the qualified manpower coming out of Institutions are not well received by the Establishments due to several apprehensions about the intensity of skills, competencies, and analytical knowledge gained by the outgoing graduates. A reasonable amount of practical experience in an industrial establishment will accomplish the desired and needed tasks for any technical personnel. Another important reason is that, the big and heavy industries will always adopt the latest technologies and innovative practices. Every year the fresh technical pass-outs, given an opportunity in such establishments, will become skilled human resources to manage small, tiny, medium enterprises. Eventually, they stand as the backbone of these industries. It is exactly against this background, the NATS was started with a focus on high-end skills, exposure to latest techniques and methods in modern industrial environment, and provision of opportunities suited to the outgoing graduates' gainful and decent employment. For this purpose the establishments with sufficient level of technology, skilled/technical personnel were identified and the number of Apprentice seats (for Graduate, Technician, and sandwich courses' graduates) were identified. Identification of establishments and seats in various disciplines/branches takes place continuously and is a dynamic and ongoing process for the BOAT/BOPT executing the NATS.

The present evaluation intends to examine the implementation of the scheme across the four regions of the country by probing in depth and taking into confidence all the stakeholders – the Apprentice Trainees, Employers, Training Establishments and the Board of Apprenticeship training. The scheme examines the administrative issues of implementation including adequacy of training infrastructure in the industry and tries to evaluate the accessibility of training infrastructure at the establishment. Suitability of course curriculum, syllabi, skill up-gradation and enhancement after the training are also examined. Employers' view points about the

implementation of the scheme have also been captured. The observations are given in the following paragraphs.

4.1 Distribution of Establishments

For the purpose of evaluation 339 establishments engaging apprentices were covered including 75 central sector, 43 state sector and 221 private sector establishments. Sector-wise and region wise coverage of establishments is given below in figure 4.1 , Figure 4.2 and Table 4.1.

Figure 4.1: Distribution of Establishments by Type of Ownership
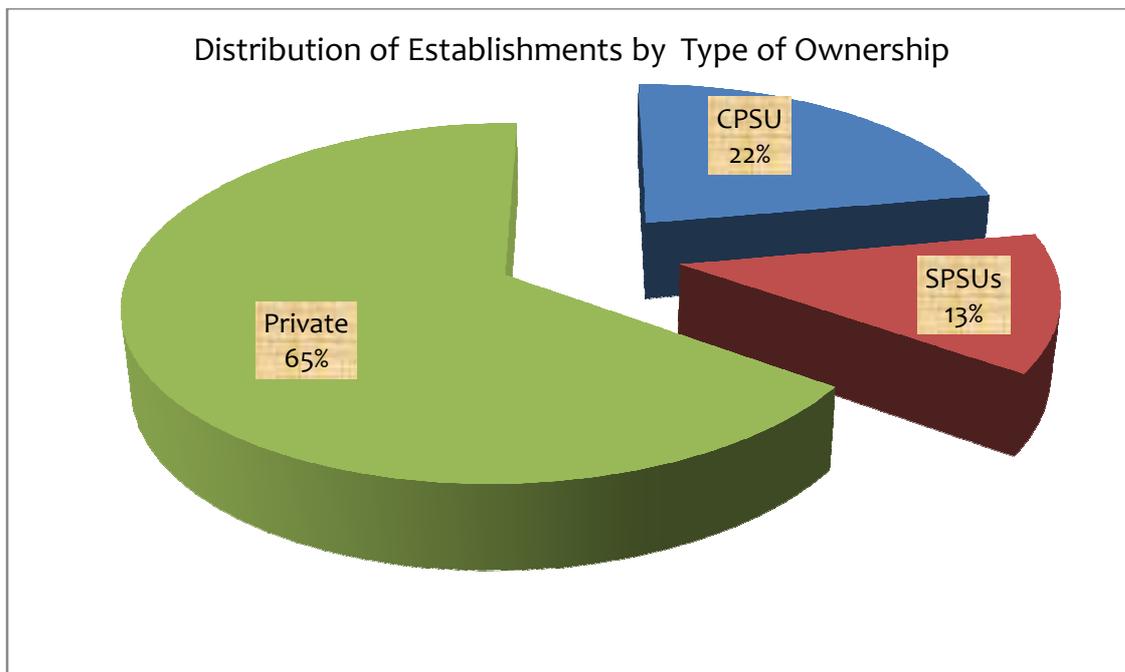
Source: Primary Survey, NILERD, 2019

Table 4.1: Distribution of Surveyed Establishments by Type of Ownership

Region	CPSUs	SPSUs	Private	Total
East	08	05	43	56
North	18	09	54	81
South	31	15	54	100
West	18	14	70	102
All India	75	43	221	339

Source: Primary Survey, NILERD, 2019

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Figure 4.2: Coverage of Surveyed Establishments by Type of Ownership and Region
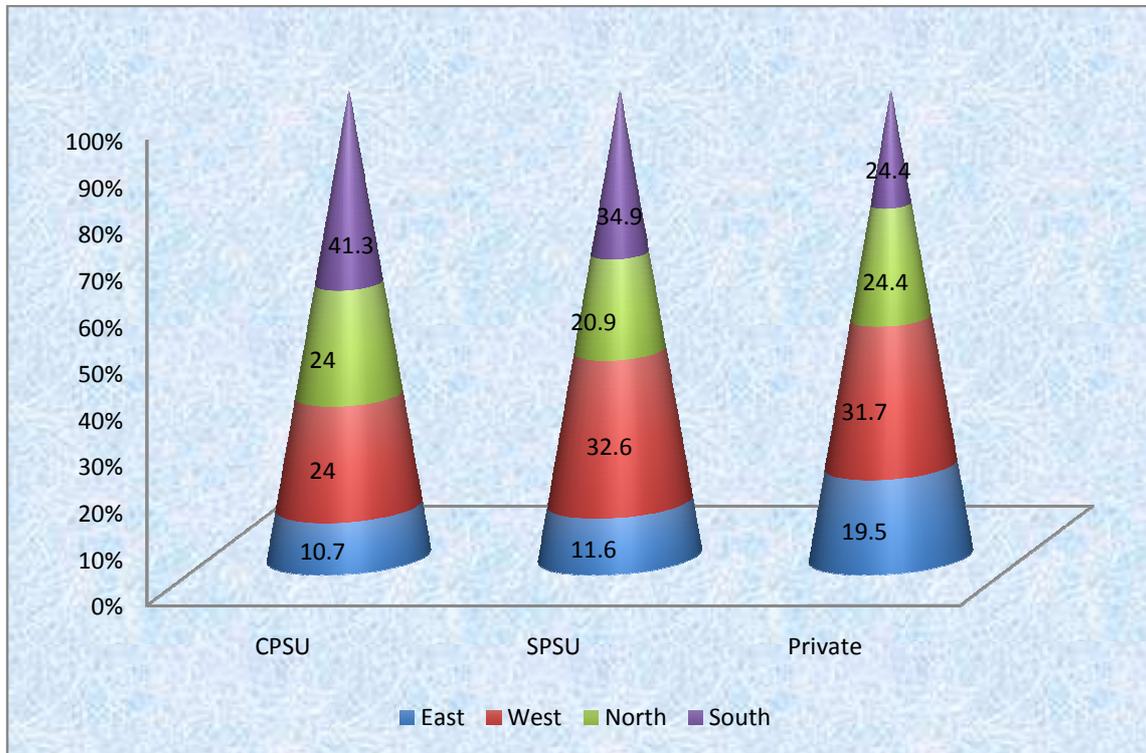
Source: Primary Survey, NILERD, 2019

It may be seen from Table 4.2 that about 66 percent of the surveyed establishments have an employment size of more than 500, followed by 28 percent of the employment size of 100 to 499 and 6 percent establishments of the employment size of below 100 employees.

Table 4.2: Sector-wise Employment Size of Establishments covered

Sector	Less than 100	100 - 499	500 and Above	Total
CPSU	8	16	51	75
SPSU	7	12	24	43
Private	5	67	149	221
All India	20	95	224	339

Source: Primary Survey, NILERD, 2019

4.2 Region-wise Utilization of Seating Capacity for All Establishments

Utilization of seats with respect to seating capacity in the various regions is as follows. It has been observed that utilization of seats in the western region was highest and it was identified as more than the seating capacity. This reflects that establishments are also getting benefit from the scheme and are willing to take more trainees. Table 4.3 however reveals that overall utilization

of seats by establishments has decreased from about 106 percent during 2015-16 to about 86 percent during 2017-18. This may be attributed to the web portal which has recently been launched and does not allow establishments to register before the clearance of stipend. This fact was also substantiated during the brainstorming/focus group discussions (FGD) by the study team of NILERD.

Table 4.3: Seat Utilization as % to Seating Capacity by Region

Region	2015-16	2016-17	2017-18
East	95.14	81.02	81.73
North	71.22	61.92	76.51
South	108.90	116.62	88.51
West	121.14	127.64	96.10
All India Average	105.82	96.91	86.09

Source: Primary Survey, NILERD, 2019

Figure 4.3: Percentage of Seats' Utilization by Regions

Source: Primary Survey, NILERD, 2019

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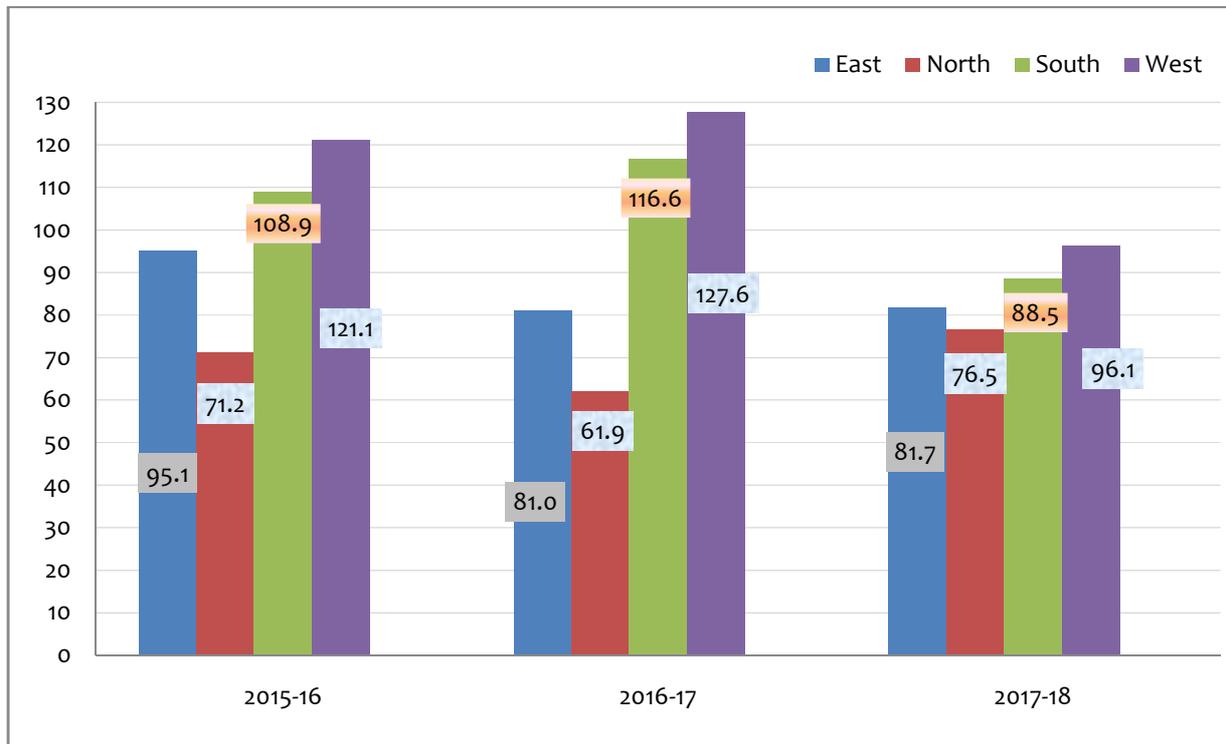
4.2.1 Seating Capacity Utilization by CPSUs

Data in the case of central sector establishments reveal that utilization of seats for engaging trainees under NATS as a percentage of the seating capacity has been more than 100 percent in Eastern and Western regions during 2016-17 and 2017-18 while the same was 89percet and 90 percent respectively for these regions during 2015-16. . In southern regions the seat utilization during 2015-16 was around 92 percent this increased to 94 percent during 2016-17 and further reduced to 82 percent during 2017-18. In case of northern region it was observed that seat utilization as percentage of seating capacity was between 65 to 69 percent during the period under consideration (Table 4.4). During FGD many trainees expressed their preference for CPSUs as they felt it will give better weightage in employment.

Table 4.4: Seat Utilization as % of Seating Capacity by Region for CPSUs

Region	2015-16	2016-17	2017-18
East	89.14	100.62	106.61
North	67.21	65.62	69.22
South	91.84	94.52	82.34
West	98.39	114.95	119.76
All Indisa Average	90.61	96.59	90.45

Source: Primary Survey, NILERD, 2019

4.2.2 Seating Capacity Utilization by SPSUs

Seat utilization as percentage of seats allocated ranged between 51 to 71 percent in the case of state owned establishments during the last three years. While this percentage varied regionally. It is pertinent to note here that this was lower than the other two sectors.

Table 4.5: Seat Utilization as % of Seating Capacity by Region in SPSUs

Region	2015-16	2016-17	2017-18
East	58.33	51.70	42.51
North	67.81	28.76	62.75
South	93.62	91.54	77.90
West	68.95	70.22	63.41
All India Average	70.95	50.93	63.01

Source: Primary Survey, NILERD, 2019

4.2.3   Seating Capacity Utilization by Private Sectors

Table 4.6 provides the data on seating capacity and their utilization by private sector. In private sector the seat utilization at all India level is more than 100 percent for two years (2015-16 and 2016-17) and 88 percent for 2017-18. Private sector establishments revealed during FGD that they are willing to take more trainees. It was also highlighted that they recruit large number of trainees but many of them ether do not join or leave in between. This leads to wastage of their efforts. Most of the times the reason for leaving/not joining is employment opportunities or those who are trying for higher studies get admission for pursuing higher study. It's quite encouraging that higher numbers of trainees are being taken by the establishments as compared to allocated seats. This shows that establishments see future employees in these trainees. In other words, establishments are able to train human resources for their present and future requirements by getting one-year lead time to observe the apprentices before providing regular employment. It also emerged during the FGDs that many establishments put the trainees on actual job after three to 4 months; hence, apprentices have positive impact on the productivity of the establishment.

Table 4.6: Seat Utilization as % of Seating Capacity by Region and by Private Sector Establishments

Region	2015-16	2016-17	2017-18
East	102.85	81.59	82.47
North	73.18	75.87	83.57
South	123.62	133.76	93.54
West	129.07	134.08	94.60
All India Average	115.33	101.26	87.60

Source: Primary Survey, NILERD, 2019

4.2.4 State-wise Status of Seat Utilization Capacity

As seen in Figure 4.4 below, as per NILERD survey, the All India average for seat utilization as a percentage of seating capacity stood at more than 80 percent in 2017-18 and the top three States in terms of this parameter were Chhattisgarh, West Bengal and Gujarat.

The total seat utilization at the All India level stood at more than seating capacity in 2015-16 but it marginally dropped in the subsequent two years. During the FGD it emerged that due to non-reimbursement of stipend, establishments are discouraged and some establishments are not able to register through web portal. BOAT is looking into the matter.

Figure 4.4: State-wise Position of Seat Utilization during 2017-18
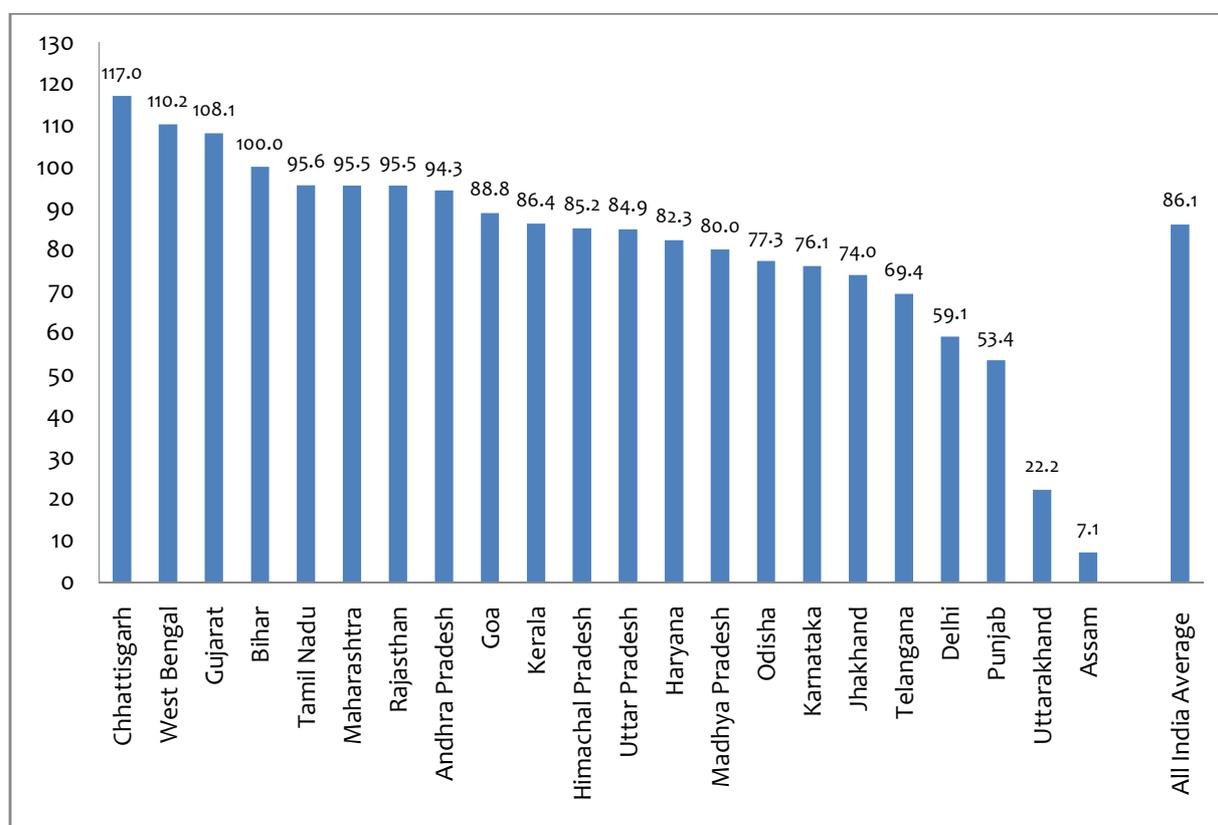
Source: Primary Survey, NILERD, 2019

Table 4.7: State-wise Status of Seating Capacity and Seat Utilization

State/Union Territory	Seating Capacity			Utilization of Seats		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
1. Andhra Pradesh	397	693	706	489	591	666
2. Assam	42	42	42	6	9	3
3. Bihar	30	60	60	30	60	60
4. Chhattisgarh	599	622	628	544	646	735
5. Delhi	344	495	844	99	294	499
6. Goa	30	132	134	31	97	119
7. Gujarat	385	454	555	291	438	600
8. Haryana	872	1243	1288	565	884	1060
9. Himachal Pradesh	315	293	290	281	253	247
10. Jharkhand	395	368	438	392	283	324

11. Karnataka	832	928	1845	796	859	1404
12. Kerala	876	969	954	857	914	824
13. Madhya Pradesh	439	450	822	391	447	658
14. Maharashtra	7057	7786	9024	9052	10426	8616
15. Meghalaya	NA	NA	NA	17	92	122
16. Odisha	2165	15259	15512	1973	11871	11993
17. Punjab	1033	881	902	787	388	482
18. Rajasthan	NA	34	313	NA	42	299
19. Tamil Nadu	3980	4893	6099	4734	6481	5831
20. Telangana	1125	1131	1175	976	1201	815
21. Uttar Pradesh	434	2057	2437	397	1233	2070
22. Uttarakhand	18	18	18	19	15	4
23. West Bengal	1892	2172	2167	1886	2189	2389
All India	23260	40980	46253	24613	39713	39820

Source: Primary Survey, NILERD, 2019

It was felt necessary to analyse the representation of reserved category participation in NATS Seat utilization by establishments for reserved category candidates (SC, ST and OBCs) is presented in Table 4.8. Around 17 percent of establishments under CPSUs, 8 percent establishments under SPSUs and 31 percent under private management were utilizing reserved category seats. It is interesting to note that amongst the category in all the three types of establishments there was almost negligible variation. .

Table 4.8: Utilization of Reserved Category Seats (% of establishments)

Region	CPSU			SPSU			Private		
	SC	ST	OBC	SC	ST	OBC	SC	ST	OBC
East	8.9	8.9	8.9	3.6	3.6	3.6	39.3	39.3	37.5
North	14.8	13.6	14.8	7.4	7.4	7.4	34.6	33.3	33.3
South	29.0	28.0	31.0	10.0	10.0	10.0	27.0	26.0	27.0
West	13.7	13.7	14.7	9.8	9.8	8.8	32.3	30.4	31.4
All India Average	17.7	17.1	18.6	8.3	8.3	7.9	32.4	31.3	31.6

Source: Primary Survey, NILERD, 2019

4.2.5 Details of Training Facilities in the Establishments

Establishments were categorically asked about the availability of core facilities such as (i) separate training department/section with dedicated training officer(s), (ii) workshop facilities for shop-floor training, (iii) lecture halls/rooms etc. It was informed that good infrastructural facilities and dedicated human resources are available to the trainees in the CPSUs, SPSUs and large scale establishments since every year huge number of trainees would be enrolling not only

for NATS but for Crafts Man Training Scheme (CTS) also. The statistics on the availability of various facilities are given below (Table 4.9).

Table 4.9: Details of Training Facilities in the Establishments (%)

Region	Separate Training Department	Workshop Facility for Training	Lecture Hall	Hostel Facility	Transport Facility
East	69.64	62.50	83.93	26.79	42.86
North	85.19	79.01	91.36	14.81	34.57
South	78.00	74.00	90.00	14.00	45.00
West	70.59	69.61	90.20	11.76	45.10
All India Average	76.11	71.98	89.38	15.63	42.18

Source: Primary Survey, NILERD, 2019

4.3 Absorption of trainees in the same establishments where they obtained Training

Table 4.10 below depicts the details of absorption of trainees by the establishments where they underwent training by region. It emerged that about 46 to 62 percent of the trainees were absorbed in the same establishment. These were mainly privately owned establishments. When absorption of Graduates and technicians is compared in the same establishment it is found that absorption rate is higher amongst the graduate engineers. Central and State sector units did not absorb trainees immediately as their recruitment norms are different. The absorption rate of apprentices after completion of training depicts an encouraging picture about the quality of training imparted. The proportion of absorption may have been higher as this does not include those trainees who left in between the training. The establishments also highlighted this fact that, after one year of successful completion of this training, these pass-outs are employable in other similar establishments as well. Some small scale establishments informed during the brainstorming session that they are providing employment to 70-80 percent of their trainees. Hence, it is clear that NATS is a beneficial scheme and it may be expanded by bringing more and more establishments under its umbrella. Changing economic structures and adoption of new technologies in a globalized world would require 'quality' apprenticeship systems and core skills training to enable the youth to be employable.

Table 4.10: Details of Absorption of Apprentices in Establishments (%)
where they obtained Training by region

Region	Graduates			Technicians			Total		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
East	95.63	99.46	99.70	18.27	20.49	25.34	78.01	94.30	94.58
North	34.20	45.80	24.27	48.52	59.97	39.73	44.81	56.51	35.80
South	19.23	20.71	29.43	9.16	7.67	10.80	13.77	13.49	19.15
West	82.81	83.68	95.51	43.34	41.69	44.25	71.90	72.14	79.97
All India Average	63.04	76.67	81.02	22.48	22.23	24.66	46.08	59.14	61.99

Source: Primary Survey, NILERD 2019

4.4   Fitness of Trainees for Absorption

Following tables (4.11a, 4.11b and 4.11c) document the opinions of establishments regarding the fitness of trainees for absorption. The establishments opined that all the trainees are suitable to be molded to their working and competency levels, irrespective of their academic background. Only negligible number of establishments opined that the trainees are not fit for absorption. However, majority of them felt that the trainees are either fully fit or fit enough for the work to be accomplished.

Large number of establishments surveyed opined that trainees are fit for absorption after the training i.e., 41% of CPSUs, 47% of SPSUs and 57 percent of private establishments surveyed have strongly felt that the trainees after one-year NATS training and exposure are fit enough for absorption. Due to stringent measures, competitive conditions, automation etc., industries are compelled to restrict the size of the workforce. Otherwise, they are very much willing to absorb the trainees after successful tenure of training. Training Managers of the firms strongly felt that the trainees after exposure to NATS training are fit for employment in other industries at similar kinds of units elsewhere. Indeed, the trainees are getting good employment opportunities and salary in the industrial hubs of several cities after successful training under NATS. This opinion was also expressed during FGDs in the regions.

It also emerged during the discussion that in the case of diploma holders, the chances of employment are improving tremendously with the NATS training, as they are contented with the average salary offered in the industry unlike the graduate engineers who have high expectations about their career, salary, cushy jobs etc. This is the vital parameter of measuring the effectiveness of NATS. Therefore, a careful analysis was done after taking the views from the establishments of all types. The feedback from the FGDs was collected under three different categories, i.e., (i) fully fit for absorption in the same establishment, (ii) partially fit for absorption, and (iii) not fit for absorption. For apprentices considered to be fully fit for absorption, depending on the availability of vacancy slots and anticipated vacancies in future, the trainees may be shifted to company's pay roll for absorption. For apprentices considered to be partially fit for absorption, little more exposure/training and extended tenure of training of preferably one year may be considered. It was mentioned that 'partial fitness' should not be construed to understand that these trainees are unskilled and half-skilled, but they only need further push to be at par with others which could include (i) extra exposure, (ii) extended tenure, (iii) extra demonstrations, (iv) extra workshop/practical experience etc. For the apprentices considered not fit for absorption, the cases are rare and also, not regular. In the present survey conducted by NILERD it may be seen from the data below that about 2.9 percent central sector establishments found trainees not fit for absorption while less than one percent private sector establishments opined that after completion of one year of training the trainees are not at all fit for employment. This again cannot be construed as "not fit at all", as there are personal, career

related issues with the trainees. Such trainees may be advised to leave the training to enable them to choose the career of their choice.

Table 4.11 (a) Views of Establishments (%) about Fitness of Trainees for Absorption – CPSUs

Region	Fully	Partially	Not Fit	Not Stated
East	50.00	25.00	0.00	25.00
North	37.50	37.50	6.25	18.75
South	48.15	33.33	0.00	18.52
West	27.78	38.89	5.56	27.78
All India Average	40.58	34.78	2.90	21.74

Source: Primary Survey, NILERD, 2019

Table 4.11 (b): Views of Establishments (%) about Fitness of Trainees for Absorption – SPSUs

Region	Fully	Partially	Not Fit	Not Stated
East	40.00	20.00	0.00	40.00
North	55.56	11.11	22.22	11.11
South	71.43	28.57	0.00	0.00
West	16.67	50.00	8.33	25.00
All India Average	47.50	30.00	7.50	15.00

Source: Primary Survey, NILERD, 2019

Table 4.11 (c): Views of Establishments (%) about Fitness of Trainees for Absorption – Private Sectors

Region	Fully	Partially	Not Fit	Not Stated
East	57.14	38.10	0.00	4.76
North	54.72	35.85	0.00	9.43
South	76.60	17.02	2.13	4.26
West	44.78	43.28	1.49	10.45
All India Average	56.94	34.45	0.96	7.66

Source: Primary Survey, NILERD, 2019

Overall, Establishments are providing the requisite impetus to the NATS scheme and to the trainees by providing last mile opportunity to the outgoing students from the institutes. Establishments are also filling the technological gaps that are associated with the institutional setup while preparing the workforce for the future requirements vis-à-vis skilled human resources for the future. In the case of CPSU/SPSU/Government establishments due to stringent rules of recruitment, the ex-trainees are not retained. However, there is a full-fledged moderation while these ex-NATS trainees appear for interviews after selection in written test. Once, a candidate reaches the stage of interview, there is huge encouragement to the ex-trainee for

his/her absorption into the system. In select places, the previous batches of trainees have occupied the top technical managerial positions and in such companies NATS is running successfully.

It is noteworthy to mention that out of 339 establishments about 35 percent have conveyed that they are facing shortage of skilled technical personnel. They need trained personnel with experience in similar and diverse fields of manufacturing processes. Table 4.12 below depicts the opinions of establishments on shortage of manpower and also meeting of this shortage in the establishments by apprentices. Overall 69 percent of establishments viewed that apprentices help the establishment in meeting the shortage of manpower. This reflects the usefulness of this training in meeting the skill requirements of the establishments. Hence, NATS is a scheme which is aligned with the vision of the country and with skill India mission. NATS contributes in meeting the requirements of changing economy and adoption of new technologies in a globalized world by producing quality manpower.

Table 4.12: Shortage of Manpower in Establishments (%)

Region	Opinion on Shortage of Manpower				Whether trainees help in meeting the Shortage of Manpower			
	CPSUs	SPSUs	Private	Total	CPSUs	SPSUs	Private	Total
Northern	8.93	3.57	23.21	35.71	10.71	7.14	58.93	76.79
Southern	6.17	7.41	29.63	43.21	14.81	9.88	46.91	71.60
Eastern	10.00	8.00	21.00	39.00	20.00	10.00	43.00	73.00
Western	4.90	4.90	12.75	22.55	6.86	5.88	47.06	59.80
All India Average	7.37	6.19	20.94	34.51	13.27	8.26	47.79	69.32

Source: Primary Survey, NILERD 2019

Figure 4.5: Establishments who expressed Shortage of Technical Manpower (%)

Source: Primary Survey, NILERD 2019

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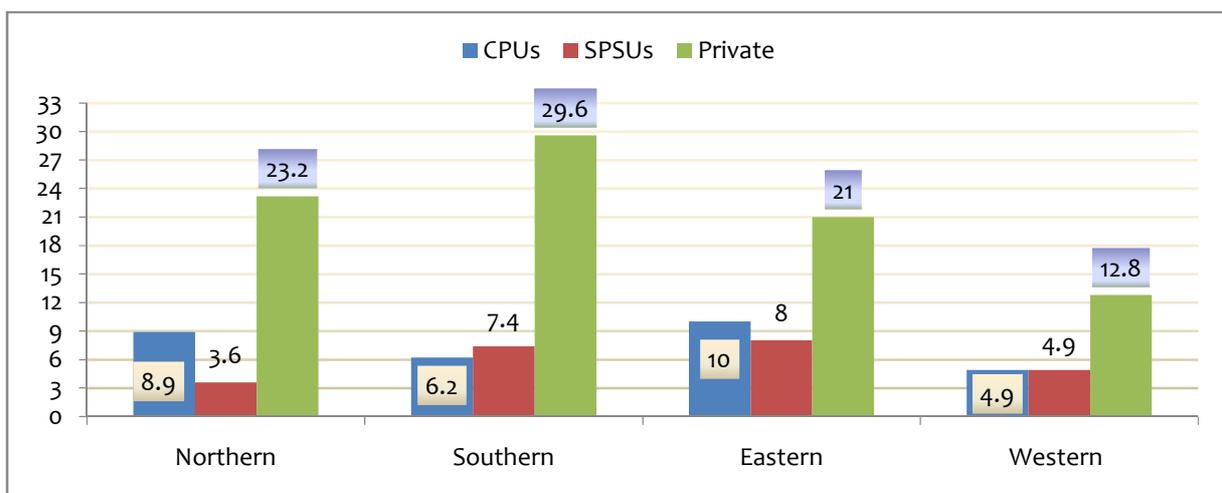
This is necessary for growth and survival of the enterprises in a competitive and technology-intensive environment to have required skills. Private firms are eager to get talented pool of youngsters with innovative skills and competencies. Therefore, NATS is one scheme which helps them in this regard.

4.5 Opinions of Establishments vis-à-vis Skills acquired by Trainees in Colleges

This is another vital input given by the establishments about their assessment of Trainees vis-à-vis skills/knowledge imparted in colleges to the trainees. The opinions are segregated into 3 types (India Labour Report-2008, Team Lease):

(i)   Matching reforms (connecting supply to demand – Employment reform)
(ii)   Mismatch reforms (repairing supply for demand – Employability reform), and
(iii) Pipeline reforms (preparing supply for demand – Education reform, a fundamental reform warranting urgent structural change at educational level)

Therefore, the opinions of establishments with their vast experience in dealing with Trainees from diverse educational background are crucial in linking skill formation from Institute to Industry. These opinions help the policy makers in shaping the educational reforms in order to make the future graduates Industry-ready.

During FGDs it emerged that the problem is intensely felt in private sector establishments. Private sector especially the small sized units are heavily dependent on "on-the-job" skills and job-ready skills of the fresh graduates from the Institutes. In the case of CPSUs, due to their robust mechanism, internal R&D set-up, they are not feeling the skill deficiency compared to private firms. Therefore, the matching, mismatch, pipeline problems were felt differently by different types of establishments which has been documented in table 4.13

Table 4.13 Establishments' (%) Opinions about Training vis-a-vis skills acquired by Trainees in Professional Colleges

Region	Matching			Mismatch			Pipeline		
	CPSUs	SPSUs	Private	CPSUs	SPSUs	Private	CPSUs	SPSUs	Private
East	50.00	0.00	28.57	25.00	0.00	33.33	25.00	60.00	28.57
North	12.50	33.33	41.51	18.75	22.22	16.98	37.50	0.00	26.42
South	40.74	50.00	40.43	11.11	14.29	19.15	37.04	28.57	31.91
West	50.00	33.33	41.79	16.67	25.00	17.91	27.78	16.67	25.37
All India Average	37.68	35.00	38.76	15.94	17.50	21.05	33.33	22.50	27.75

Source: Primary Survey, NILERD, 2019

4.6   Impact of NATS

Establishments were asked to filter their opinions about trainees after completion of the training period to last mile repair, interventional skill development and structural repair of skills.

It was found that out of 278 establishments who responded, 102 felt that NATS provides last mile repair i.e. it adds to extra skills required for employability. 76 establishments observed that NATs provides interventional repair i.e. it provides re-skilling in some areas needed for labour market. It is pertinent to mention here that maximum number of Establishments (150) felt that NATS fills the structural gap i.e. it adds to altogether new learning in terms of theoretical/analytical/practical skills.

Table 4.14: Views of Establishments on Impact of NATS on Trainees after One Year of Completion of Training

Region	Last Mile Repair	Interventional Repair	Structural Repair
East	21	12	23
North	21	16	40
South	32	22	46
West	28	26	41
All India	102	76	150

Source: Primary Survey, NILERD, 2019

4.7   Opinions of Establishments on Future Scenario of Development

As per NILERD survey, (table 4.15) about 56 percent of establishments felt that different traits needs to be imparted in educational institutions to suit the industry needs, while about 44 percent did not feel so. When opinions of establishments was sought on the technological changes expected to take place in the next 5-10 years 48 percent viewed that technological changes may take place while the rest did not feel so.

Table 4.15: Future Scenario of Technological Development (%)

Region	Technological Change in Next 5-10 Years		Need for Different Traits to be Taught in Colleges	
	Percentage of Establishments who said YES	Percentage of Establishments who said NO	Percentage of Establishments who said YES	Percentage of Establishments who said NO
East	57.14	42.86	58.93	41.07
West	44.12	55.88	50.98	49.02
North	49.38	50.62	55.56	44.44
South	47.00	53.00	61.00	39.00
All India Average	48.38	51.62	56.34	43.66

Source: Primary Survey, NILERD, 2019

Opinion of Establishments on Getting Trainees:

Private Establishments are not facing any difficulty in getting the NATS apprentices. They opined that BOAT is providing excellent logistic support in getting the requisite number of trainees.

Indeed, according to NILERD survey, in few cases Establishments are entertaining more than the identified slots, whereas few others are unable to fill the allotted seats. Table 4.16- depicts that about 52 percent establishments opined that they never face any problem in getting requested number of trainees while 35 percent expressed that occasionally they face some problem. Only 16 percent said that they face frequent problems in getting the requisite number of trainees. The reason for the same may be that certain disciplines are not popular amongst students. Location of the establishment is another reason why trainees do not want to join the establishments. Region wise picture of establishments who expressed their opinion that they are facing difficulty in getting trainees are given in the Figure 4.6.

Figure 4.6: Distribution of Establishments facing difficulty (frequently) in getting Apprentices (%)
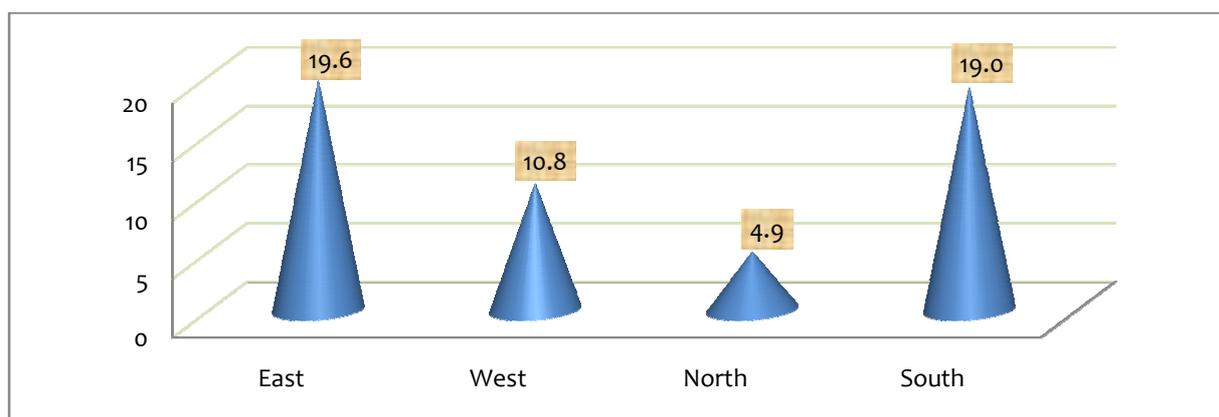
Source: Primary Survey, NILERD, 2019

Table 4.16: Opinions of Establishments facing difficulty in getting requisite number of Apprentices (%)

Region	Frequently	Occasionally	Never
East	19.64	39.29	41.07
North	4.94	37.04	58.02
South	19.00	32.00	49.00
West	10.78	33.33	55.88
All India Average	13.27	34.81	51.92

Source: Primary Survey, NILERD, 2019

4.8   Involvement of Trainees in Production Processes

Involvement of Trainees in production processes, engaging them in shift duties will expose them to skill sets and make them mentally prepared for the future jobs. Direct involvement in the processes gives the trainees an opportunity to mingle with different skilled personnel very closely. This gives them an opportunity to learn the practical skills and skills of the trade directly and impressively. Therefore, this is an important parameter to gauge the effectiveness of training vis-à-vis the type of industry, nature of activity etc.

As per NILERD survey, a majority of the firms are engaging trainees in production processes.

4.9   Status of Core Facilities

As seen in Table 4.17 below, 89 percent establishments hade lecture halls for training,76% of the establishments sampled at All India level had a separate training department,72 percent expressed that they have workshop facility for training,42 percent were providing transport facility to the trainees while only 16 percent had hostel facility.

Table 4.17: Details of Training Facilities in the Establishments (%)

Region	Separate Training Department	Workshop Facility for Training	Lecture Hall	Hostel Facility	Transport Facility
East	69.64	62.50	83.93	26.79	42.86
North	85.19	79.01	91.36	14.81	34.57
South	78.00	74.00	90.00	14.00	45.00
West	70.59	69.61	90.20	11.76	45.10
All India Average	76.11	71.98	89.38	15.63	42.18

Source: Primary Survey, NILERD, 2019

4.11   Other Important Issues

After intense brainstorming sessions with the representatives/officials of the establishments, outcome/feedback on the following additional points was documented. These additional points are as follows.

- Social & Gender Diversity of Trainees in Establishments: It was observed that females are encouraged in all types of industries and are placed with equal opportunities in all strategic sections.
- Compliance of the ATS Act: There are no violations, and the establishments are satisfied with the present arrangements. The operational framework of ATS is conducive to all the stakeholders of implementation. After computerization and centralized allotment of trainees, the system has become very convenient and transparent. Handling of NATS records is easy now. However, there were few small problems related to technicalities of on-line registration.

4.12   Method of Selection of Trainees and Viewing on Web Portal

All Establishments have expressed their satisfaction towards the method of selection of apprentices. Irrespective of types of units, all opined that the current procedures of identification of candidates/apprentices are full-proof and satisfactory. In few circumstances, BOAT guides the candidates to enroll in the centralized-cum-computerized web portal according to the choice of candidates, as and when the prospective apprentice(s) visit(s) the BOAT office for guidance in registration. BOAT is strictly following the rules & guidelines of the Act vis-à-vis selection/nomination of candidates. In general, selections are dominated by interviews by establishments. CPSUs are giving open advertisements and wide publicity in selection of apprentices. There is complete transparency in identification and selection of apprentices.

Private Establishments are not facing any difficulty in getting the NATS apprentices. They opined that BOAT (NR) is providing excellent logistic support in getting the requisite number of trainees.

Indeed, in few cases of establishments they are entertaining more than the identified slots, whereas few others are unable to fill the allotted seats. In the case of Northern Region, the per cent of occupancy of NATS seats is high and there is no overall wastage of seats. In few cases of industrial hubs/automobile industrial zones, establishments want more and more trainees.

4.13 Views on stipend matters

Establishments were categorically asked about the status on (i) regular claims of stipend by establishments, and (ii) timely receipt of stipend amount. In CPSUs and SPSUs there are no issues with the claim of stipend and timely receipt of stipend. They said that their respective departments (finance, training etc.) take care of this matter and there is perfect record keeping of stipend disbursal and reimbursement. They have no issues with the present system even if there is procedural and administrative delay in the process.

However, responses from private establishments are differing. They admitted that they are not regular in claiming the stipend due to their own priorities and due to very limited and optimal human resources manning the finance & administration. However, they expressed dissatisfaction about prompt reimbursement from the BOAT immediately after submitting the claims. They said that they are paying the stipend from their own accounts and waiting for a longer time for reimbursement.

Table 4.18 below reflects that about 71 percent of establishments are giving higher stipend than what is specified by the Government. Majority of these establishments falls under private sector. This again highlights the establishments' views on usefulness of the scheme.

Table 4.18: Establishments giving higher Stipend (% Establishments)

Region	CPSU	SPSU	Private	Total
East	7.14	0.00	57.14	64.29
North	12.35	1.23	56.79	70.37
South	20.00	5.00	49.00	74.00
West	7.84	4.90	58.82	71.57
All India Average	12.39	3.24	55.16	70.80

Source: Primary Survey, NILERD, 2019

Figure 4.7: Percentage of Establishments paying Higher Rate of Stipend
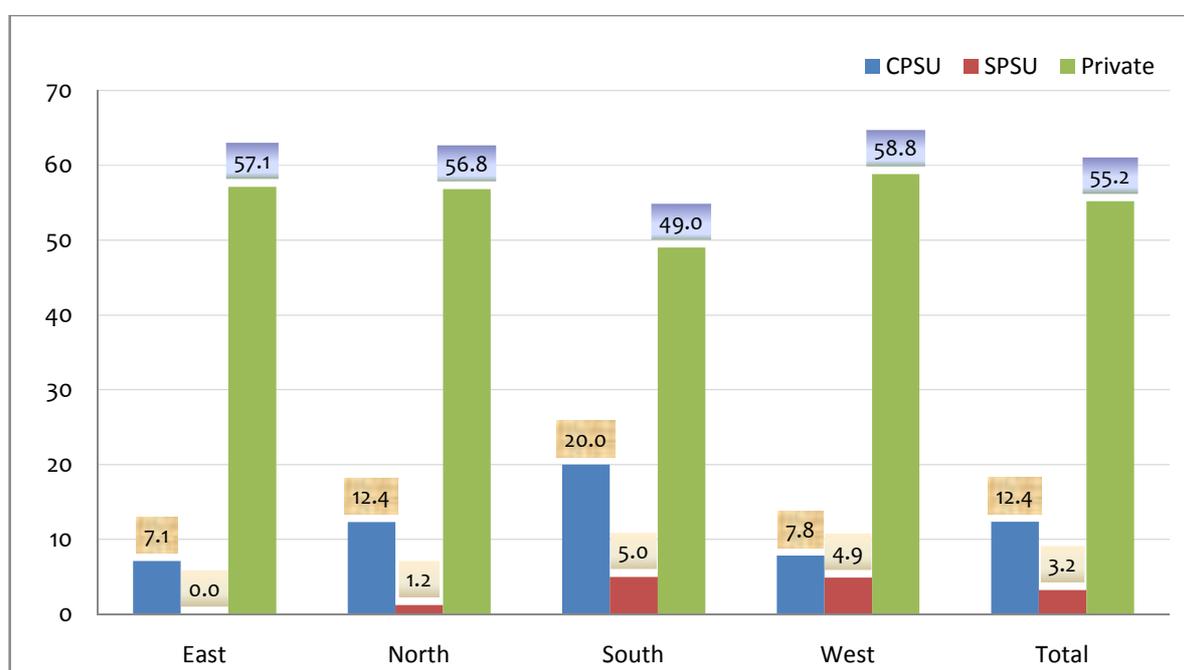
Source: Primary Survey, NILERD, 2019

Table 4.19: Information on Timely Receipt of Claim of Stipend

Region	% of CPSUs		% of SPSUs		% of Private	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**
East	14.29	0.00	3.57	5.36	73.21	3.57
North	18.52	3.70	8.64	2.47	64.20	2.47
South	30.00	1.00	15.00	0.00	54.00	0.00
West	16.67	0.98	13.73	0.00	66.67	1.96
All India Average	20.65	1.47	11.21	1.47	63.42	1.77

Source: Primary Survey, NILERD, 2019

4.14 Other Issues/opinions expressed included:

➢ The scheme provides a real time exposure to modern machines and technologies with several hours of hands on experience.

➢ Establishments suggested that before notifying the seats for training to any establishment the actual skills required and available in the establishment must be assessed for effective implementation of the scheme.

➢ Orientation training of the students after completion of professional course needs to be introduced to make them fit to join field work.

➢ Effective participation of Institutes in application of technology in coordination with relevant industry to make the pass-outs more industry oriented.

➢ Though online portal has facilitated long distance communication but some establishments find it difficult to register, hence, NATS portal need to be made user friendly throughout from registration to reimbursement process.

➢ Currently, the scheme is imparting training to engineering graduate/technician apprentices. Training needs to be propagated in subject such as Air Traffic Control, Airport operations, HR, Finance, Commercial Management, Security, Fire Services, Material Management, Land Management.

4.15 Similar Training schemes in the Establishments

India has a unique opportunity of demographic advantage as it has a larger number of its population between the ages of 20 and 35 years. To reap the demographic dividend India needs to skill its people. It is evident that there is a high degree of unemployment among the youth mainly due to skill mismatch, declining participation of females in the labour force and an economic environment wherein jobs are not created in commensurate with the economic growth. There are various training programmes run by various Ministries in the country for various target groups.

The survey found that most of the establishments which responded on other training programmes conducted by them other than NATS are for ITI pass-outs and Apprentices which cover all categories of apprentices other than Technical graduates and technicians. National Employment Enhancement Mission is also being run by some establishments which were surveyed.

However, each scheme has its own features and guidelines and is being managed by different Ministries. The execution of the schemes are creating unnecessary burden on the establishments to depute more HR personnel to manage these schemes. Central, State Public Sector and Private

sector undertakings – all have expressed concern on this issue. The Public Sector Undertakings are hiring huge number of apprentices each year. They have established a separate wing under training department to manage these apprenticeship schemes. Being a public sector undertaking they have to adopt certain rules and regulations in each and every stage of implementation of these schemes (especially the state-specific reservation policy etc.).

Private sector establishments are also raising their concern over the increased workload due to compliance with different implementing agencies of the scheme. It was expressed that all these schemes may be allocated to one nodal agency. This will help them in reducing their time and resources.

4.16 Outcomes of FGD

1) There is a strong support for the National Apprenticeship Training Scheme from the establishments. Majority of the Industries/Establishments in the region are benefitting from the scheme.

2) Some establishments expressed that NATS training helps not only in skilling of trainees but also in getting the trained human resource as per their requirement as they absorb about 70 to 80% of the trainees. It emerged that lot of skills enhancement takes place during the training and there are remarkable changes in trainees after completion of the NAT Straining. Their attitudinal and behavioural changes may also be noticed after completion of the training.

3) Most of the industries are able to get the requisite number of trainees/apprentices. However, few industries pointed out that the number of seats needs to be reworked as they are not able to fill the seats in certain subject fields especially metallurgy and civil, while the number of applications received for many other subject fields is very high. Creation of a pool of available NATS trainees at Cluster level was suggested to overcome this problem. Establishments which were located in remote areas expressed that they were not able to get trainees due to their location.

4) Goa, Kerala and Chhattisgarh expressed shortage of NATS trainees in the state – majority of the establishments expressed concern over non-availability of the apprentices despite huge demand for them.

5) Many establishments felt that for states with less availability of candidates an extendable duration of apprenticeship may also be considered.

6) Majority of the establishments felt that non-engineering graduates especially the science graduates should be included under the NATS for better success and implementation of the same.

7) Establishments suggested for relaxation/removal of the three-year cap period for students to enroll in NATS. This, they felt, would help overcome the problem of non-availability of candidates.

8) Many establishments expressed the difficulties faced in the selection process. According to them, selection of trainees is a time consuming process as they have to visit different locations (institutions). As all selected trainees do not join the establishment in the same time period, it increases their administrative work of preparing contract and other formalities. This was especially the case with establishments having large number of trainees. Similarly, getting approvals from the BOAT Regional Office for any additional demand and required modification in demand also gets delayed.

9) In order to facilitate the establishments and trainees, setting up of a local Nodal Agency was suggested. It was felt that this would be beneficial for both establishments as well as for trainees. If the Nodal Agency is created at local or Industrial Cluster level, all local issues may be addressed in more efficient manner.

10) There should be inter-linkages of industries for the mobility of NATS trainees. In a particular industrial cluster, industries may be allowed to cooperate with each other for exchange or interchange of candidates as per their demands, not only at regional but at national level also. For this shortage, areas/disciplines may be highlighted at BOAT's web portal along with the rate of stipend paid by each industry.

11) Currently, the appraisal is done by the establishment and the reports are uploaded for the purpose of reimbursement. It was suggested that there should be a uniform pattern of assessment in the form of some exam/test – both mid-term and at the end of training.

12) The issue of drop-out and absenteeism was a major concern among industries. Many apprentices drop out during the training period. A termination of contract is initiated by the establishment for these trainees which has to be approved by the BOAT office. However, it was expressed that this approval takes a lot of time, thus leaving establishments in dilemma about the future course of action. The process of approval needs to be expedited by BOAT offices. Moreover, at present, there are no guidelines for disciplinary measures or for termination of a trainee in the case of misbehaviour. This should be looked into urgently.

13) It was also suggested that, in view of radical changes in the nature of employment in recent years, there is a dire need to align/modify the education and training curriculum with these changes especially in areas like Artificial Intelligence, Automation Process of Manufacturing, and Robotic Process in manufacturing Auto CAD etc. It was also suggested that training must integrated with the award of Degree.

14) It was highlighted that the portal requires entry and upload of relevant documents for each candidate, which takes a lot of time and manpower of the establishment. In addition, portal does not provide any cut and paste option, saving option or option to make corrections because of which, at times one has to repeat the process many times. It was felt that it would be helpful if the system allows uploading of relevant documents in a consolidated form for all the trainees and also auto-save option should be inbuilt in the software. It was also suggested that limit of entries at one time (RoP) should be increased from 25 to 100 – this will help the establishments which are taking large number of trainees.

15) Some of the establishments raised concern about the uploading of quarterly progress report, which increased their workload. They argued that it should be done once or maybe twice in a year because collecting information for all the candidates from various verticals affects their day-to-day routine functions.

16) Almost all the establishments engaging trainees under NEEM feel that there is a need for clarity and strong network base for the implementation of the scheme.

17) Majority of the establishments feel that all Apprenticeship schemes should be under one umbrella organization. This will really help establishments in many ways. Different rules, criteria of selection and implementation, sponsoring agency, variations in compliance make it difficult for the establishments to adopt multiple schemes at one time.

18) Another issue raised especially by CPSUs is bringing parity in the Grading system of Marks and Percentage of Marks as they receive many RTI regarding the criterion for the selection/non-selection of apprentices.

19) Delay in reimbursement of stipend was reported by majority of establishments.

20) Many establishments in Haryana reported that due to confusion regarding the circular issued in May 2019 by EPFO and subsequent reminder in September 2019, that establishments should open EPF account for all the apprentices have made them skeptical in taking apprentices.

21) Many establishments from the southern states reported that they were finding it difficult to get diploma apprentices. This was also reported from some establishments in Haryana.

22) Kerala State government has created a state level organization called Supervisory Development Centre (SDC) to manage all the apprentices in the state. Establishments in Kerala have expressed concern over the role of SDC as intermediary agency between the trainees and establishments and BOAT. Even after registering themselves with NATS,

students have to register themselves with the SDC in order to get place in the establishments located in the state. Each establishment has to get the apprentice list from SDC and not directly from BOAT portal. There is a minimum charge for the registration in the SDC for every candidate. However, lists provided by SDC are not updated as a result establishments do not receive desired number of candidates.

23) Establishments propose that information related to Date of Birth, Aadhar, social category, percentage of marks of the Apprentice may be placed on NATS portal; this process may save time of the establishments.

24) Many establishments felt that the period of training may be increased further by mutual agreement between establishments and apprentices.

25) One of the unique problems faced by the establishments especially the CPUs is court cases of the ex-apprentices – as per the rules CPSUs cannot retain any single candidate as employee of the organization – however, because of political support and backing of local political leaders many apprentices are demanding absorption after completion of apprenticeship.

26) Another unique issue is the implementation of the quota system. As per the state-specific reservation policy, CPSUs are selecting the candidates for NATS and other apprentices; however, due to non-availability of certain candidates it is very difficult to fill the reserved quota.

27) The stipend should be decided on the basis of Type A, Type B and Type C cities.

28) Most establishments feel that institutions should have lab/workshop centers so that apprentices are acquainted with machines. They also reported that when they put apprentices on machines the productivity suffers till the apprentice becomes well-versed with the machinery.

29) Due to initial problem with the portal many establishments were not able to take apprentices and many students were not able to join the training programme.

30) Industries also suggested that while registering they need to submit IT returns for the last three years, this rule needs to be modified.

31) MHRD has instructed establishments to restrict the quota to one-third of their previous engagement; this has created confusion among establishments.

32) It was suggested that a verified certificate should be made available by empowering establishments to verify trainees' presence; presently, it is felt that certificates are not being issued in time by BOAT.

It emerged that the NATS scheme is very beneficial for the industry as it provides current and future pool of human resource and thus helps in meeting the shortage of skilled human resources. The scheme is unique as it is meant for technical personnel. It contributes to higher productivity of the establishment by supplying medium and higher level of industrially trained technical resource. They opined that the scheme may be expanded and more and more trainees in the existing/newer fields may be included under its ambit. The need of the hour is to utilize the available resources of the industry to skill our young graduates by giving them on-the-job training and make them employable. This will solve the problem of skill shortage on the one hand and employability of our technical graduates on the other hand.

CHAPTER - V
Apprentices' Perspectives

During the period of Second Five Year Plan (1956-1961), the country moved towards heavy industrial base requiring skilled human resource for the industry. Therefore, a significant budget allocation and importance was given to technical education to meet the skill requirements of the country. The introduction of The Apprentices Act, 1961 was one of the initiatives made by the government during the period.

Due to structural reforms in 1991 and sectoral shift, there was a change in the labour market especially in the labour mobility. Unskilled and low skilled labourers started moving towards services and low-intensity and low-profile industrial jobs. The nature of jobs in services and industrial sectors were also mechanized and highly modernized due to globalised and liberalized industrial processes coupled with high-end technologies. This led to a mismatch between the jobs available and the workforce in the labour market. This mismatch was highlighted through empirical studies at various levels by different sources. To address the above generic problems, the National Apprenticeship Training Scheme (NATS) has been a boon in providing practical skills to the pass-outs of technical and professional courses.

The main purpose of this scheme is to enhance the skill of youth by providing practical training and thereby increasing the scope of employability. Through this survey an attempt was made to assess the impact of this scheme in terms of employment. For this, a tracer survey of candidates who completed NATS training was carried out. The study covered 1,220 ex-trainees and 1,176 on-roll trainees. In addition to this, an effort was made to discuss the role of NATS with some pass-outs who could not join the training under NATS and NILERD team enquired from them the reason for not joining this training.

As we are aware, practical skills are critical for employability. In this regard, role of apprenticeship training for fresh pass-outs cannot be undermined as they get practical experience during the time of training. It also makes them confident to handle the latest tools and equipments in the industry. This chapter deals with what the survey revealed about learners of NATS. The questionnaire for learners was canvassed among the following:
- Candidates who had completed NATS training
- On-roll NATS trainees

Following are some of the important findings that came out of the analysis of primary survey.

5.1 Gender and Social Category of Candidates who completed NATS
Gender-wise and social category-wise distribution of ex-apprentices covered by the NILERD survey is presented in Table 5.1. It depicts that among the ex-trainees 974 were male and

remaining were female. Gender-wise distribution reveals very low participation of women in NATS (around 20%). The region wise participation of females in the scheme depicts that only 10.6 percent of all women in Eastern Region and was highest in the Southern Region i.e., about 43 percent. The table also reveals that Upper Social Categories dominate among the beneficiaries of NATS.

Table 5.1: Gender-wise and Social Category-wise Distribution of Ex-Apprentices covered

Region	Male					Female					Total
	General	SC	ST	OBC	Total	General	SC	ST	OBC	Total	
East	162	10	4	61	237	19	3		4	26 (9.9%)	263
West	87	17	4	87	195	20	5	3	20	48 (24.7%)	243
North	148	35	1	102	286	36	6		23	65 (29.5%)	351
South	100	36	7	113	256	34	12	2	59	107 (18.6%)	363
Total	497	98	16	363	974	109	26	5	106	246 (20.2%)	1220

Source: Primary Survey, NILERD, 2019

5.2. Age Profile of Ex-Apprentices

As per NILERD survey conducted in various regions, it emerged that majority of ex-apprentices (about 75 percent) belonged to the age group of 21 to 25 years; 16.6 percent were in the age group of 26 years and above, and only 7.2 percent were below 20 years of age.

Table 5.2: State-wise distribution of Ex-Apprentices by Age

State/Union Territories	Up to 20 Years	21-25 Years	26 Years & Above	Not stated
Andhra Pradesh	3	7	4	1
Assam	–	1	4	–
Bihar	–	2	–	–
Chhattisgarh	–	41	11	–
Gujarat	2	26	3	–
Haryana	5	82	16	2
Himachal Pradesh	3	23	2	–
Jhakhand	2	20	7	–

Karnataka	1	71	8	1
Kerala	–	33	4	–
Madhya Pradesh	2	34	6	3
Maharashtra	1	88	23	3
Meghalaya	–	1	–	–
Odisha	1	26	21	–
Punjab	4	44	13	1
Rajasthan	–	1	1	–
Tamil Nadu	58	98	14	–
Telangana	–	55	4	1
Uttar Pradesh	6	114	30	4
West Bengal	–	147	31	–
Total	88 (7.2%)	914 (74.92%)	202 (16.56%)	16 (1.31%)

Note: – not available

Source: Primary Survey, NILERD, 2019

5.3. Regional Profile

As per NILERD study, majority of trainees came from urban background. Only 39 percent came from rural areas (Figure 5.1). This is a reflection of limited educational avenues available in rural areas. Another reason for this is that there are no establishments located near rural areas and cost of living in the cities is very high. Hence, pass-outs from rural locations shy away from joining NATS.

Figure 5.1: Distribution of Ex-Apprentices by their Location
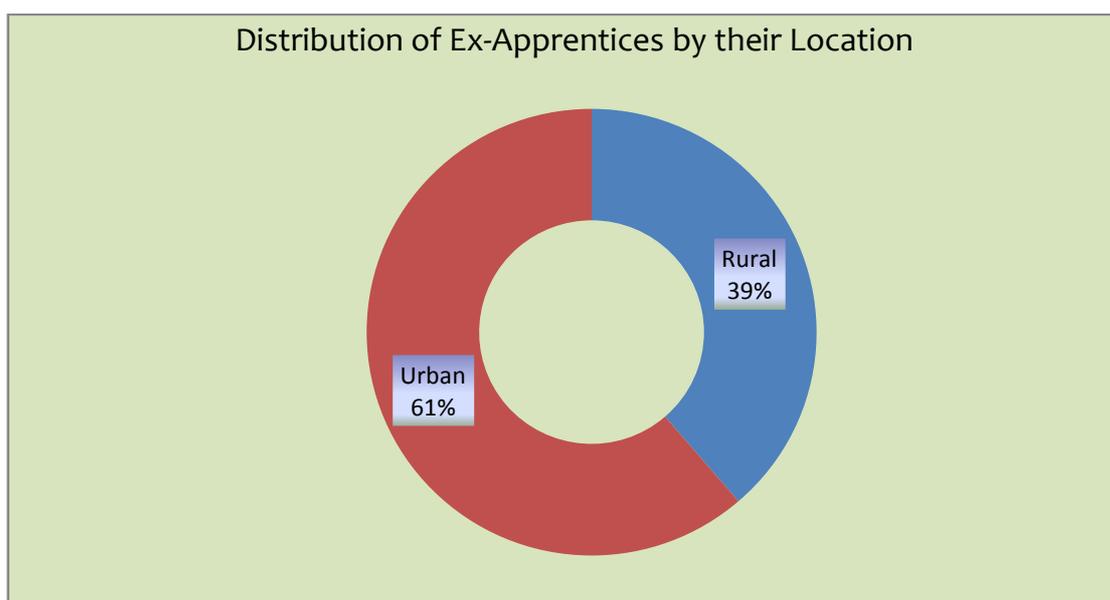
Source: Primary Survey, NILERD, 2019

5.4 Current Employment Status of Trainees after Completion of NATS

Figure 5.2 below reflects that about 73 percent of the trainees were wage employed and 6 percent were in self-employment. Thus, in all, 79% of ex-apprentices were seen as gainfully employed. It was observed that 3 percent of trainees were pursuing higher studies and 9 percent were unemployed. In the era of shrinking employment, training needs to emphasize the avenues of self-employment and be designed accordingly.

Figure 5.2: Current Status of Ex-Apprentices
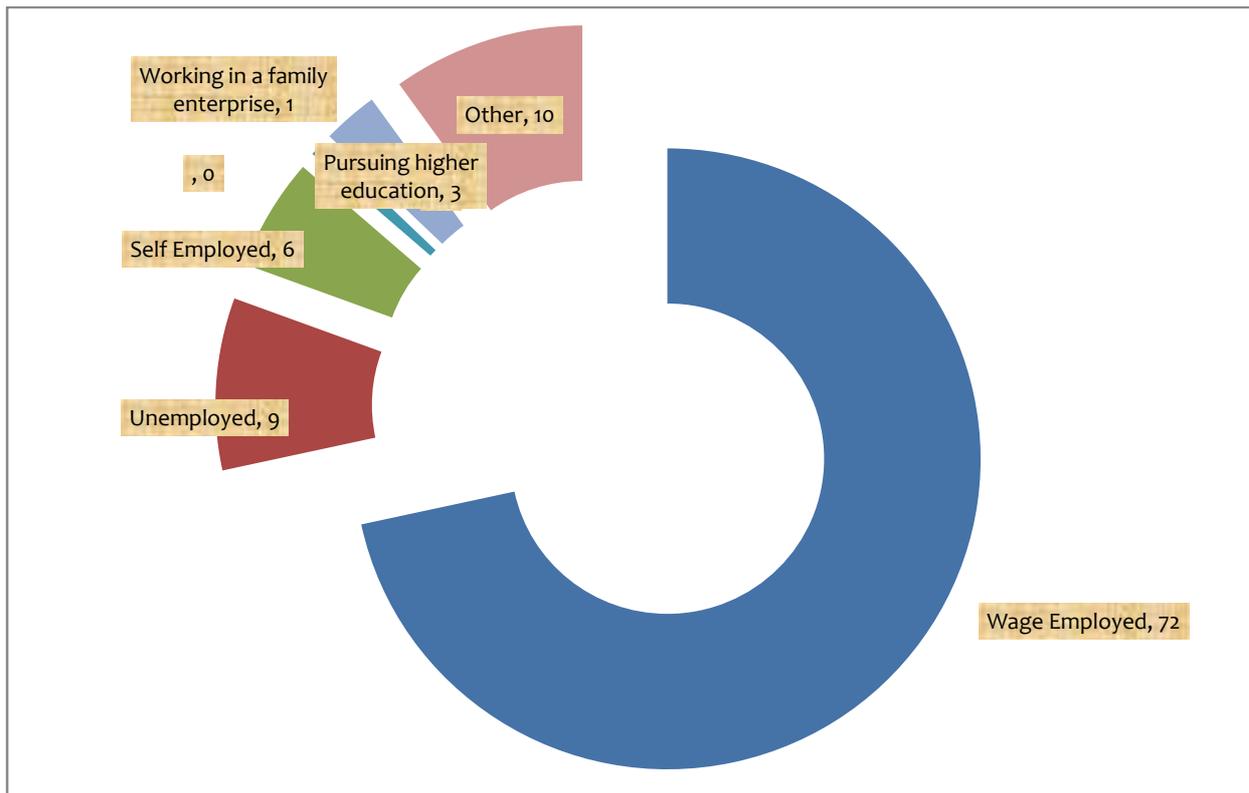
Source: Primary Survey, NILERD, 2019

5.4.1 Region-wise Current Employment Status of Trainees after Completion of NATS

It has been observed from the primary data that Eastern Region topped in wage employment (92 percent), followed by Southern Region (74 percent), Northern Region and Western Region (72 percent). Unemployment was highest in the Western region. Figure 5.3 below depicts the region-wise details of employment status of trainees.

Figure 5.3: Distribution of Ex-Apprentices by Region as per their Present Status

	East	West	North	South
■ Wage Employed	92	72	72	74
■ Self Employed	1	10	9	5
■ Working in a family enterprise	0	1	1	2
■ Unemployed	5	32	7	6
■ Pursuing higher education	0	5	1	6
■ Housewife	0	2	1	0
■ Other	2	26	11	9
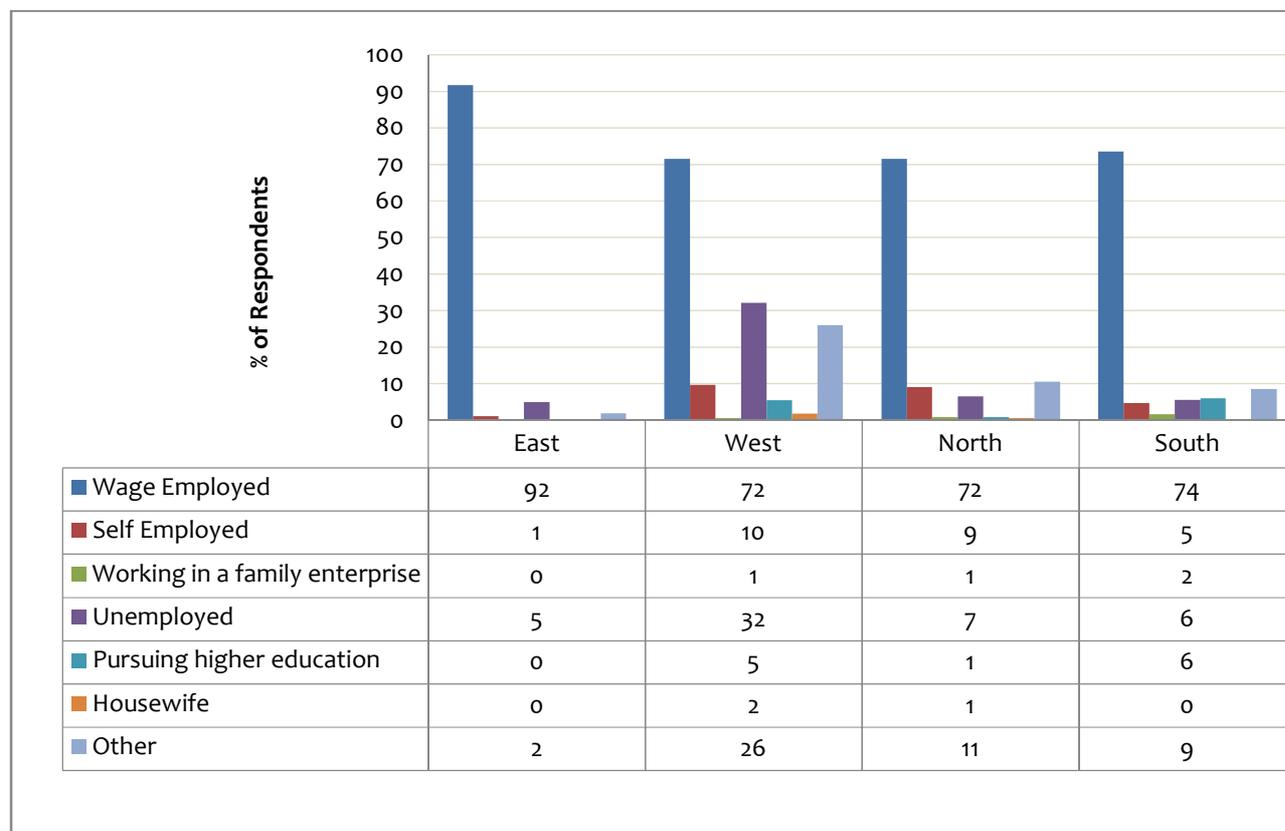
Source: Primary Survey, NILERD, 2019

Table 5.3: Current Status of the Ex-Apprentices by Gender and Region

Region	Male							Female						
	Wage Employed	Self Employed	Working in a family	Unemployed	Pursuing higher education	Housewife	Other	Wage Employed	Self Employed	Working in a family	Unemployed	Pursuing higher education	Housewife	Other
East	221	3	–	8	1	–	4	20	–	–	5	–	–	1
West	91	11	1	45	7	3	37	27	5	–	8	2	–	6
North	206	31	3	16	3	–	27	45	1	–	7	–	2	10
South	183	14	5	18	11	–	25	84	3	1	2	11	–	6
Total	701	59	9	87	22	3	93	176	9	1	22	13	2	23

Notes: – not available

Source: Primary Survey, NILERD, 2019

Vast majority of the ex-apprentices of NATS are in Wage/Salaried employment in the country. According to the data collected in the NILERD survey, 72 percent of male ex-apprentices and 71 percent of female ex-apprentices of NATS are wage/salaried employed. This is one of the most successful indicators which can highlight the effectiveness of the scheme. Altogether 72 percent of the ex-apprentices are got placed and are presently working. As far as unemployment is concerned, 9 percent of the male and 9 percent of the female ex-apprentices are unemployed at present. Around 6 percent of ex-apprentices are looking for employment opportunities.

Table 5.4: Region and Sector-wise Distribution of Ex-Apprentices presently in Wage/Salaried Employment

Sector of Activities	East	North	South	West
Agriculture	–	3	2	4
Construction	18	1	1	2
Electricity, Gas, Water and Sanitary Services	3	2	1	-
Mining/Quarrying	2	-	-	2
Processing/Manufacturing	76	196	174	84
Repairing Services	1	-	-	1
Storage and Communication	1	-	1	-
Transportation	-	-	5	-
Other Services	140	49	83	25
Total	241	251	267	118

Source: Primary Survey, NILERD, 2019

According to the NILERD survey, there is not much variation among the regions on activities in which the ex-apprentices are wage/salary employed. While manufacturing and IT are the core sectors absorbing majority of the ex-trainees in the three regions (Western, Northern and Southern regions), The construction sector also provided employment opportunities to the apprentices mostly in Eastern region.

Table 5.5: Distribution of Ex-Apprentices absorbed by Nature of Activities of Establishment, Social Category and Gender

Classification of Establishments by Nature of their Activities	General		SC		ST		OBC		Total		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Agriculture	7	–	2	-	-	-	-	-	9	0	9
Constructing	15		2	1			3	1	20	2	22

Electricity, Gas, Water and Sanitary Services	4	-	1	-	1	-	-	-	6	0	6
Mining/ Quarrying	3	-	-		1	-	-	-	4	0	4
Processing/ Manufacturing	206	39	52	4	7	1	180	41	445	85	530
Repairing Services	1	-	-	-	-	-	1	-	2	0	2
Storage and Communication	1	-	-	1	-	-	-	-	1	1	2
Transportation	1	-	-	-	1	-	3	-	5	0	5
Other Services	140	50	13	7		1	56	30	209	88	297
Total	378	89	70	13	10	2	243	72	701	176	877

Note: – not available   Source: Primary Survey, NILERD, 2019

In the above table if we look at the distribution of ex-apprentices by gender and social category, we observe that majority of the ex-apprentices are in manufacturing sector followed by IT services. The social category-wise data for gender highlights that there is a negligible participation of female ex-apprentices from SC and ST categories. Out of 176 wage/salaried employed female ex-apprentices only 15 are from SC and ST categories. In the case of social category-wise participation in activities majority of SC, ST and OBC are employed in the manufacturing sector whereas this number is slightly less for the general category ex-apprentices. 52 percent and 41 percent of general category ex-apprentices of both genders are placed in manufacturing and IT sector respectively.

5.5. Private Sector plays a major role in providing Employment

Out of the total respondents, about 88 percent were employed in the private sector, 11 percent in CPSUs and 1 percent in SPSUs Figure 5.4. As has been mentioned earlier, government sector is not able to absorb trainees after one year due to stringent norms of recruitment while private sector establishments mostly employ apprentices as they foresee future employees in these trainees.

Figure 5.4: Distribution of Wage/Salary Employed Ex-Apprentices by Sector of Employment
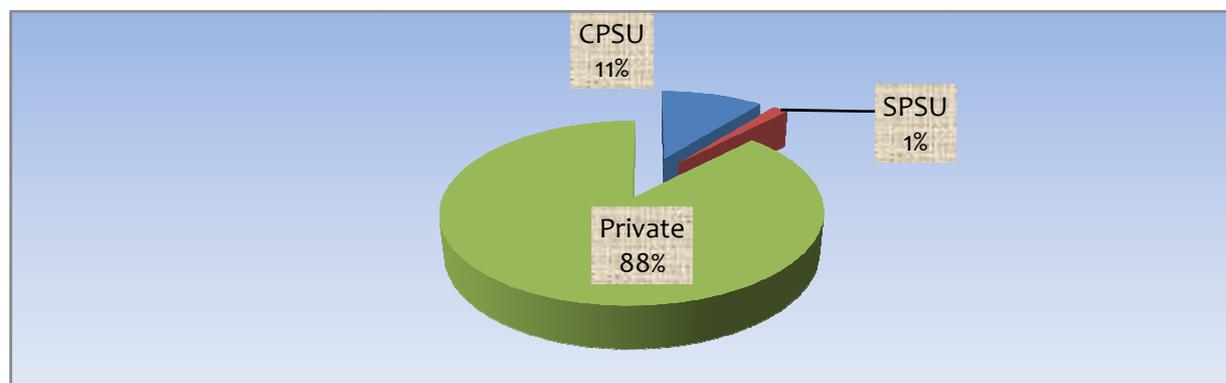
Source: Primary Survey, NILERD, 2019

Table 5.6: Region-wise Waiting Period for First Employment

Region	Less than 3 months	4-6 months	7-12 months	13-18 months	18 months & Above	Not stated	Total
East	216	11	9	1	3	23	263
North	189	22	24	14	6	96	351
South	213	65	19	7		59	363
West	113	17	11	1	2	99	243
Total	731(77.52%)	115(12.20%)	63(6.68%)	23(2.24%)	11(1.17%)	277	1220

Source: Primary Survey, NILERD, 2019

Of the 1,220 ex-apprentices surveyed, 277 (22.70%) did not state the waiting period for first employment. Of the 943 ex-apprentices who have stated the waiting period, around 77.52 percent were placed in less than 3 months of completion of apprenticeship training and 12.20 percent were placed within 6 months of training (Table 5.6). As has been mentioned above, private sector is the major employer of many of these apprentices who got placed immediately. Placement may be less in some regions due to apprentices opting for higher studies.

Table 5.7: Perception of Ex-Apprentices about Quality of Training

Indicators	Excellent	Very Good	Good	Fair	Not at All	Not stated
All India Average						
Practical Instructions	300	317	246	54	34	269
Workshop Facilities	313	338	211	38	39	281
Duration of Training	330	305	231	38	34	282
Northern Region						
	Excellent	Very Good	Good	Fair	Not at All	
Practical Instructions	77	133	88	16	2	35
Workshop Facilities	82	145	69	13	3	39
Duration of Training	116	111	69	13	1	41
Southern Region						
	Excellent	Very Good	Good	Fair	Not at All	
Practical Instructions	103	80	42	16	1	121
Workshop Facilities	97	97	33	5	1	130
Duration of Training	90	84	49	8	4	128
Eastern Region						

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	Excellent	Very Good	Good	Fair	Not at All	
Practical Instructions	41	54	57	12		99
Workshop Facilities	49	47	56	11		100
Duration of Training	43	53	62	6	2	97
Western Region						
	Excellent	Very Good	Good	Fair	Not at All	
Practical Instructions	79	50	59	10	31	14
Workshop Facilities	85	49	53	9	35	12
Duration of Training	81	57	51	11	27	16

Source: Primary Survey, NILERD, 2019

The ex-apprentices were asked to give opinion on the quality of training they received under NATS. Of the ex-trainees who responded, a vast majority rated the training as very good & above. They are highly satisfied with the practical knowledge, workshop facilities and the duration of training period under NATS. At national level, irrespective of regions the level of satisfaction is very high for all the major indicators. However, few of the ex-trainees expressed their dissatisfaction over the training they received under NATS and the duration of training. This point also emerged during the FGDs with trainees where some of the trainees suggested for an increase in the duration of training period under NATS.

Regarding increase in the duration of training, establishments mentioned that in some cases where trainees take longer time in learning there may be provision in NATS to increase the duration of training. In addition, some establishments suggested for increasing the duration of training in manufacturing segment which needs more time to learn and understand the complete process for trainees.

Table 5.8: Region-wise Perception of Ex-Apprentices on the Extent to which NATS helped in getting Employment

Region	Fully	Partially	Not at All	Not stated
East	216	17	3	27
North	238	36	2	75
South	244	74	1	44
West	138	41	15	49
Total	836(68.5)	168 (13.8)	21(1.72)	195(16.0)

Source: Primary Survey, NILERD, 2019

Table 5.8 above illustrates the usefulness of NATS for employment. Vast majority of the respondents expressed high gratitude towards NATS. As per the primary survey results conducted by NILERD, 68 percent of the ex-apprentices felt that NATS was highly useful in getting employment opportunity after the completion of training. Another 14 percent of the ex-apprentices felt that NATS was partially useful in getting employment opportunities. More candidates from the southern region followed by Western region are representing the category of partially helpful in getting employment opportunities. Around 1.72 percent ex-apprentices expressed complete dissatisfaction about the usefulness of the scheme. They felt that the scheme was not at all useful in getting employment. Most of the ex-trainees from the Western region fall in this category. About 16 percent of the ex-apprentices did not respond on this issue.

Table 5.9: Region-wise Opinion of Ex-Apprentices on Percent of Skills acquired

Region	At the time of joining (%)				At the time of completion (%)			
	0 - 25	25 - 50	50 - 75	75+	0 - 25	25 - 50	50 - 75	75+
East	32	140	26	3	0	2	61	140
West	77	98	45	7	1	4	93	126
North	106	152	27	1	0	6	127	137
South	40	136	61	32	0	1	55	208
Total	255	526	159	43	1	13	336	611

Source: Primary Survey, NILERD, 2019

The level of skill acquisition before and after NATS was also assessed from the ex-apprentices. As like other indicators in which there was a positive reporting about NATS, in the case of skill acquisition towards the end of NATS, huge numbers of ex-apprentices expressed high satisfaction. Majority of the trainees expressed their views that their level of skills was upgraded only after joining the NATS. Irrespective of region, the level of skill acquisition improved to a great extent due to NATS. The primary survey revealed that majority of the respondents fell into the category of skill acquisition of more than 75 percent, while at the time of joining NATS majority expressed their level of skills at 25-50 percent. The Skill Development achieved through NATS is explicitly visible in all the regions. The employability and opportunities in the labour market have improved for NATS trainees.

Majority of the trainees felt that the stipend amount may be enhanced. Besides BOAT has to widely canvass the positive aspects of this stipend and educate the outgoing/final year students of Institutes to perceive the stipend as an honorarium or incentive towards training to learn new things and for personal development. Though the stipend has been revised but it is not yet as approved by MHRD (as informed by regional Boards). In the case of timely disbursal of stipend, almost all trainees expressed their satisfaction that they are receiving the stipends on time. This issue may be linked to the establishments' views in the earlier chapter.

On-roll Trainees

The present evaluation tried to gather information from trainees who were undergoing training in the establishments under NATS. 1,176 on-roll trainees across all the regions were interviewed during the survey. An effort was made to cover all diversities such as gender, branch, type of industry, for a careful analysis of the outcome of responses. Perception of trainees on various aspects such as usefulness of training, reasons for joining the training, adequacy of training facilities in the establishment etc. was obtained which has been documented below:

It emerged from the NILERD survey that 52 percent of the trainees surveyed belonged to private sector, followed by CPSUs (42 percent) and SPSUs (6 percent).

Table 5.10: Distribution of On-roll Trainees by Sector and Region

Region	CPSU	SPSU	Private
East	45.57	4.43	50.00
North	50.70	0.47	48.84
South	21.35	17.44	61.21
West	38.04	14.13	47.83
Total	42.01	6.12	51.87

Source: Primary Survey, NILERD, 2019

Region wise distribution of on roll trainees is presented in figure 5.5 below:

Figure 5.5: Distribution of On-roll Trainees by Region

Source: Primary Survey, NILERD, 2019

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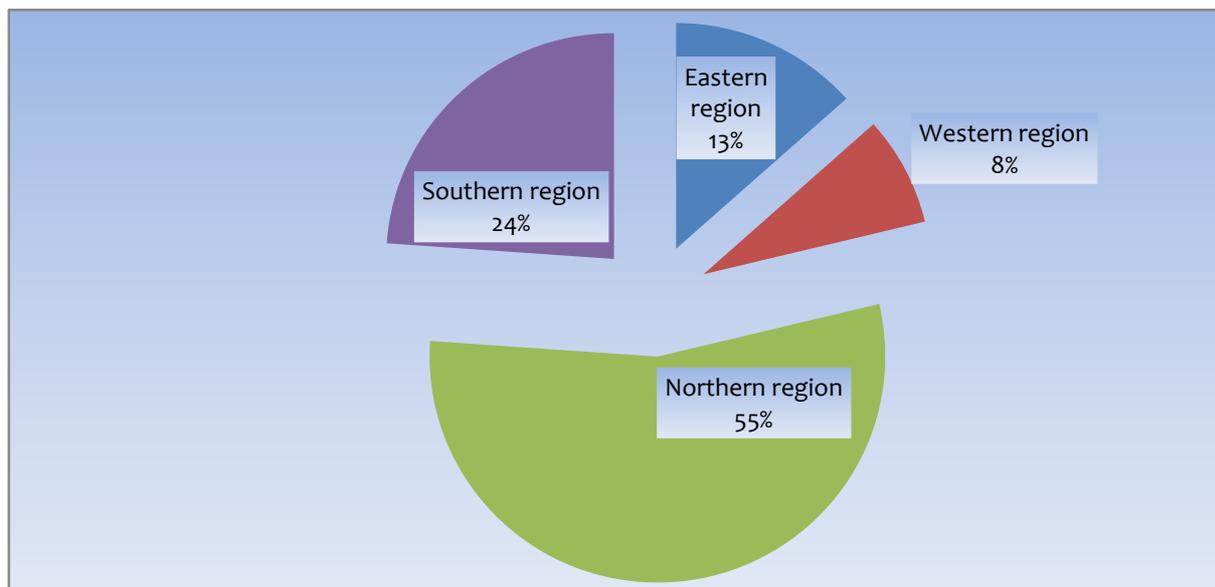
The NILERD survey revealed that participation of women trainees is very less. Across the country only 19 percent of the all candidates undergoing training out of the total 1,176 trainees covered were women When region wise participation of women was examined it emerged that highest participation of females was in Southern region followed by Western region. Participation of women was low in Northern and Eastern regions. The results are depicted in table 5.11and figure 5.6.

Table 5.11: Distribution of On-roll Trainees by Gender and Region

Region	Male	Female	Total
East	(84) 133	(16) 25	158
North	(85) 547	(15) 98	645
South	(71) 199	(29) 82	281
West	(79) 73	(21) 19	92
Total	(81) 952	(19) 224	1176

Source: Primary Survey, NILERD, 2019

\# figures in brackets are percentages

Figure 5.6: Distribution of On-roll Trainees by Gender
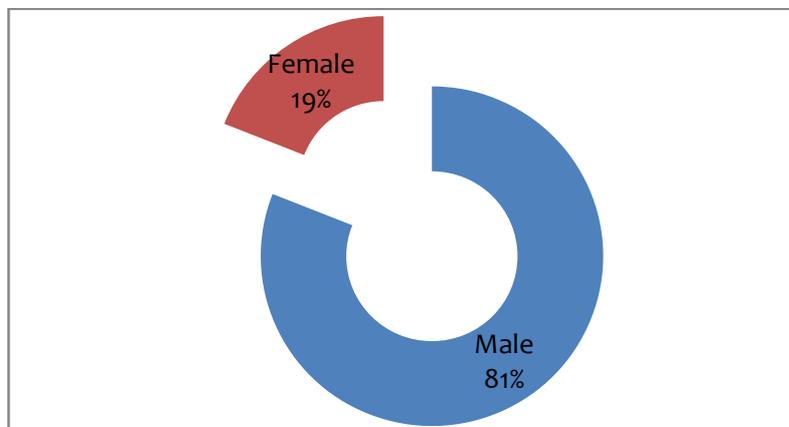
Source: Primary Survey, NILERD, 2019

Distribution of on-roll trainees according to social category and sector of engagement is presented below in Table 5.12 and figure 5.7. It depicts that 27 percent of trainees in CPSUs were SC, while it was only 6 percent in state owned establishments. Private sector constituted 9 percent of SC candidates. It was observed in the survey that representation of SC/ST categories trainees was far below the other categories.

Table 5.12: On-roll Trainees by Sector and Social Category

Regions	CPSUs				SPSUs				Private			
	General	SC	ST	OBC	General	SC	ST	OBC	General	SC	ST	OBC
East	23	7	11	31	4	1	-	2	46	5	-	28
West	9	5	4	17	7	1	1	4	26	1	-	17
North	114	108	14	91	1	-	-	2	134	40	1	140
South	16	15	1	28	17	2	-	30	62	10	-	100
Total	162 (32.79)	135 (27)	30 (6.0)	167 (33.8)	29 (40)	4 (5.55)	1 (1.38)	38 (52.7)	268 (43.9)	56 (9.2)	1 (0.16)	285 (46.7)

Source: Primary Survey, NILERD, 2019 Figures in brackets are percentage to total

igure 5.7: Distribution of On-roll Trainees by Social Category
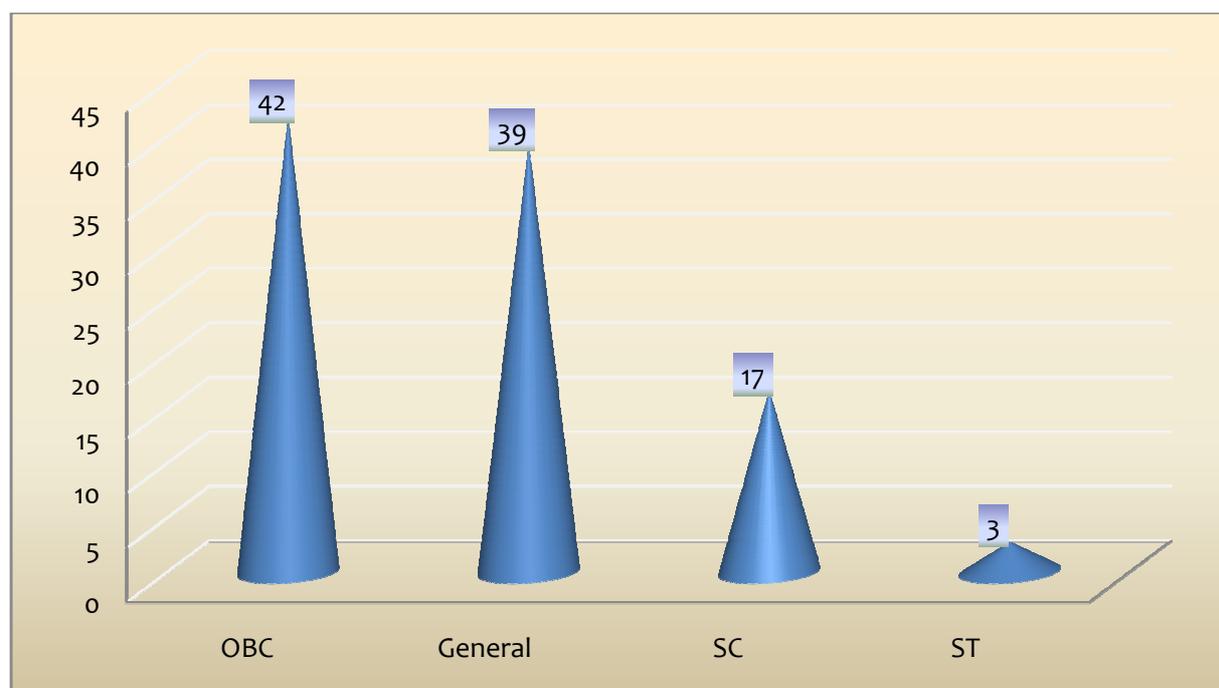
Source: Primary Survey, NILERD, 2019

Usefulness of NATS Training

The perception of on-roll trainees was sought on usefulness of NATS training for employment. About 93 percent of trainees viewed that the training will be useful to them. Out of the remaining 7 percent of the respondents, only 1 percent felt that it may not be useful.(Table 5.13)This is a reflection on the quality of training imparted and its role in skill formation of youth in the country.

As India has to go a long way in skill formation, NATS needs to be expanded by bringing more establishments under the umbrella of this scheme. To encourage the establishments to come forward in a big way, certain facilities such as tax exemption may be provided on the stipend given by establishments during the one-year of training (as emerged during FGD).

Table 5.13: Perception of Trainees on usefulness of Training

Region	Very Useful	Useful	Not Useful	Not stated
East	30.38	60.13	2.53	6.96
West	59.78	31.52	4.35	4.35
North	42.17	50.23	1.09	6.51
South	47.69	49.11	0.71	2.49
All India Average	43.28	49.83	1.45	5.44

Source: Primary Survey, NILERD 2019

Table 5.14 depicts the perception of trainees on NATS regarding filling the Skill Gap of College Education. About 85 percent of trainees revealed that this training helps them in filling the skill gap of educational institutes.

Table 5.14: Perception of Trainees on NATS as filling the Skill Gap of College Education

Region	Yes	No	Not stated
East	78.48	13.29	8.23
West	91.30	2.17	6.52
North	83.10	8.22	8.68
South	91.81	4.63	3.56
All India Average	85.20	7.57	7.23

Source: Primary Survey, NILERD 2019

Outcome of FGD

Training Aspects

1. Vast majority of the pass-outs and on-roll NATS trainees are of the view that, there is a need for better practical exposure during the academic course. Practical training should be given priority during the course rather than the theoretical knowledge alone. Better industry-institution linkages may be emphasized for updated practical exposures in the field.

2. Few students reported that due to lack of training avenues in their subject field they have taken up apprentice training in a different subject field. They proposed that seats allotted to subject fields should be in line with the demand of the industry.

3. An opportunity for switching between organizations should be provided to the Apprentices if they have a better opportunity.

Recruitment/Absorption

4. Majority of passed-out trainees expressed that there should be some marks/weightage accorded to them in recruitment of State/Central Government. At present, no such preference is given to NATS trainees in recruitment process by Government.

5. The Contractors and Outsourced agencies which are providing manpower services to the State Governments should be directed to employ the ATS trainees while providing manpower to State Government departments especially in professional fields like, Electricity, Transport etc. If it is made compulsory to hire ATS trainees, it will benefit both the State Government departments and also the trainees – An amendment at State level is required for the purpose.

Stipend

6. Many students expressed dissatisfaction over the stipend amount especially those who were staying away from their home and had to manage within the limited financial resources.

7. It also emerged that majority of students felt that the stipend may be linked with the minimum wage prevailing in each State for the skilled workers in different categories of cities.

Registration

8. Many trainees did not know about the scheme when in college and felt that there is a need to create more awareness about NATS among the students. It emerged that awareness generation programme of the scheme may be expanded at college level to help increase its outreach.

9. Majority of students found the registration process simple.

10. Many students felt that in case they move from one industry to other the experience/time of training in the first industry should be counted in other industry also.

11. Trainees expressed concern regarding the time gap between their results and award of their degrees – as they cannot register without degrees they lose a year. They suggested that NATS should accept a letter from their institution along with the mark sheets for the purpose of registration.

Employment

12. It emerged that the training is very good as it imparts skills among the trainees and makes them employable. Some trainees are absorbed in the establishments themselves but for most trainees there is a time lag between completion of training and finding a job.

Country's demographic structure is skewed in favour of youth that may be groomed to reap demographic dividend, if properly skilled. As per the Census of India, and United Nations Population Division, 64% and 63.5% of the country's total population will be under the age category of 15 years to 59 years in 2021 and 2020 respectively. This indicates that large number of young population will be entering labour market every year. Hence, in order to exploit this demographic advantage in the future, there is a need to create a skilled human resource pool.

However, the need of the hour is to find these pockets and scale them up to make an exponential impact on employability. This is crucial for India to continue its growth story and achieve the Prime Minister's vision of India becoming the human resource provider for the whole world (Aspiring Minds, 2016).

In this scenario, as primary survey conducted by NILERD reveals that NATs is a very useful scheme that provides on-the-job skills and improves employability. The scheme not only needs to be continued further but also may be expanded to increase its outreach by bringing more and more establishments and trainees in its ambit. Regional offices are the implementing agencies of this scheme at All India level; hence these need to be strengthened by opening up of their sub-offices at state level.

CHAPTER -VI

Educational Institutions: A Supply Side Perspective

In the present context of globalization the demand for skilled and multi-skilled workers has increased manifold and posed skill challenges for developing countries like India. Therefore, as mentioned earlier, there is a critical need for qualitative skill development and training. It has long been felt that there is a necessity to align technical and higher education with the emerging needs of the economy so as to ensure that the graduates of higher education system have adequate knowledge and skills for employment and entrepreneurship. The higher education system has to incorporate the requirements of various industries in its curriculum in an innovative and flexible manner while developing a work-ready and well-groomed graduate.

India's engineering and technical institutions comprise of mainly two segments, i.e., Engineering Colleges/Institutes of Technology and Polytechnics that are offering degree and diploma courses respectively. There has been a mushrooming of these Institutes for the past few decades. These institutions lack quality education in terms of faculty as well as required infrastructure of technical education. Industrial collaboration was also very limited. This leads to deterioration in the quality of graduates. In this scenario it becomes essential to provide on-the-job training to groom the fresh pass-outs with employable skills.

With this background the study made an effort to know the view points of these Institutes. Placement of technical graduates is an important component when one joins technical education. Parents and pupil both have high aspirations. During the survey conducted by NILERD, it was found that about 97 percent of educational Institutes had placement cell in their respective colleges and 62.50 percent expressed that they had collaboration with industries for placement and industrial training. It is noteworthy that, at all India level 85 percent knew about NATS.

Table 6.1: Region-wise Details of Collaboration with Industry and Awareness about NATS

Indicators	Yes	No
Percentage of Institutes having Placement Cell	96.88	3.13
Percentage of Institutes having Collaboration with Industry	62.50	37.50
Percentage of Institutes where students are aware about NATS	84.38	15.63

Source: Primary Survey, NILERD, 2019

As we are aware, the Indian education system put maximum emphasis on theoretical aspects. Mostly, the curriculum does not cover components of employable skills nor is there any option to introduce students to different vocations. This has also been brought out by the trainees who mentioned that their practical skills are below 25 percent level (discussed in the previous chapter). Certain top end educational institutions have good exposure but their presence in our system is limited and only top layer of students get admission in these Institutes. The remaining do not include the component of skilling in their curriculum.

It is observed that the country has a federal system and thus different curricula. It has also been observed that an individual pursuing mainstream education enjoys a glorified status. NATS is considered the last option or a stop-gap arrangement till not getting job or in case preparing for higher education till not getting admission. This issue has to be resolved in the educational institution itself by motivating the youth and informing them about the advantages of hand-on training.

As regards the contents of teaching, 53 percent of the Institutes informed that they are fully satisfied with the course content in the colleges. It is pertinent to note here that a large number of institutions, about 47 percent, were not satisfied with the course curriculum.

When these Institutes were asked about their opinion regarding NATS' bridging the gap between College Education and Industry Requirement, 69 percent opined that it bridges the gap partially while 13 percent said that it is fully taking care of the gap left at educational Institutes.

FGDs were also conducted with representatives of the educational Institutes comprising Degree, Diploma and sandwich courses. The outcome/issues/suggestions are documented below.

Outcome of FGDs:

1. The institutions felt that there is a need to evolve some system whereby trainees need approval of TPOs of their institution before they get approval for acceptance in the industry.

2. Institutes do not get information like names of the students who have completed registration and who have got placement. Feedback of trainees may be shared with institutions vide BOAT office or by establishments.

3. Institutions may develop a system of alumni as it plays a crucial role in developing network and generating information system, which may help the next generation.

4. Almost all the on-roll trainees were confident in getting better employment opportunities after completion of the one-year apprenticeship.

5. Job-oriented courses like printing technology, photography, multi-media should be introduced in the curriculum.

6. Many institutions visit industries to assess their demand for skills. They then introduce courses in required skills.

7. Many state governments have introduced community colleges but NATS portal does not have provision to register students of these colleges. This should be urgently looked into.

Other Schemes

➢ Under NATS, in comparison with ITIs, category-wise turn-up ratio is lesser and the dropout rate is high as NATS training is mostly treated by the students as a waiting pd option before employment.

➢ It was suggested that district-wise officers may be appointed for NATS just like in the case of ITI trainees/NAPS for better coordination.

Given the present system of education where focus is more on bookish knowledge, NATS is providing extra-mile skills to the pass-outs through the establishments.

CHAPTER - VII

Major Findings and Recommendations

The National Apprenticeship Training Scheme has evolved with a purpose of preparing last mile skilling of technical and skilled personnel passing out of Technical Institutions. Through one year of practical training under NATS the graduates enter into labour market with industry-ready/work-ready/job-ready attributes. However, there are varied signals coming out from the labour market about the employment prospects of such NATS-trained graduates. Based on the extensive field survey supported by empirical evidences collected during the survey and rigorous analysis of data, the present study has come out with various findings. The ongoing chapter summarises the major findings of the study as below:

Salient Findings: **Employment:**
- Survey results reveal that overall about 79 percent of the trainees were employed. This includes 73 percent of wage employment and 6 percent self employments.
- Out of the total respondents, about 88 percent were employed in the private sector.

Bridging Skill Gap :

- Large percentage of establishments surveyed (41% of CPSUs, 47% of SPSUs and 56% of Private establishments) strongly felt that after one-year of NATS training and exposure apprentices are fit for absorption

- About 37% felt that NATS provides last mile repair i.e. adds to skills required for employability; 27% establishments felt that NATS provides interventional repair i.e it provides re-skilling in some areas needed for labour market; and 54% felt that NATS fills the structural gap i.e. it adds to altogether new learning in terms of theoretical/analytical/practical skills.

- About 85 percent apprentices who were currently undergoing training feel that this training helps in filling the skill gap between mainly the practical knowledge obtained at technical educational institutes.

- About 69 percent of educational institutions were of the opinion that NATS bridges the gap partially between College education and Industry Requirement while 13 percent opined that NATS I fills in the gap left at educational Institute fully

Efficiency and productivity:

- Overall 69 percent of establishments viewed that apprentices help the establishment in meeting the shortage of manpower. Many establishments put the trainees on actual job after 3 to 4 months of joining the training hence apprentices have positive impact on the productivity of the establishment.

- About 71 percent of establishments are giving higher stipend than the one specified by the Government.

✓ 1,220 ex-apprentices and 1,176 on-roll trainees across all the regions and 339 establishments were interviewed during the survey.

✓ 68 percent of the ex-apprentices feel that NATS was highly useful to get the employment opportunity after the completion of training under NATS. Another 14 percent of the ex-apprentices feel that NATS was partially useful to get the employment opportunities after completion of training under NATS.

✓ About 93 percent of on-roll trainees viewed that the training will be very useful to get employment opportunity. Out of the remaining 7 percent of the respondents, only 1 percent felt that it may not be useful.

✓ Vast majority of the ex-apprentices of NATS are working in Wage/Salaried employment in the country. 72 percent of male and 71 percent of female ex-apprentices of NATS are wage/salaried employed at present. This is one of the most successful indicators that highlight the effectiveness of the scheme.

✓ There is not much variations among the regions on activities in which the ex-apprentices are wage//salaried employed. Manufacturing and IT sector industries are the core sectors which absorb majority of the ex-trainees in the three regions (Western, Northern and Southern regions). Out of the total respondents, about 88 percent were employed in private sector, 11 percent were in CPSUs, 1 percent was in SPSUs .About 66 percent of the surveyed establishments have an employment size of more than 500, followed by 28 percent of the employment size of 100 to 499 and 6 percent of establishments having the employment size of below 100 employees.

✓ It has been observed that utilization of seats in the Western region was highest and it was more than the seating capacity identified. This reflects that establishments are also getting benefit from the scheme and are willing to take more trainees. Analysis of survey data reveals that overall utilization of seats by establishments has decreased from about 106

percent during 2015-16 to about 87 percent during 2017-18. This may be attributed to the web portal which has recently been launched and does not allow establishments to register before clearance of stipend. This fact was also substantiated during the brainstorming/focus group discussions (FGD) by the study team of NILERD.

✓ Data in the case of Central sector establishments reveals that utilization of seats for engaging trainees under NATS as a percentage of the seating capacity has been more than 100 percent in Eastern and Western regions during 2016-17 and 2017-18. In the other two regions also it has been more than 70 percent. During FGD many trainees expressed their preference for CPSUs as they felt it will give better weightage to their training.

✓ The seat utilization as percentage of seats allocated ranged between 51 to 71 percent in case of state owned establishments during the last three years. This was lower than the other two sectors.

✓ In private sector establishments the seat utilization at all India level is more than 100 percent for two years (2015-16 and 2016-17) and 88 percent for 2017-18. Private sector establishments revealed during FGD that they are willing to take more trainees. It was also highlighted that they recruit large number of trainees but many of them either do not join or leave in between. This leads to wastage of their time and efforts. Most of the time the reason for leaving/not joining is employment opportunities or getting admission for pursuing higher study.

✓ It also emerged during the FGDs that many establishments put the trainees on actual job after 3 to 4 months of their joining the training hence, apprentices have positive impact on the productivity of the establishments.

✓ There is a dedicated human resources exclusively devoted to the trainees in CPSUs and SPSUs and large scale establishments since every year huge contingent of trainees would be enrolling not only for NATS but for CTS also. Therefore, they have excellent facilities for training and transfer of skills to the trainees.

✓ It emerged that about 46 to 62 percent of trainees were absorbed in the same establishment in various regions. These were mainly privately owned establishments. When absorption of Graduates and technicians is compared in the same establishment it is found that absorption rate is higher among the graduate engineers. Central and State sector units did not absorb trainees immediately as their recruitment norms are different.

✓ Around 87 percent (181 out of 209) of the surveyed private sector establishments are absorbing the NATS trainees after completion of their training.

- ✓ Among these 181 establishments which are retaining/absorbing the apprentices, 21 (12 percent) have taken more than 500 trainees annually during the last three years. Another 9 establishments are taking between 301 and 500 apprentices per annum during the last three years. 24 establishments (13 percent) are retaining/absorbing the trainees between 101 to 300 apprentices per annum during the reference period. Majority (70 percent) of the establishments are hiring around 100 ex-apprentices per year.

- ✓ Large numbers of IT sector establishments are absorbing/retaining more number of ATS apprentices.

- ✓ Manufacturing industries are also retaining the talent (Ex-apprentices) as per their performance during the apprenticeship period.

- ✓ The establishments highlighted this fact also that after one year of successful completion of this training, NATS pass-outs are employable in other similar establishments as well.

- ✓ Some small scale establishments informed during the brainstorming session that they are providing employment to 70-80 percent of their trainees. Hence, it is clear that NATS is a beneficial scheme and may be expanded by bringing more and more establishments under its umbrella. Changing economic structures and new technologies in a globalized world require 'quality' apprenticeship systems and core skills training to enable youth to be employable.

- ✓ The establishments opined that all the trainees are suitable to be molded to their working and competency levels, irrespective of the trainees' academic background. Only negligible number of establishments opined that the trainees are not fit. However, majority of them felt that the trainees are either fully fit or fit enough for the work to be accomplished.

- ✓ We have surveyed large number of establishments, i.e., 41% of CPSUs, 47% of SPSUs and 56 percent of have strongly felt that the trainees after one-year NATS training and exposure are fit enough for absorption.

- ✓ It has been observed that there is a shortfall in the potential trainees coming forward for NATS. Some of the reasons for this as highlighted by the regional offices were: no job guarantee after completion of training, low stipend – as cost of living in the cities is high, delayed reimbursement of stipend by MHRD and non-availability of training in the nearby areas. It has been observed that the four regional Boards are functions as per the requirement i.e. they are implementing the scheme in respect of the Engineering

Graduate, Technician, and students of sandwich courses. It is due to their efforts that overall seat utilization under NATS is increasing for the last few years

✓ Looking at the impact of NATS on skill development, it was observed that out of 278 establishments who responded, 102 felt that NATS provides last mile skill repair i.e., it adds to extra skills required for employability. 76 establishments observed that NATS provides interventional repair i.e., re-skilling in some areas as demanded in the labour market. It is pertinent to mention here that maximum number of establishments (150) felt that NATS fills the structural gap i.e., it adds to altogether new learning in terms of theoretical/analytical/practical skills.

✓ Our interactions with the representatives of different educational institutions on their opinions regarding NATS' bridging the gap between College Education and Industry Requirement, 69 percent opined that it bridges the gap partially while 13 percent said that the scheme is fully taking care of the gap left at the part of educational Institutes.

Direct involvement in the production processes gives the trainees an opportunity to mingle with different skilled personnel very closely. This enables them to learn the practical skills and skills of the trade directly and intensively. Almost 80% of the private firms are engaging trainees in production processes. Therefore, private sector is preferred for skill enhancement of young trainees. In the case of CPSUs only 4 out of 6 firms give this opportunity to trainees.

✓ On the compliance of the act, our interaction with the representatives of different establishments during the brainstorming session at different regional BOAT offices revels that there are no violations of guidelines and the establishments are satisfied with the present arrangements. The operational framework of NATS is conducive to all the stakeholders of implementation. After computerization and centralized allotment of trainees the system has become very convenient and transparent. Handling of NATS records is now easier. However, there were few small problems related to technicalities of on-line registration etc.

✓ All Establishments have expressed their satisfaction towards the method of selection of apprentices. Irrespective of types of units, all opined that the current procedure of identification of candidates/apprentices is full-proof and satisfactory.

✓ NATS has also started Post Apprentices Permanent Employment (PAPE) module for the balance 20% trained apprentices who are not employed immediately after successful completion of apprenticeship training. This is a welcome initiative. The design of PAPE is robust to factor in industry requirement as well as student requirement. In order that PAPE gets more vigorously integrated with NATS and awareness about the same is

spread among Tier II and Tier III engineering colleges, there is a need to fund the development of PAPE module within the NATS.

✓ Regarding the stipend issue, it is very clear from our survey that, about 71 percent of establishments are giving higher stipend than what is specified by the Government. Out of the total establishments, majority fall under private sector. This again highlights the establishments' views on the usefulness of the scheme.

✓ In this context a survey of the Mapping of Central Sector Schemes and Ministries of Government of India for SDGs done by the NITI Aayog (2018a) suggests that skill development has direct 'relevance' for the four major SDGs specially – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all and by 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

✓ The outputs/outcomes of the scheme are assessed in this study in terms of the seat utilization, the increase in productivity of the establishments, and enhancement of skills and employment prospects of trainees. The survey results reflect that the scheme provides skill enhancement and employability, as 73 percent of ex-apprentices surveyed were wage employed. NATS is found to be an input-efficient scheme as reflected in the NILERD study.

Recommendations

✓ About 79% of apprentices are able to secure job after completing Apprentices Training (either in the same industry or in other industry. It depicts that the scheme is fulfilling its designed objective of making technical manpower employable and providing them desired jobs. Hence, the budgetary allocation may be increased / released fully and the outreach of the scheme may be expanded.
✓ Educational Institutes may also be brought directly into the loop of this scheme who will inform outgoing students. This will further enhance the outreach of this scheme.

✓ On the one hand, there is a Trade Apprenticeship Training for non-technical category (run by the Ministry of Skill Development and Entrepreneurship) and on the other there is an apprenticeship training for students below class 12 levels. Each one of these training scheme caters to different segments of students wherein the corresponding student population have different knowledge set, skill sets and expectation level. Merger of all these ominous categories of apprenticeship will lose the differentiated focus and strategic emphasis needed for training on various skill deficiencies among the students. For example, the emphasis under NAPS for under-12 class students is more on giving a raw

hand to some practical skills wherein the academic qualification is not a necessary precondition for mastering the skills. On the other hand, under NATS the apprentice are technical graduates and diploma holders primarily with theoretical knowledge acquired during engineering education NATS is a scheme which builds practical knowledge. Hence, NATS should continue as a Stand-alone apprenticeship training programme so that its differential focus and market expectation are perfectly jelled.

It is very clear from the findings of our study that the National Apprenticeship Scheme is very beneficial for the industry and apprentices. It helps in meeting the shortage of skilled human resource and provides current and future pool of human resource to the labour market. The scheme is unique as it is meant for technical personnel. It contributes to higher productivity of the establishment by supplying medium and higher level of industrially trained technical resource.
National Apprenticeship Training Scheme (NATs) should continue with revised stipend rates approved vide Gazette Notification dated 25th September, 2019.

The study suggests that the scheme may be expanded and more and more trainees in the existing/newer fields may be included under its ambit. The need of the hour is to utilize the available resources of the industry for skilling our young graduates by giving them on-the-job training and making them employable. This will solve the problem of skill shortage on the one hand and employability of our technical graduates on the other.

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